3GPP TSG CN Plenary Meeting #13 **NP-010607**
Kyoto, JAPAN, 12th -14th December 2001

Source: TSG CN WG4

Title: LSs after CN#13

Agenda item: 6.4.1

Document for: Information

Introduction:

This document contains 14 LSs that have been agreed by TSG CN WG4 after CN#13, and are forwarded to TSG CN Plenary meeting #14 for information.

TDOC N4-00xxxx	Subject	To	Cc	Attachment	Sent
N4-011195	Liaison Statement on PDP Context handling at Inter SGSN RA Update	SA2	CN1, SA1	N4-011171	22th Oct.
N4-011196	Liaison Statement on handling of AMR-WB in Core Networks	SA4			22th Oct.
N4-011199	Liaison Statement on AMR-WB and Legal Interception	SA3 LI		N4-011057	22th Oct.
N4-011205	Reply Liaison Statement On the use of Network Domain Security for protection of SIP signalling messages	SA3	SA2, CN1		22th Oct.
N4-011206	Reply to Liaison Statement on Usage of Private ID	CN1	SA1, SA2, SA3, SA5		22th Oct.
N4-011212	Liaison Statement on AMR-WB and Charging	SA5		N4-011057	22th Oct.
N4-011217	LS On the handling of the Protocol Configuration Options IE	CN1			18th Oct.
N4-011222	Reply Liaison Statement on Unique GGSN address	SA2, SA5	CN2	N4-011220, N4-011221	22th Oct.
N4-011234	Liason Statement On RANAP Indication Of Modify Support Of Link Characteristics	RAN3		N4-011076, N4-011077	22th Oct.
N4-011235	Selection of S-CSCF by I-CSCF based on capability requirements	SA2, SA5	CN1, SA2		22th Oct.
N4-011383	Liaison Statement reply on Subscriber and Equipment Trace (TS 32.108)	SA5 SWG_B			2nd Dec.
N4-011406	Liaison Statement on Cx User Profile	GUP			2nd Dec.
N4-011422	LS to SA2 on Supported LCS Capability Set	SA2	CN1		2nd Dec.
N4-011449	Proposed LS to SA3 on MAP sec error handling	SA3			2nd Dec.

3GPP TSG-CN-WG4 Meeting #10 ***N4-011057***
Brighton, UK, 15th - 19th October 2001

Source:	CN4 chairman
Title:	Work Item Description: Introduction of AMR-WB speech service in 3GPP Standards Release 5 – Core Network Aspects
Agenda item:	**6.3**
Document for:	INFORMATION

The attached Work Item Description in document NP-010538 was approved by CN #13. The work item shows the need for work in CN4. It is presented to this meeting for information.

3GPP TSG-CN-WG4 Meeting #10 ***N4-011057***
Brighton, UK, 15th - 19th October 2001

Source:	CN4 chairman
Title:	Work Item Description: Introduction of AMR-WB speech service in 3GPP Standards Release 5 – Core Network Aspects
Agenda item:	**6.3**
Document for:	INFORMATION

The attached Work Item Description in document NP-010538 was approved by CN #13. The work item shows the need for work in CN4. It is presented to this meeting for information.

3GPP TSG-CN-WG4 Meeting #10 ***N4-011065***
Brighton, UK, 15th - 19th October 2001

Source: Siemens AG, Ericsson LM

Title: S-CSCF selection related information

Agenda item: CSCF

Document for: Discussion and decision

Introduction

This contribution analyses the procedures related to Serving-CSCF assignment described in TS 23.228 section 5.1.2. Its goal is to derive a definition for the S-CSCF capabilities Information Element which is sent over the Cx interface.

Discussion

Information to be transferred between the CSCF and the HSS

TS 23.228 defines the information needed in the selection of the S-CSCF. The following information is provided by HSS:

1. Required capabilities for subscriber services
2. Operator preference on a per-user basis

CSCF capability information

One of the major reasons of selection an S-CSCF for the user, besides load sharing, is that different S-CSCFs may have different capabilities.

These capabilities are related to the capabilities for subscriber services.

It is the operator who defines the set of capabilities. This cannot be standardized since it will change by operator and over time. Operators could use this mechanism, for example, to categorize users into groups depending on the usage, and have the S-CSCF configured to only access certain type of services based upon the type of subscribers.

$C_O = \{C1 \ldots Cn\}$

The S-CSCFs will each have a set of capabilities supported.

$C_{CSCFi} = \{Cx \ldots Cy\}; x,y <= n$

On the other hand the service profile of a user will require another set of capabilities.

$SP_k = \{Cp \ldots Cq\}; p,q <= n$

An S-$CSCF_i$ can serve a user k with a service profile SP_k , if SP_k is a subset of the supported capabilities by this S-CSCF.

The required set of capabilities could be sent from HSS to I-CSCF by enumerating which capabilities are required.

Example: SP = {2, 5, 13, 17}.

Notes:

- These numbers have to be administered by the operator.

- This information was originally sent in the Cx_select_pull_resp mesage, now put together with Cx_query_resp or Cx_location_query_resp.

Operator preference on a per-user basis

It is beneficial to allow the steering of some users to certain S-CSCFs without standardizing the exact meaning of what for (e.g. all the users belonging to the same company/group could be in the same S-CSCF to implement a VPN service).

For this reason an optional, operator configured, set of S-CSCFs assigned per user may be loaded from HSS to I-CSCF.

This could be accommodated in an optional Operator Preferred S-CSCF Name Information Element that may contain multiple S-CSCF names. This IE would be allowed in Cx_query_resp and Cx_location_query_resp messages.

Proposal

To adopt the above concept as an approach to define the S-CSCF selection related information sent from HSS to S_CSCF and to add definition to 29.228 and the necessary data type to 29.229.

Addition to 29.228, S-CSCF Capabilities

The S-CSCF Capabilities information element carries information to assist the I-CSCF during the process of selecting an S-CSCF for a certain user.

The contents of such IE shall allow operators to distribute users in S-CSCFs attending to criteria defined by each operator depending on the different features, role, etc. that each S-CSCF may have. The I-CSCF shall match the required criteria to the features of each S-CSCF of which it has knowledge. The policy about the type of matching (e.g. “all criteria required”) and the behaviour of the I-CSCF depending on the possible results of such matching is an operator issue, out of the scope of this specification.

It is FFS how the I-CSCF should behave when it cannot determine an S-CSCF.

Also it shall be possible the steering or users to certain S-CSCFs, being an operator issue the exact meaning of what for (e.g. all the users belonging to the same company/group could be in the same S-CSCF to implement a VPN service).

Additions to 29.229

Server-Capabilities AVP (replaces Server-Capability AVP)

The Server-Capabilities AVP (ABP Code TBD) is of type Grouped. This AVP contains information to assist the I-CSCF in the selection of an S-CSCF.

AVP format

```
Server-Capabilities ::= <AVP header: TBD>
                        *[Capability]
                        *[Server-Name]
```

Capability AVP (new)

The Capability AVP (AVP Code TBD) is of type Unsigned32. The value included in this AVP can be used to represent a determined capability of an S-CSCF. The exact meaning of each value is an operator issue.

The Server-Name AVP is already defined in 29.229.

References

[1] TS 23.228; IP Multimedia (IM) Subsystem - Stage 2
[2] TS 29.228; IP Multimedia (IM) Subsystem Cx Interface; Signaling flows and message contents
[3] TS 29.229; Cx interface based on the Diameter protocol; protocol details

3GPP TSG-CN-WG4 Meeting #09 ***N4-011076***
Brighton, UK, 15th - 19th October 2001

Source:	LM Ericsson
Title:	Problems With RAB Assignment Modification
Agenda item:	7.3
Document for:	Approval

Introduction

The current handling of RAB Assignment Modification is faulty when AAL2 CS1 is used or CS2 used but does not support MSLC (Modify Support For Link Characteristics). If MSLC is not supported between the RNC and the MGW and a RAB Modification is requested then the Transport would be released and then re-seized. This does not allow coordination between the change of the transport connection and the Bearer Properties of the MGW termination.

It is desired to be able in such case to reserve a new termination prior to attempting RAB modification and request that the transport is moved to this new termination.

The current RANAP specification is unclear in its handling of the Transport Association & Transport Address during RAB modification. The specification states:

At a RAB modification, it is up to the RNC to decide if any transport network control plane signalling shall be performed or if the already existing transport bearer shall be used. If the RNC decides to establish a new transport bearer, the transport network control plane signalling shall use the possibly included Transport Layer Address IE and Iu Transport Association IE. Then the switch over to this new transport bearer shall be done immediately after transport bearer establishment and initialisation of the user plane mode. If the RNC decides to modify the already existing transport bearer, the transport network control plane signalling shall not use the possibly included Transport Layer Address IE and Iu Transport Association IE. That is, re-binding with Iu Transport Association IE shall not be done.

It is not clear in this procedure when the MSC server shall provide a new Transport Address or Transport Association and when this is not needed. It is believed that this text is written in this manner in order to allow for the introduction of MSLC in future RNC implementations. It is however clear that this provides the CN with a problem.

Analysis Of Problem

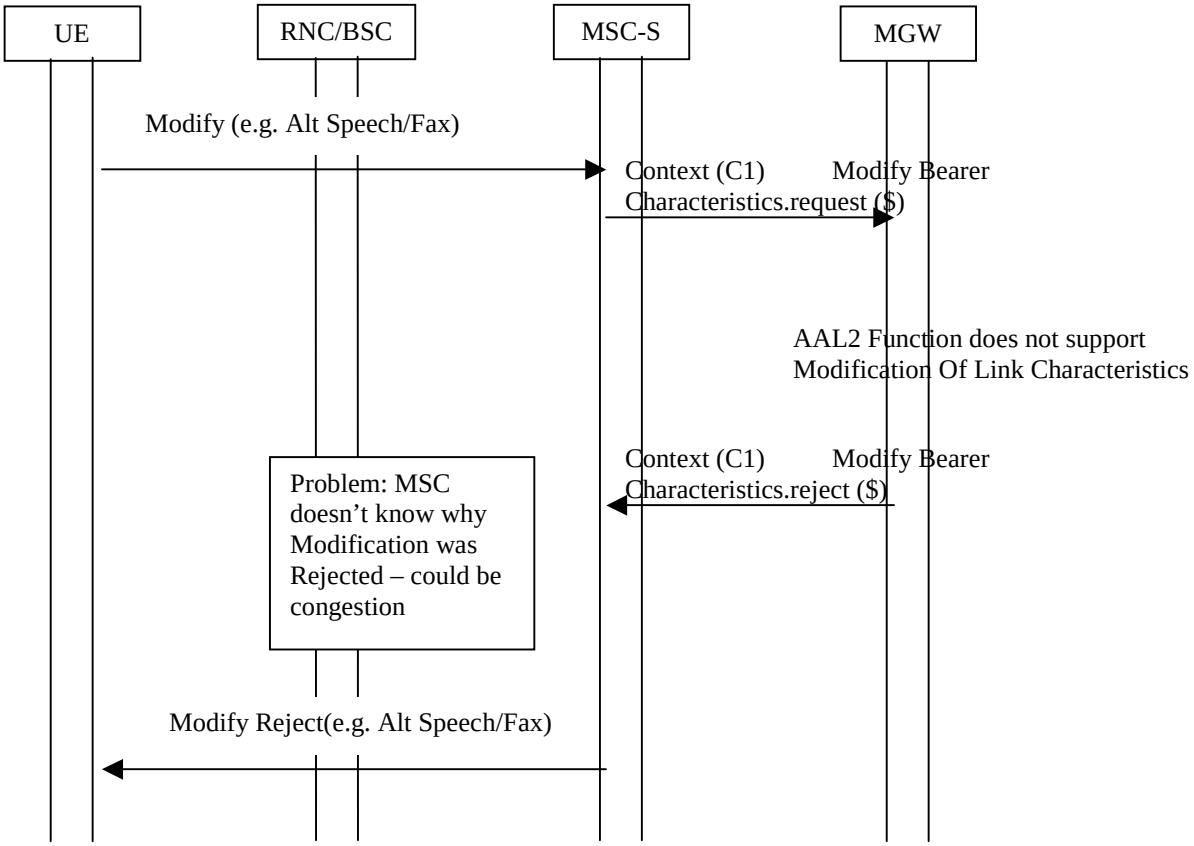

Figure 1: Bearer modification failure

Proposed Solution

Introduce a new parameter in the first RANAP RAB Assignment Response to indicate that Modification of RAB including Link Characteristics is supported. This would be a change to Release 4. The parameter would only be included if Modification of Link Characteristics was supported. This solution would be backward compatible with R'99 where Modification of Link Characteristics is not supported, i.e. new parameter would not be present.

The RAB Assignment modification procedures in RANAP should be clarified. When modification of the link characteristics is required and modification of link characteristics is not supported then new Iu Transport Association and Address shall be provided. Thereby a new access termination for the existing RAB id would have been given by the MGW to the MSC server.

If modification of link characteristics is supported then exhibiting Transport Association and Address shall be used. The resulting sequences are shown in Figures 2 and 3, where once the call is established the UE shall send a Modify message to the MSC server.

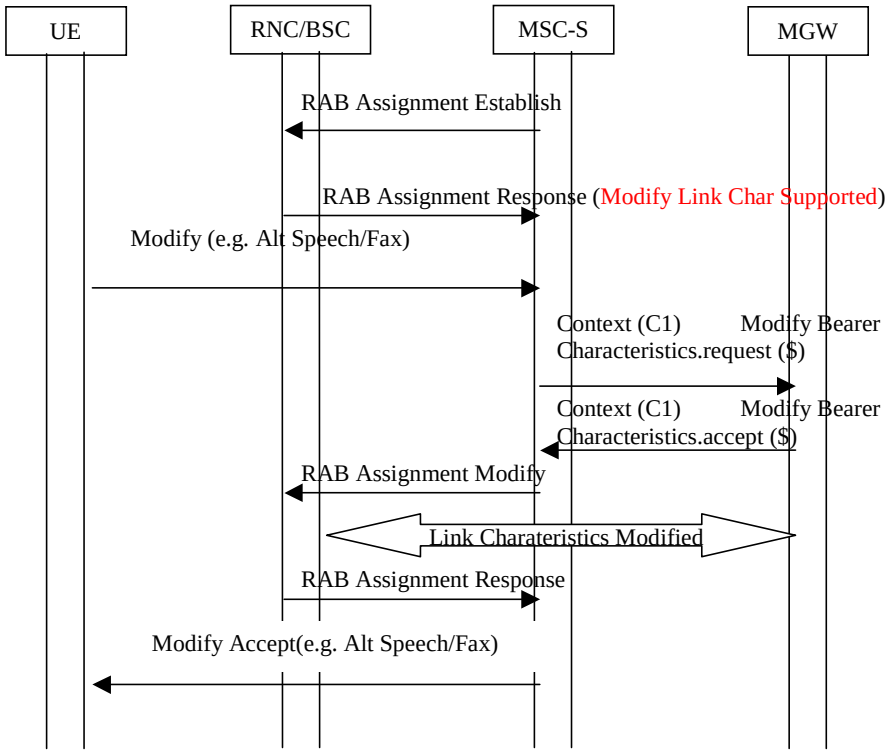

Figure 2: RAB Assignment Modification with support of modification of link characteristic

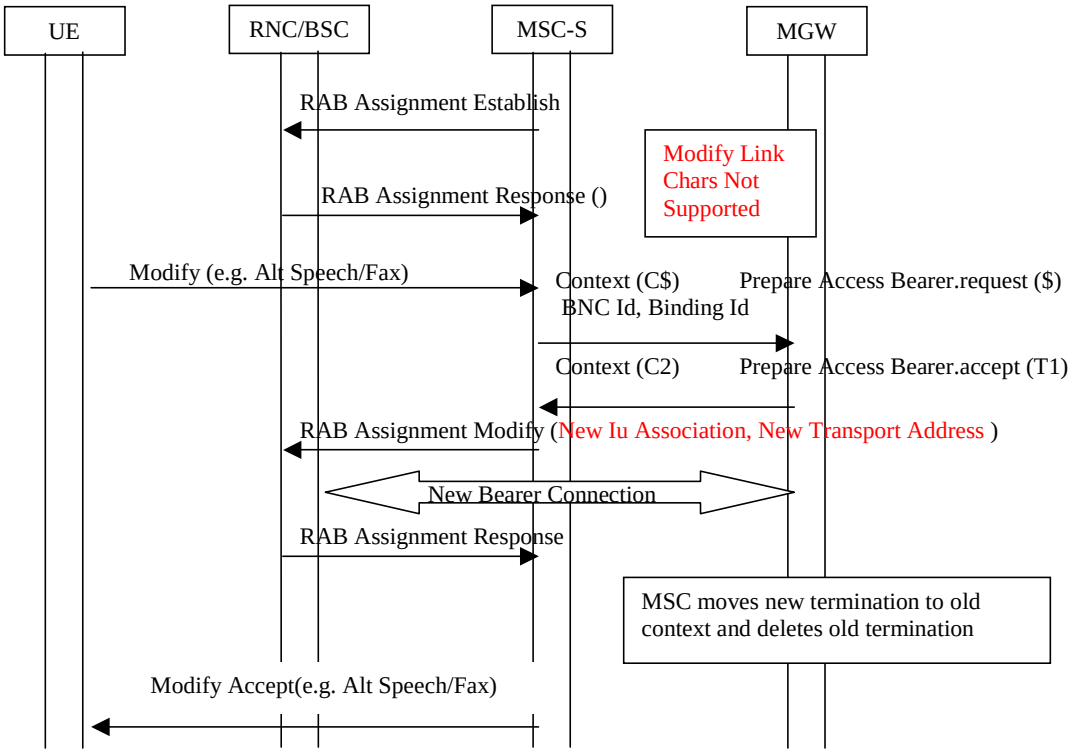

Figure 3: RAB Assignment Modification without support of modification of link characteristic

Considered Solutions

It was considered if this problem could be resolved within the Core Network as the MGW can also determine the support of MSLC after the Access bearer has been established to its Access Bearer termination. The following options were considered but deemed unsuitable for efficient call control. These would also require further standardisation external to 3GPP (ITU-T) would need to be done. Thus there would be a problem to ensure a solution within a suitable time frame for Release 4.

Option 1: Introduce a new error code to H.248 to indicate that Bearer Modification was not permitted. When the new error code is received, the MSC server would selects a new termination from the existing MGW and requests the RAB Assignment Modification for the new termination. There are a number of problems with such an approach. Firstly this error code needs to be defined for the Modify Bearer Characteristics procedure as used in TS23.205/29.232. It is not really seen as a general error case, i.e. the intention is not to fail the call but perform additional H.248 procedures in order to support the modification. Thus defining a general error case is not enough, a specific error code and when it should be sent must also be specified in Q.1950 (ITU-T). Secondly in networks where AAL2 CS1 is predominant this trial and error procedure will slow down all services that require RAB Modification. As the transport network at initial bearer establishment determines the capability it makes little sense not to have the knowledge of this on call control prior to attempting a modification.

Option 2: Introduce a new H.248 procedure to request a Notification for support of MSLC, which would be performed after preparing the Access Bearer termination. The Notification would be expected any time between the reply from Prepare Bearer procedure (if CS1 only) or after the RAB has been established (MGW supports MSLC but the RNC doesn't). This solves the issue of knowing the capability in advance. However due to the current design of the call control procedures this would result in an additional H.248 transaction for every call, regardless whether a modification would be required. Previously, it was specifically decided for the Iu side termination that no additional Notify for bearer establishment was needed, as the RAB Assignment Response provided the MSC with this information – thus keeping H.248 transactions to a minimum. Again ITU-T standardisation is required.

Conclusion

It is proposed that a Liaison Statement is written towards RAN WG3 to request this correction to their TS 25.413 v 4.2.0. The Liaison Statement should explain that the CN WG4 has considered the possibility to solve this within the CN specifications. But the solutions not only compromise the behaviour of the call either during normal call establishment or during modification but are also dependent on support from external standards organisations (ITU-T).

CN4 believes that this modification can be implemented without additional signalling load or compromising the RANAP principles and would therefore be the most efficient solution to this problem.

A CR has been prepared for the updates to TS 23.205 to incorporate the changes to call control procedures if such a modification to RANAP is implemented. The CR is Tdoc N4-011077.

3GPP TSG-CN-WG4 Meeting #10 **N4-011077**
Brighton, UK, 15th - 19th October 2001

CR-Form-v4

CHANGE REQUEST

⌘ **23.205** **CR** **CR-010** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correction of Bearer Modification Handling
Source:	⌘	L.M. Ericsson
Work item code:	⌘	CSSPLIT
Date:	⌘	8th October 2001
Category:	⌘	**F** (Essential)
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)*

Reason for change:	⌘	The current handling of RAB Assignment Modification is faulty when AAL2 CS2 not supporting MSLC (Modify Support For Link Characteristics) or AAL2 CS1 is applied on the Iu user plane. If MSLC is not supported and a RAB Modification is requested then the Transport would be released and then re-seized. This does not allow coordination between the change of the transport connection and the Bearer Properties of the MGW termination. It is desired to be able in such case to reserve a new termination prior to RAB Modification and request that the transport is moved to this new termination.
Summary of change:	⌘	Modification to the procedures describing RAB Assignment Modification. RAB Assignment Response (from Establish) includes new information element to indicate support of modification of link characteristics (MSLC). For modification of the access bearer when MSLC is not supported by the current AAL2 link, the MSC server shall use a new access bearer termination in the existing MGW. The existing text for call hold, call waiting and Alternate Speech/Fax is modified to refer to the amended Bearer Modification subclause.
Consequences if not approved:	⌘	Faulty RAB Assignment Modification when MSLC not supported for AAL2 CS2 or AAL2 CS1 is applied on the Iu user plane.

Clauses affected:	⌘	2, 6.1.1, 6.1.2,13.5, 13.6, 13.17, 13.18.1		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	TS 25.413 v 4.2.0
Other comments:	⌘	Backward compatibility to R99 is such that only Q.AAL2 CS1 is supported, which would be assumed by the lack of presence of the new parameter in the initial RAB Assignment Response.		

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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

2 References

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

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

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[~~x~~26] 3GPP TS 25.413 ~~v. 4.1.0~~: "UTRAN Iu Interface RANAP Signalling"

[~~y~~27] 3GPP TS 48.008: "3rd Generation Partnership Project; Technical Specification Group GSM EDGE Radio Access Network; Mobile-services Switching Centre – Base Station System (MSC – BSS) interface; layer 3 specification (Release 4)"

Next modified section

6.1.1 Forward bearer establishment

The mobile originating call shall be established in accordance with 3GPP TS 23.108 [17]. The following paragraphs describe the additional requirements for the bearer independent CS core network. If out-of-band transcoder control is applied for a speech call, it shall be performed in accordance with 3GPP TS 23.153 [3].

MGW selection

The MSC server shall select an MGW for the bearer connection before it performs the access bearer assignment or the network side bearer establishment. This may happen either before sending the IAM or after receiving the Bearer Information message. In the latter case, the MGW selection may be based on a possibly received MGW-id from the succeeding node (bullet 1 or bullet 2 in figure 6.2).

Initial addressing

The MSC server shall indicate in the IAM that forward bearer establishment is to be used. If access bearer assignment has not been completed, the MSC server shall indicate that the Continuity message will follow. However, if late access bearer assignment (assignment after alerting or answer) is used the MSC server shall not indicate that the Continuity message will follow. The MSC server provides the bearer characteristics to the succeeding node in the IAM. If the MGW is selected at an earlier stage the MGW-id may also be provided in the IAM (bullet 1 in figure 6.2).

Network side bearer establishment

The MSC server shall either select bearer characteristics or requests the MGW to select and provide the bearer characteristics for the network side bearer connection before sending the IAM. In the latter case the MSC server uses the Prepare Bearer procedure to request the MGW to select the bearer characteristics. After the succeeding node has provided a bearer address and a binding reference in the Bearer Information message the MSC server uses the Establish Bearer procedure to request the MGW to establish a bearer towards the destination MGW. The MSC server provides the MGW with the bearer address, the binding reference and the bearer characteristics (bullet 2 in figure 6.2).

Access bearer assignment

The MSC server shall select bearer characteristics for the access bearer.

For UTRAN, before the MSC server starts the access bearer assignment, the MSC server requests the MGW to prepare for the access bearer establishment using the Prepare Bearer procedure. The MSC server requests the MGW to provide a bearer address and a binding reference, and provides the MGW with the bearer characteristics~~-~~. For speech calls, the MSC server shall provide the MGW with the speech coding information for the bearer. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4]. After the MGW has replied with the bearer address and the binding reference the MSC server requests access bearer assignment using the provided bearer address and binding reference (bullet 3 in figure 6.2) in accordance with [~~x~~26]. In the response, the MSC may receive an indication that the existing link characteristics of access bearer can be modified at a later stage, see subclause 13.18.1.

For GERAN, before the MSC server starts the access bearer assignment, the MSC server uses the Reserve Circuit procedure to seize a TDM circuit. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4] and a GSM channel coding. After the MGW has replied to the TDM circuit seizure, the MSC server requests access bearer assignment (bullet 4 in figure 6.2) in accordance with [~~y~~27].

Next modified section

6.1.2 Backward bearer establishment

The basic mobile originating call shall be established in accordance with 3GPP TS 23.108 [17]. The following paragraphs describe the additional requirements for the bearer independent CS core network. If out-of-band transcoder control is applied for a speech call, it shall be performed in accordance with 3GPP TS 23.153 [3].

MGW selection

The MSC server shall select an MGW for the bearer connection before it performs the access bearer assignment or the network side bearer establishment. This happens before sending the IAM (bullet 1 or 2 in figure 6.4).

Network side bearer establishment

The MSC server shall either select preferred bearer characteristics or requests the MGW to select and provide the bearer characteristics for the network side bearer connection before sending the IAM. The MSC server requests the MGW to prepare for the network side bearer establishment using the Prepare Bearer procedure. The MSC server requests the MGW to provide a bearer address and a binding reference, and provides the MGW with the preferred bearer characteristics or requests the MGW to select and provide the bearer characteristics (bullet 3 in figure 6.4). After the MGW has replied with the bearer address, the binding reference and the bearer characteristics (if requested), the MSC server sends the IAM to the succeeding node.

Initial addressing

The MSC server shall indicate in the IAM that backward bearer establishment is to be used. If access bearer assignment has not been completed, the MSC server shall indicate that the Continuity message will follow. However, if late access bearer assignment (assignment after alerting or answer) is used the MSC server shall not indicate that the Continuity message will follow. The MSC server provides the bearer characteristics, the bearer address and the binding reference to the succeeding node in the IAM. The MSC server may also provide the MGW-id in the IAM (bullet 4 in figure 6.4).

Access bearer assignment

The MSC server shall select bearer characteristics for the access bearer.

For UTRAN, before the MSC server starts the access bearer assignment, the MSC server requests the MGW to prepare for the access bearer establishment using the Prepare Bearer procedure. The MSC server requests the MGW to provide a bearer address and a binding reference, and provides the MGW with the bearer characteristics. For speech calls, the MSC server shall provide the MGW with the speech coding information for the bearer. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4]. After the MGW has replied with the bearer address and the binding reference the MSC server requests access bearer assignment using the provided bearer address and binding reference (bullet 1 in figure 6.4) in accordance with [~~x~~26]. In the response, the MSC may receive an indication that the existing link characteristics of access bearer can be modified at a later stage, see subclause 13.18.1.

For GERAN, before the MSC server starts the access bearer assignment, the MSC server uses the Reserve Circuit procedure to seize a TDM circuit. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4] and a GSM channel coding. After the MGW has replied the TDM circuit seizure the MSC server requests access bearer assignment (bullet 2 in figure 6.4) in accordance with [x27].

Next modified section

6.2 Basic Mobile Terminating Call

6.2.1 Forward bearer establishment

The basic mobile terminating call shall be established in accordance with 3GPP TS 23.108 [18]. The following paragraphs describe the additional requirements for the bearer independent CS core network. If out-of-band transcoder control is applied for a speech call, it shall be performed in accordance with 3GPP TS 23.153 [3].

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6.2.1.2 MSC server

Call setup

The MSC server indicates to the UE in the SETUP message that early access bearer assignment is used in order to establish the bearer end-to-end before the UE starts alerting. The MSC server indicates to the UE in SETUP message that early access bearer assignment is used if either of the following conditions is satisfied before sending the SETUP message (bullet 2 in figure 6.6):

1. The incoming IAM indicated that the Continuity message will follow, but no Continuity message has been received;

2. A notification of successful bearer establishment in the network side has not been received from the MGW.

MGW selection

The MSC server shall select an MGW for the bearer connection before it performs the network side bearer establishment or the access bearer assignment. This happens at latest after the UE has sent the Call Confirmed message. If the MSC server received an MGW-id from the preceding node, it may use this for the MGW selection (bullet 3 in figure 6.6).

Network side bearer establishment

The MSC server requests the MGW to prepare for the network side bearer establishment using the Prepare Bearer procedure. The MSC server requests the MGW to provide a bearer address, a binding reference and to notify when the bearer is established (bullet 3 in figure 6.6). The MSC server also provides the MGW with the bearer characteristics that was received from the preceding node in the IAM. After the MGW has replied with the bearer address and the binding reference, the MSC server provides the Bearer Information message to the preceding node. The MSC server may also provide the MGW-id in the Bearer Information message.

Access bearer assignment

The access bearer assignment may be started when both of the following conditions are satisfied:

1. Either:

   a. The incoming IAM indicated that the Continuity message will follow, and a Continuity message has been received from the preceding node, or

   b. The incoming IAM did not indicate that the Continuity message will follow;

2. A notification of successful bearer establishment in the network side has been received from the MGW (bullet 6 in figure 6.6).

The MSC server shall select bearer characteristics for the access bearer. For the access bearer assignment in UTRAN the MSC server requests the MGW to prepare for the access bearer establishment using the Prepare Bearer procedure. The MSC server requests the MGW to provide a bearer address and a binding reference, and provides the MGW with the bearer characteristics. For speech calls, the MSC server shall provide the MGW with the speech coding information for the bearer. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4]. After the MGW has replied with the bearer address and the binding reference the MSC server requests the access bearer assignment using the provided bearer address and the binding reference (bullet 9 in figure 6.6) in accordance with [~~x~~26]. In the response, the MSC may receive an indication that the existing link characteristics of access bearer can be modified at a later stage, see subclause 13.18.1.

For GERAN, before the MSC server starts the access bearer assignment, the MSC server uses the Reserve Circuit procedure to seize a TDM circuit. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4] and a GSM channel coding. After the MGW has replied the TDM circuit seizure the MSC server requests access bearer assignment (bullet 10 in figure 6.6) in accordance with [~~y~~27].

Next modified section

6.2.2 Backward bearer establishment

The basic mobile terminating call shall be established in accordance with 3GPP TS 23.108 [4]. The following paragraphs describe the additional requirements for the bearer independent CS core network. If out-of-band transcoder control is applied for a speech call, it shall be performed in accordance with 3GPP TS 23.153 [3].

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6.2.2.2 MSC server

Call setup

The MSC server indicates to the UE in the SETUP message that early access bearer assignment is used in order to establish the bearer end-to-end before the UE starts alerting. The MSC server indicates to the UE in the SETUP message that early access bearer assignment is used, if and only if, either of the following conditions are satisfied before sending the SETUP message (bullet 5 in figure 6.8):

1. If the IAM indicated that the Continuity message will follow, but no Continuity message has been received.

2. A notification of successful bearer establishment in the network side has not been received from the MGW.

MGW selection

The MSC server shall select an MGW for the bearer connection before it performs the network side bearer establishment or the access bearer assignment. This happens at latest after the UE has sent the Call Confirmed message. If the MSC server received an MGW-id from the preceding node, it may use this for the MGW selection (bullet 6 in figure 6.8).

Network side bearer establishment

The MSC server requests the MGW to establish a bearer to the given destination MGW and to notify when the bearer is established using the Establish Bearer procedure. The MSC server provides the MGW with the bearer address, the binding reference and the bearer characteristics that were received from the preceding node in the IAM (bullet 6 in figure 6.8).

Access bearer assignment

The access bearer assignment may be started when both of the following conditions are satisfied:

1. Either:

   a. The incoming IAM indicated that the Continuity message will follow, and a Continuity message has been received from the preceding node, or

   b. The incoming IAM did not indicate that the Continuity message will follow;

2. A notification of successful bearer establishment in the network side has been received from the MGW (bullet 7 in figure 6.8).

The MSC server shall select bearer characteristics for the access bearer.

For the access bearer assignment in UTRAN the MSC server requests the MGW to prepare for the access bearer establishment using the Prepare Bearer procedure. The MSC server requests the MGW to provide a bearer address and a binding reference and provides the MGW with the bearer characteristics. For speech calls, the MSC server shall provide the MGW with the speech coding information for the bearer. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4]. After the MGW has replied with the bearer address and the binding reference the MSC server requests the access bearer assignment using the provided bearer address and the binding reference (bullet 8 in figure 6.8) in accordance with [~~x~~26]. In the response, the MSC may receive an indication that the existing link characteristics of access bearer can be modified at a later stage, see subclause 13.18.1.

For GERAN, before the MSC server starts the access bearer assignment, the MSC server uses the Reserve Circuit procedure to seize a TDM circuit. For a non-speech call the MSC server also provides the MGW with a PLMN Bearer Capability [4] and a GSM channel coding. After the MGW has replied the TDM circuit seizure the MSC server requests access bearer assignment (bullet 9 in figure 6.8) in accordance with [~~y~~27].

Next modified section

13.5 Call Waiting (CW)

The procedures specified in 3GPP TS 23.083 [13] for the Call Waiting supplementary service shall be followed. The following paragraphs describe the additional requirements for the bearer independent CS core network.

Call confirmation to the waiting call

The MSC server shall, on reception of the call confirmation, select the MGW that will be used for the waiting call. The MSC server should select the MGW which is already in use for the active call. If out-of-band transcoder control is applied for the waiting speech call, it shall be performed in accordance with 3GPP TS 23.153 [3].

Existing call on hold

The paragraph 'Hold request' in subclause 13.6 applies.

Existing call released

If the active call is disconnected while another call is waiting, the bearer termination towards the waiting party (C) as well as to the called party (A) is not removed.

Acceptance of waiting call

If the mobile subscriber decides to accept the waiting call, it handles (according to 3GPP TS 23.083~~2~~ [12]) the existing call as described in subclause 13.5 (i.e. it either puts the call on hold or the call is released). When the MSC server receives the connect indication from subscriber A, if required the MSC server shall modify the access bearer as described in subclause 13.18.1.~~it modifies the existing access side bearer if required. If the existing access side bearer needs to be modified, either the existing bearer termination is modified using the Modify Bearer Characteristics procedure or a new access side bearer termination is created. In both cases, the MSC server shall initiate the access bearer modification using either the existing bearer address and binding reference or the new bearer address and binding reference.~~ Finally, the MSC server shall connect the access side bearer termination to the previously created bearer

termination of the remote party in the waiting call and modify the waiting call's bearer termination so that it is both-way through-connected.

If a different MGW is selected for the incoming call, then a bearer from the new MGW (MGW2) shall be connected towards the old MGW (MGW1) before offering the call to the subscriber A.

If out-of-band transcoder control is applied for the waiting speech call, it shall be performed in accordance with 3GPP TS 23.153[3].

Waiting call released by calling subscriber (subscriber C)

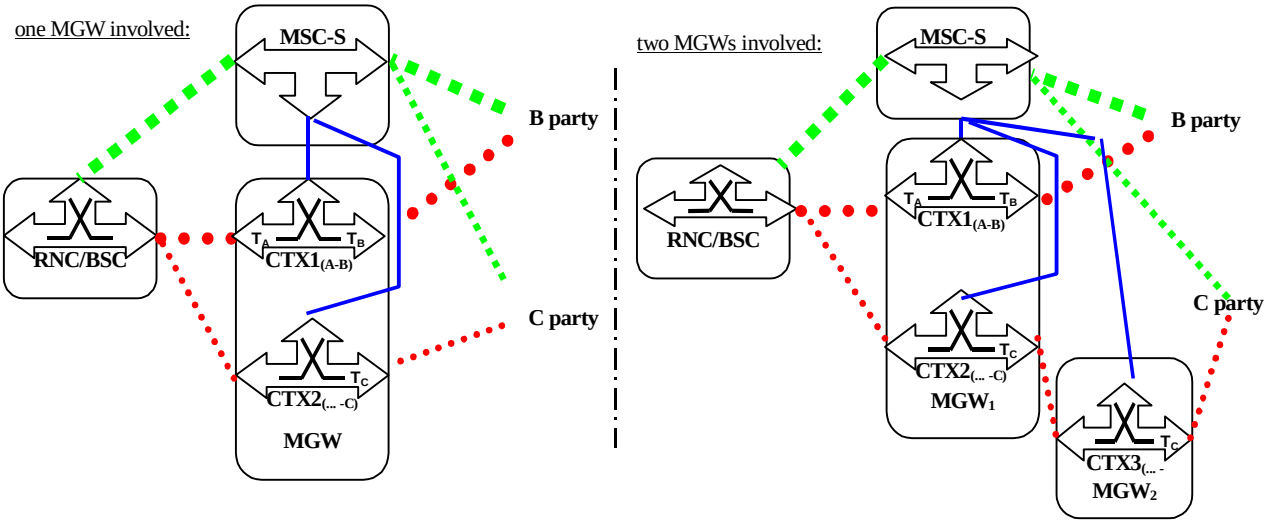
The respective resources already allocated at the selected MGW for the waiting call shall be released.

Example

Figure 13.13 shows the network model for a waiting call at the serving MSC server/MGW. The 'thick, squared' line represents the call control signalling for the existing call and, on the Iu interface, the already existing control plane toward the serving RNC. The 'thin, squared' line represents the call control signalling for the waiting call. The 'thick, dotted' line represents the bearer control signalling and the bearer for the existing call, whereas the 'thin, dotted' line represents the ones for the waiting call. Note that for a TDM access there is no separation of call and bearer control signalling.

Note that there shall be only one instance of bearer resource/bearer control signalling on the radio side.

If the CW condition applies, the MSC server seizes a new context with one bearer termination, T_C, in the MGW. T_A and T_B are the terminations of the already existing call.



Next modified section

13.6 Call Hold (CH)

The procedures specified in 3GPP TS 23.083 [13] for the Call Hold supplementary service shall be followed. The following paragraphs describe the additional requirements for the bearer independent CS core network.

Hold request

When the UE makes a request for the hold function the MSC server requests the MGW to interrupt the communication on the bearer by changing the through-connection of the bearer termination towards the served mobile subscriber to 'not through-connected'. Announcements may be applied to the held party as described in subclause 14.6.

Retrieval request

When the UE makes a request to retrieve a held call the MSC server requests the MGW to re-establish communication to the held party by changing the through-connection of the bearer termination towards the served mobile subscriber to be both-way through-connected.

Setting up another call

The call towards the C party is established as described for the mobile originating call. A new MGW may be selected in the course of setting up the new call. If out-of-band transcoder control is applied for a speech call, it shall be performed in accordance with 3GPP TS 23.153 [3]. If required, the MSC server shall modify the access bearer for the new call as described in subclause 13.18.1. ~~If the existing access side bearer needs to be modified for the new call, either the existing bearer termination is modified using the Modify Bearer Characteristics procedure or a new access side bearer termination is created. In both cases when setting up the new call, the MSC server shall initiate the access bearer modification using either the existing bearer address and binding reference or the new bearer address and binding reference.~~ The MSC server will request the MGW to connect the access side bearer termination to the bearer termination of the remote party.

Alternate from one call to the other

When the hold request for the active call is immediately followed by a retrieve request for the held call the MSC server shall request the MGW to connect the bearer termination of the served mobile subscriber to the bearer termination of the held party. The MSC server also requests the MGW to both-way through-connect the bearer for the previously held call.

Next modified section

13.17 Alternate Speech/Fax

The procedures for facsimile group 3 transparent/non-transparent shall be followed in accordance with GSM TS 03.45 [24] and 3GPP TS 23.146 [25]. The following paragraphs describe the additional requirements for the bearer independent CS core network. If out-of-band transcoder control is applied for a speech call, it shall be performed in accordance with 3GPP TS 23.153 [3].

Call and bearer establishment shall be handled as described in the Call Establishment clause. In order to change from speech to fax (or vice versa), the MSC server shall modify the access bearer as described in subclause 13.18.1. ~~the MSC server shall request the MGW either to modify the existing access side bearer termination using the Modify Bearer Characteristics procedure, or to create a new access side bearer termination. In both cases the MSC server will initiate an access bearer modification using either the existing bearer address and binding reference or the new bearer address and binding reference.~~

If the MGW responds with an error to any of the procedures initiated by the MSC server, or the MSC server receives a Bearer Failure procedure from the MGW, the MSC server may either clear the call or reject the change from speech to fax (or vice versa).

After this possible modification, the MGW shall seize an interworking function if a PLMN Bearer Capability [4] has been supplied to the access side bearer termination. When the MSC server receives an answer indication, it shall request activation of the interworking function using the Activate Interworking Function procedure.

Next modified section

13.18 Modification of the Access Bearer

13.18.1 Modification of Bearer Characteristics

The modification of the access bearer is possible during a call establishment and during an active call. If the MSC server needs to modify the access bearer, the existing access side bearer termination in the MGW is modified or a new access side bearer termination is created.~~using the Modify Bearer Characteristics procedure before the access bearer~~

~~modification is initiated towards the UTRAN/GERAN. The MGW is provided with the new characteristics for the access bearer.~~ The modification of the access bearer shall be performed in accordance with [~~*~~26] or [~~y~~27].

UTRAN

If the link characteristics for the existing access bearer need to be changed and the MSC server received an indication during the initial access bearer establishment that modification of link characteristics of the current transport connection is supported, see [~~*~~26], the MSC server shall use the Modify Bearer Characteristics procedure to provide the MGW with the new bearer characteristics for the existing access side bearer termination. After the MGW has replied, the MSC server shall initiate the access bearer modification towards UTRAN.

If the MSC server has not previously received an indication that modification of existing link characteristics is supported, the MSC server shall use the Prepare Bearer procedure to request the MGW to add a new context and a new access side bearer termination, and to provide a bearer address and a binding reference. After the MGW has replied, the MSC server shall initiate the access bearer modification towards UTRAN using the provided bearer address and the binding reference. Upon successful access bearer modification, the MSC server shall connect the new access side bearer termination to the old context and release the old access side bearer termination.

If the user plane mode of the modified access bearer is ‘Support Mode’, the Iu UP will also be re-initialised as defined in [20].

GERAN

The MSC server shall use the Modify Bearer Characteristics procedure to the MGW to provide the new bearer characteristics for the existing access side bearer termination. After the MGW has replied, the MSC server shall initiate the access bearer modification towards GERAN.

End modified section

3GPP TSG-CN WG4 Meeting #10
Brigthon, 15-19 October 2001

Tdoc N4-011171

CR-Form-v3

CHANGE REQUEST

⌘ **29.060** **CR** **271** ⌘ rev **-** ⌘ Current version: **4.1.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	PDP Context handling at Inter SGSN RA Update.
Source:	⌘	Ericsson
Work item code:	⌘	GPRS
Date:	⌘	04/10/01
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(essential 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)*

Reason for change: ⌘

Background:

During an Inter SGSN RA Update procedure the PDP Contexts that are active in old SGSN are transferred to the new SGSN. The standards allows that up to X number of PDP Contexts can be active simultaneously per subscriber, and the standard also assumes in its description of the roaming procedure that all SGSN's will support the maximum number of contexts.

There have been indications that this is not the case, and that vendors only will support a limited number of active PDP Contexts per subscriber. No solutions exist in the specifications to handle the case when the two SGSN's involved in the Inter SGSN RA Update procedure are from different vendors and might handle a different number of PDP Contexts. It is then up to the implementation in the serving nodes to take actions to solve the problem.

Problem Area:

The problem occurs when an MS with N active PDP contexts roams to a new SGSN which only supports M active PDP contexts, where (N > M). In this case the new SGSN is unable to handle all the received PDP contexts. In addition, the new SGSN is unable to decide which PDP context shall remain active and which context(s) shall be deleted after the roaming procedure is completed. In worst case, the RA Update procedure can be rejected, and the MS needs to re-activate all its PDP Contexts.

Discussion:

In the 23.107 (QoS) specification there is described how to handle the case when you have several secondary PDP Contexts active in an R'99 SGSN and roams to an R'97 SGSN (secondary PDP Contexts are not supported in R'97). The new SGSN are then supposed to deactivate all Contexts except the one with highest QoS, according to a specified prioritizing of the QoS parameters.

This approach could also be applied for the problem as described above, but as this is a very simple way to handle it and not the optimal solution from the subscriber point of view, a more subscriber friendly solution should be introduced.

The problem with the above solution is that the new SGSN will not have any information about which contexts the subscriber currently is using. We might then end up with keeping a context that are not currently used for any data transmission, and

	removing the ones that currently have data transmission ongoing. It is only the old SGSN that have the needed information concerning the activity of the contexts, and could therefore be able to sort the active PDP context in such way that at least the PDP Contexts with ongoing transmission will continue to stay active even in the new SGSN.
Summary of change: ⌘	Since the old SGSN don't know whether the new SGSN will support the same number of PDP contexts as itself, there is a need for the old SGSN to make a prioritizing of the active PDP contexts before they are sent in SGSN CONTEXT RESPONSE to new SGSN. In today's specifications the PDP Contexts are sent in a random order to new SGSN. It is therefore proposed to make a minor modification to the GTP specification, stating that the PDP Contexts are sent in a prioritized order. The new SGSN can then just keep the number of PDP Contexts that it supports starting from the top of the list and deactivate the rest. The algorithm used to make the prioritizing could be implementation dependent, but as an example at least the contexts that are active for the moment, i.e. currently sending data should be kept. The QoS should also be considered in the prioritizing. This approach should at least be introduced for the problem area as described above, but we think that even the problem with secondary PDP Contexts as already described in 23.107 should take this approach.
Consequences if not approved: ⌘	- There will be interoperability problems between SGSN's from different vendors. - GPRS could be perceived as a bad service for the end user since there is a risk that the PDP context(s) currently in use doesn't remain active after roaming, and by that the application will be hanging.

Clauses affected:	⌘	7.5.4, 7.5.6		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

7.5.4 SGSN Context Response

The old SGSN shall send an SGSN Context Response to the new SGSN as a response to a previous SGSN Context Request.

Possible Cause values are:

- 'Request Accepted'.
- 'IMSI not known'.
- 'System failure'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.
- 'P-TMSI Signature mismatch'.

If the Cause contains the value 'Request accepted', all information elements are mandatory, except PDP Context and Private Extension.

If the Cause contains the value 'P-TMSI Signature mismatch' the IMSI information element shall be included in the response, otherwise only the Cause information element shall be included in the response.

The old SGSN shall include a SGSN Address for control plane. The new SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the old SGSN in the SGSN context transfer procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a Tunnel Endpoint Identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN and related to the PDP context(s) requested.

The IMSI information element contains the IMSI matching the TLLI or P-TMSI (for GSM or UMTS respectively) and RAI in the SGSN Context Request.

The MM Context contains necessary mobility management and security parameters.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements. The PDP Contexts shall be sent in a prioritized order, i.e. the most important PDP Context first in the message. (The prioritization method is implementation dependent, but typically, it should be based on the current activity and QoS.) In case the new SGSN is not able to support the same number of active PDP Contexts as received from old SGSN it shall keep the PDP Contexts according to the prioritization made by old SGSN.

If there is at least one active PDP context, the old SGSN shall start the T3-TUNNEL timer and store the address of the new SGSN in the "New SGSN Address" field of the MM context. The old SGSN shall wait for SGSN Context Acknowledge before sending T-PDUs to the new SGSN. If the old SGSN has one or more active PDP contexts for the subscriber and an SGSN Context Acknowledge message is not received within a time defined by T3-RESPONSE, the old SGSN shall retransmit the SGSN Context Response to the new SGSN as long as the total number of attempts is less than N3-REQUESTS. After N3-REQUESTS unsuccessfully attempts, the old SGSN shall proceed as described in section 'Reliable delivery of signalling messages' in case the transmission of a control plane message fails N3-REQUESTS times.

Radio Priority SMS contains the radio priority level for MO SMS transmission, and shall be included if a valid Radio Priority SMS value exists for the MS in the old SGSN.

Radio Priority is the radio priority level that the MS uses when accessing the network for the transmission of uplink user data for a particular PDP context. One Radio Priority IE shall be included per PDP context that has a valid radio priority value assigned to it in the old SGSN.

Packet Flow Id is the packet flow identifier assigned to the PDP context. One Packet Flow Id IE shall be included per PDP context that has a valid packet flow identifier value assigned to it in the old SGSN.

The optional Private Extension contains vendor or operator specific information.

Table 27: Information Elements in a SGSN Context Response

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
IMSI	Conditional	7.7.2
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Radio Priority SMS	Optional	7.7.20
Radio Priority	Optional	7.7.21
Packet Flow Id	Optional	7.7.22
MM Context	Conditional	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control Plane	Conditional	7.7.32
Private Extension	Optional	7.7.44

***********NEXT MODIFICATION**********

7.5.6 Forward Relocation Request

The old SGSN shall send a Forward Relocation Request to the new SGSN to convey necessary information to perform the SRNS Relocation procedure between new SGSN and Target RNC.

All information elements are mandatory, except PDP Context and Private Extension.

The IMSI information element contains the IMSI of the target MS for SRNS Relocation procedure.

The old SGSN shall include a SGSN Address for control plane. The new SGSN shall store this SGSN Address and use it when sending control plane messages for the MS to the old SGSN in the SRNS Relocation procedure.

The Tunnel Endpoint Identifier Control Plane field specifies a tunnel endpoint identifier, which is chosen by the old SGSN. The new SGSN shall include this Tunnel Endpoint Identifier Control Plane in the GTP header of all subsequent control plane messages, which are sent from the new SGSN to the old SGSN.

The MM Context contains necessary mobility management and security parameters.

All active PDP contexts in the old SGSN shall be included as PDP Context information elements. The PDP Contexts shall be sent in a prioritized order, i.e. the most important PDP Context first in the message. (The prioritization method is implementation dependent, but typically, it should be based on the current activity and QoS.) In case the new SGSN is not able to support the same number of active PDP Contexts as received from old SGSN it shall keep the PDP Contexts according to the prioritization made by old SGSN.
In case no PDP context is active, this IE shall not be included.

UTRAN transparent container, Target identification and RANAP Cause are information from the source RNC in the old SGSN.

The optional Private Extension contains vendor or operator specific information.

Table 29: Information Elements in a Forward Relocation Request

Information element	Presence requirement	Reference
IMSI	Mandatory	7.7.2
Tunnel Endpoint Identifier Control Plane	Mandatory	7.7.14
RANAP Cause	Mandatory	7.7.18
MM Context	Mandatory	7.7.28
PDP Context	Conditional	7.7.29
SGSN Address for Control plane	Mandatory	7.7.32
Target Identification	Mandatory	7.7.37
UTRAN transparent container	Mandatory	7.7.38
Private Extension	Optional	7.7.44

7.5.7 Forward Relocation Response

3GPP TSG-CN1 Meeting #10 ***Tdoc N4-011195***
Brighton, 15-19. October 2001

Title: Liaison Statement on PDP Context handling at Inter SGSN RA Update
Source: N4
To: SA2
Cc: CN1, SA1

Contact Person:
Name: Einar Oltedal
Tel. Number: +47 3729 3762
E-mail Address: einar.oltedal@eto.ericsson.se

Attachments: CR: PDP Context handling at Inter SGSN RA Update, N4-011171

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1. Overall Description:

During an Inter SGSN RA Update procedure the PDP Contexts that are active in old SGSN are transferred to the new SGSN. The standards allows that up to X number of PDP Contexts can be active simultaneously per subscriber, and the standard also assumes in its description of the roaming procedure that all SGSN's will support the maximum number of contexts.

There have been indications that this is not the case, and that vendors only will support a limited number of active PDP Contexts per subscriber. No solutions exist in the specifications to handle the case when the two SGSN's involved in the Inter SGSN RA Update procedure are from different vendors and might handle a different number of PDP Contexts. It is then up to the implementation in the serving nodes to take actions to solve the problem.

The attached CR proposes a priority mechanism whereby the old SGSN can decide the priority of the transferred context. The old SGSN shall send the PDP context IEs in prioritised order in the SGSN Context Response message, i.e. the most important PDP context first in the message.

The priority mechanism could be implementation dependent, but typically it could be based on the current activity and QoS for a context.

2. Actions:

To SA2 group.

CN4 asks SA2 to consider a priority mechanism for PDP contexts at Inter SGSN RA Update and to include a description of the principle for such a mechanism in the stage 2 specification.

3. Date of Next CN4 Meeting:

CN4_11	26th – 30th November 2001	Cancun, Mexico

3GPP TSG-CN-WG4 Meeting #10 ***N4-011196***
Brighton, UK, 15th - 19th October 2001

Title: Liaison Statement on handling of AMR-WB in Core Networks
Source: CN WG4
To: SA WG4
Cc:
Response to:

Contact Person:
Name: **Phil Hodges**
Tel. Number: +61 3 9911 3414
E-mail Address: philip.hodges@ericsson.com.au

Attachments: None

---

1. Overall Description:

CN4 would like to inform SA4 that they have started investigations on standardisation required in Release 5 to support AMR-WB speech service following acceptance of the WID at the last CN plenary (CN#13, Tdoc NP-010538).

CN4 kindly asks SA4 to clarify some issues that were raised during the CN4 #10 discussions in order for us to proceed with our work:

1. How does SA4 recommend AMR-WB to narrowband speech interworking should be handled in the CN ? CN4 has considered that TrFO and TFO harmonisation shall be equally or more important to this codec type than it was for our Release4 OoBTC work and thus inband negotiation could still result in end-to-end AMR-WB speech. However if straight transcoding to narrowband PCM results then the selection of AMR-WB would be pointless and could result in wasted resources (both radio and codec).

2. There are other wideband codecs (ITU defined) that could result in wideband speech being maintained, could these be considered by the CN codec negotiation in the event that an external network or end user supports this codec type but not AMR-WB ?

3. One delegate in CN4 raised the issue that SA4 had been looking at a special type of transcoding between AMR-WB and narrowband PCM. Could SA4 confirm this and provide some brief information about this – is this to be part of the SA4 specifications ? Would CN4's implementations need to be aware of this as a beneficial solution as opposed to codec modification ?

2. Actions:

To SA4 group.

ACTION: CN4 kindly asks SA4 to provide answers to the above questions.

3. Date of Next CN4 Meetings:

CN4#11 Cancun, Mexico 26th – 30th November 2001

3GPP TSG-CN-WG4 Meeting #10 ***N4-011199***
Brighton, UK, 15th - 19th October 2001

Title: Liaison Statement on AMR-WB and Legal Interception
Source: CN4
To: SA3 LI
Cc:

Contact Person:
Name: Seppo Kauntola
Tel. Number: +358 40 556 9959
E-mail Address: seppo.kauntola@nokia.com

Attachments: N4-011057: WID on AMR Wideband – Core Network Aspects

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1. Overall Description:

CN4 and CN plenary have approved a new work item on Introduction of AMR-WB speech service in 3GPP Standards Release 5. Unlike narrow band codecs, the AMR-WB codec's 7kHz audio bandwidth reproduces a wide range of human speech frequencies and offers the opportunity for manufacturers and operators to introduce superior quality voice services. This WI is initiated to co-ordinate the standardisation tasks within TSG CN required to provide a complete solution for the introduction of a mobile wideband speech service.

2. Actions:

ACTION: CN4 asks SA3 LI group to study what requirements to 3GPP core network specifications are generated by Lawful Interception when introducing AMR-WB codec, and inform CN working groups of these requirements.

2. Date of Next CN4 Meetings:

CN4 #11	26th – 30th November 2001	Cancun, Mexico

3GPP TSG-CN-WG4 Meeting #10 ***N4-011205***
Brighton, UK, 15th - 19th October 2001

Title:	Reply Liaison Statement On the use of Network Domain Security for protection of SIP signalling messages
Source:	CN4
To:	SA3
Cc:	SA2, CN1
Response to:	LS N4-010946 (S3-010403), On the use of Network Domain Security for protection of SIP signalling messages from TSG SA WG3.

Contact Person:
Name: **Kevan Hobbis**
Tel. Number: +44 1628 765252
E-mail Address: kevan.hobbis@hutchison3g.com

Attachments: None.

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1. Overall Description:

TSG CN WG4 thanks TSG SA WG3 for their liaison statement in N4-010946 (S3-010403), On the use of Network Domain Security for protection of SIP signalling messages from TSG SA WG3.

CN4 have studied the five possible solutions outlined in the above liaison statement. CN4 have concluded that each of the solutions would be technically feasible, but each have a number of disadvantages that mean they are not considered to be good solutions. Specifically they do not solve issues regarding roaming and use of GTP-U on the Iu interface.

CN4 concluded that an end to end (UE – P-CSCF) solution would be preferable provided that issues regarding air interface bandwidth can be solved.

2. Actions:

To SA3 **group.**

ACTION: CN4 asks SA3 to note the opinion of CN4 that the introduction of GTP-IC is not recommended, and an end to end (UE to P-CSCF) solution appears to be the best way to meet all of the SA3 requirements as understood by CN4.

3. Date of Next CN4 Meetings:

CN4_11	26th – 30th November 2001	Cancun, Mexico.
CN4_12	28th .January– 01st. February 2002	Sophia Antipolis, France

3GPP TSG-CN-WG4 Meeting #10 ***N4-011206***
Brighton, UK, 15th - 19th October 2001

Title: **Reply to Liaison Statement on Usage of Private ID**
Source: **CN4**
To: **CN1**
Cc: **SA1, SA2, SA3, SA5**
Response to: **LS N1-011430 from CN1.**

Contact Person:
Name: Balazs Czoma
E-mail Address: Balazs.Czoma@tic.siemens.ca

Work Item: **IMS-CCR**

---

1. Overall Description:

CN4 would like to thank to CN1 for the LS on Usage of Private ID.

The following questions were asked to CN4:

1. To verify whether it is acceptable to transport the private user identifier in the Authentication header value of the REGISTER message instead of the From header value.
2. To confirm that Private Identity is required to be available in the S-SCSF before the UE has been authenticated.

CN4 answers as follows:

- The Private User Identity is needed at registration by the S-CSCF because our working assumption is, based on information from SA3, that authentication vectors are associated with the Private User Identity. Consequently authentication information will be requested from HSS based on the Private UID.
- CN4 is currently investigating if the Private UID is also needed by the I-CSCF.

From CN4 point of view it does not make a difference which SIP header contains the Private UID as long as this information is always available in S-CSCF in the first REGISTER message (before the UE has been authenticated).

This REGISTER message has to travel through I-CSCF in all cases and it is assumed that the Authentication header is not encrypted (hence visible) in I-CSCF as well. Therefore CN4 believes that the Private UID will be available even in I-CSCF regardless if needed or not.

3. Date of Next CN4 Meetings:

CN4#11	26th - 30th November 2001	Cancun, Mexico

3GPP TSG-CN-WG4 Meeting #10 ***N4-011212***
Brighton, UK, 15th - 19th October 2001

Title: Liaison Statement on AMR-WB and Charging
Source: CN4
To: SA5
Cc:

Contact Person:
Name: Seppo Kauntola
Tel. Number: +358 40 556 9959
E-mail Address: seppo.kauntola@nokia.com

Attachments: N4-011057: WID on AMR Wideband – Core Network Aspects

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1. Overall Description:

CN4 and CN plenary have approved a new work item on Introduction of AMR-WB speech service in 3GPP Standards Release 5. Unlike narrow band codecs, the AMR-WB codec's 7kHz audio bandwidth reproduces a wide range of human speech frequencies and offers the opportunity for manufacturers and operators to introduce superior quality voice services. This WI is initiated to co-ordinate the standardisation tasks within TSG CN required to provide a complete solution for the introduction of a mobile wideband speech service.

2. Actions:

ACTION: CN4 asks SA5 group to study what requirements to 3GPP core network specifications are generated by billing, accounting and call detail record aspects when introducing AMR-WB codec, and inform CN working groups of these requirements.

2. Date of Next CN4 Meetings:

CN4 #11	26th – 30th November 2001	Cancun, Mexico

3GPP TSG-CN-WG4 Meeting #10 ***N4-011217***
Brighton, UK, 15th - 19th October 2001

Title: **LS On the handling of the Protocol Configuration Options IE**
Source: CN4
To: CN1
Cc:

Contact Person:
Name: Alessio Casati
Tel. Number: +44 1793 776996
E-mail Address: acasati@lucent.com

Attachments: none

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1. Overall Description:

CN4 have identified an issue in the definition of the handling of the Protocol configuration options in 29.060. There are a lot of different interpretations among companies on whether this IE should be optionally returned in the Create PDP context response or whether it should be conditionally returned. Among companies agreeing it has to be conditionally returned, there is no agreement on which the conditions are.
Since the MS and the GGSN exchange the information contained in the PCO IE via session management messages, CN4 would like to inform CN1 about this ongoing discussion, and ask for any opinion CN1 may have on this matter.

2. Actions:

To CN1 group.

ACTION: CN4 kindly asks CN1group to provide their opinion on whether the MS always expects the PCO to be returned to the MS in the Activate PDP context Accept and Reject messages when the MS includes the PCO in the activate PDP context Request. If not, CN4 kindly ask CN1 opinion on what the conditions for returning the PCO are.

3. Date of Next CN3 Meetings:

CN4 #11 26th -30th of November 2001, Cancun

3GPP TSG-CN-WG4 Meeting #10
Brighton, UK, 15th - 19th October 2001

N4-011220

CR-Form-v4

CHANGE REQUEST

⌘ **29.060** **CR** **267** ⌘ rev **1** ⌘ Current version: **3.10.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	GGSN address for control plane must not be changed in "Update PDP Context Response" (R99)
Source:	⌘	Alcatel
Work item code:	⌘	TEI
Date:	⌘	08.10.2001
Category:	⌘	**F** Essential correction
Release:	⌘	R99

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)*

Reason for change:	⌘	Partial charging data (i.e. partial S-CDRs) for a PDP context are uniquely identified via the charging-ID and the GGSN address as described in Tdoc S5-010223/CR 27 against TS 32.015. To use the "GGSN address for control plane" for this purpose it must be ensured that it will not change during the Inter SGSN routing area update. This implies that load sharing on the control plane for existing PDP contexts is not allowed.
Summary of change:	⌘	7.3.4 Update PDP Context Response: The GGSN address for control plane must not be changed in the "Update PDP Context Response" message.
Consequences if not approved:	⌘	If this CR is not approved, partial S-CDRs (from different SGSNs) for a PDP context may not be correlated unambiguously since the GTP protocol allows the GGSN address for control plane to be changed during the SGSN routing area update procedure.

Clauses affected:	⌘	7.3.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

7.3.4 Update PDP Context Response

The message shall be sent from a GGSN node to a SGSN node as a response of an Update PDP Context Request.

If the SGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context.

Only the Cause information element and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are:

- 'Request Accepted'.
- 'Non-existent'.
- 'Service not supported'.
- 'System failure'.
- 'Semantic error in the TFT operation'.
- 'Syntactic error in the TFT operation'.
- 'Semantic errors in packet filter(s)'.
- 'Syntactic errors in packet filters(s)'.
- 'Mandatory IE incorrect'.
- 'Mandatory IE missing'.
- 'Optional IE incorrect'.
- 'Invalid message format'.

The Tunnel Endpoint Identifier Data field specifies an uplink Tunnel Endpoint Identifier for G-PDUs that is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink G-PDUs that are related to the requested PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Tunnel Endpoint Identifier Control Plane field specifies an uplink Tunnel Endpoint Identifier Control Plane messages which is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink control plane messages which are related to the requested PDP context. If the GGSN has already confirmed successful assignment of its Tunnel Endpoint Identifier Control Plane to the peer SGSN, this field shall not be present. The GGSN confirms successful assignment of its Tunnel Endpoint Identifier Control Plane to the SGSN when it receives any message with its assigned Tunnel Endpoint Identifier Control Plane in the GTP header from the SGSN.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the GGSN. The negotiated values or the original value from SGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted'.

The GGSN may start to forward T-PDUs after the Update PDP Context Response has been sent. The SGSN may start to forward T-PDUs when the Update PDP Context Response has been received. In this case the SGSN shall also be prepared to receive T-PDUs from the GGSN after it has sent an Update PDP Context Request but before an Update PDP Context Response has been received.

The GGSN shall include a ~~GGSN Address for control plane and an~~ GGSN address for user traffic, which may differ from that provided by the underlying network service (e.g. IP). The SGSN shall store thisese GGSN Addresses and use ithem when sending ~~subsequent control plane on this GTP tunnel or~~ G-PDUs to the GGSN for the MS. When active contexts are being redistributed due to load sharing, G-PDUs that are in transit across the Gn-interface are in an undetermined state and may be lost. The GGSN shall also include a GGSN address for control plane, which ~~must~~shall not differ from that provided ~~by the underlying network service~~at PDP context setup time and shall remain unchanged

for the lifetime of the PDP context, as load sharing on the control plane is not allowed for existing PDPContexts. The GGSN Address for control plane and the GGSN Address for user traffic shall be included if the Cause contains the value 'Request accepted'.

The GGSN shall include the Recovery information element into the Update PDP Context Response if the GGSN is in contact with the SGSN for the first time or if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the GGSN.

The Charging ID is used to identify all charging records produced in SGSN(s) and the GGSN for this PDP context. The Charging ID has been previously generated by the GGSN and is unique for this PDP context. If an inter-SGSN routing area update occurs, it is transferred to the new SGSN as part of each active PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Charging Gateway Address is the IP address of the recommended Charging Gateway Functionality to which the SGSN should transfer the Charging Detail Records (CDR) for this PDP Context.

The optional Private Extension contains vendor or operator specific information.

Table 9: Information Elements in an Update PDP Context Response sent by a GGSN

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Tunnel Endpoint Identifier Data I	Conditional	7.7.13
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Charging ID	Conditional	7.7.26
GGSN Address for Control Plane	Conditional	GSN Address 7.7.32
GGSN Address for User Traffic	Conditional	GSN Address 7.7.32
Quality of Service Profile	Conditional	7.7.34
Charging Gateway Address	Optional	7.7.43
Private Extension	Optional	7.7.44

The message can also be sent from a SGSN node to a GGSN node as a response of a GGSN-initiated Update PDP Context Request.

If the GGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context if the associated Update PDP Context Request was sent only to re-negotiate the QoS of a PDP context. Furthermore if the associated Update PDP Context Request included an 'End User Address' information element the GGSN shall delete the PDP context using the Delete PDP Context procedure and may notify the Operation and Maintenance network element.

Only the Cause information element and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are the same as for the Update PDP Context Response sent by a GGSN.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the SGSN. The negotiated values or the original value from GGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted' and a QoS information element was supplied in the corresponding request message.

The SGSN shall include the Recovery information element into the Update PDP Context Response if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the SGSN.

Table 10: Information Elements in an Update PDP Context Response sent by a

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Quality of Service Profile	Conditional	7.7.34
Private Extension	Optional	7.7.44

3GPP TSG-CN-WG4 Meeting #10
Brighton, UK, 15th - 19th October 2001

N4-011221

CR-Form-v4

CHANGE REQUEST

⌘ **29.060** **CR** **268** ⌘ rev **1** ⌘ Current version: **4.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	GGSN address for control plane must not be changed in "Update PDP Context Response" (R4)
Source:	⌘	Alcatel
Work item code:	⌘	TEI
Date:	⌘	08.10.2001
Category:	⌘	**A**
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)*

Reason for change:	⌘	Partial charging data (i.e. partial S-CDRs) for a PDP context are uniquely identified via the charging-ID and the GGSN address as described in Tdoc S5-010223/CR 27 against TS 32.015. To use the "GGSN address for control plane" for this purpose it must be ensured that it will not change during the Inter SGSN routing area update. This implies that load sharing on the control plane for existing PDP contexts is not allowed.
Summary of change:	⌘	7.3.4 Update PDP Context Response: The GGSN address for control plane must not be changed in the "Update PDP Context Response" message.
Consequences if not approved:	⌘	If this CR is not approved, partial S-CDRs (from different SGSNs) for a PDP context may not be correlated unambiguously since the GTP protocol allows the GGSN address for control plane to be changed during the SGSN routing area update procedure.

Clauses affected:	⌘	7.3.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

7.3.4 Update PDP Context Response

The message shall be sent from a GGSN node to a SGSN node as a response of an Update PDP Context Request.

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- 'Semantic errors in packet filter(s)'.
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- 'Mandatory IE missing'.
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The GGSN shall include a ~~GGSN Address for control plane and an~~ GGSN address for user traffic, which may differ from that provided by the underlying network service (e.g. IP). The SGSN shall store thi~~sese~~ GGSN Address~~es~~ and use i~~them~~ when sending ~~subsequent control plane on this GTP tunnel or~~ G-PDUs to the GGSN for the MS. When active contexts are being redistributed due to load sharing, G-PDUs that are in transit across the Gn-interface are in an undetermined state and may be lost. The GGSN shall also include a GGSN address for control plane, which shall not differ from that provided at PDP context setup time and shall remain unchanged for the lifetime of the PDP context. The

GGSN Address for control plane and the GGSN Address for user traffic shall be included if the Cause contains the value 'Request accepted'.

The GGSN shall include the Recovery information element into the Update PDP Context Response if the GGSN is in contact with the SGSN for the first time or if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the GGSN.

The Charging ID is used to identify all charging records produced in SGSN(s) and the GGSN for this PDP context. The Charging ID has been previously generated by the GGSN and is unique for this PDP context. If an inter-SGSN routing area update occurs, it is transferred to the new SGSN as part of each active PDP context. This information element shall be included if the Cause contains the value 'Request accepted'.

The Charging Gateway Address is the IP address of the recommended Charging Gateway Functionality to which the SGSN should transfer the Charging Detail Records (CDR) for this PDP Context.

The optional Private Extension contains vendor or operator specific information.

Table 9: Information Elements in an Update PDP Context Response sent by a GGSN

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
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Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Charging ID	Conditional	7.7.26
GGSN Address for Control Plane	Conditional	GSN Address 7.7.32
GGSN Address for User Traffic	Conditional	GSN Address 7.7.32
Quality of Service Profile	Conditional	7.7.34
Charging Gateway Address	Optional	7.7.43
Private Extension	Optional	7.7.44

The message can also be sent from a SGSN node to a GGSN node as a response of a GGSN-initiated Update PDP Context Request.

If the GGSN receives an Update PDP Context Response with a Cause value other than 'Request accepted', it shall abort the update of the PDP context if the associated Update PDP Context Request was sent only to re-negotiate the QoS of a PDP context. Furthermore if the associated Update PDP Context Request included an 'End User Address' information element the GGSN shall delete the PDP context using the Delete PDP Context procedure and may notify the Operation and Maintenance network element.

Only the Cause information element and optionally the Recovery information element shall be included in the response if the Cause contains another value than 'Request accepted'.

Possible Cause values are the same as for the Update PDP Context Response sent by a GGSN.

The QoS values supplied in the Update PDP Context Request may be negotiated downwards by the SGSN. The negotiated values or the original value from GGSN is inserted in the Quality of Service Profile information element. This information element shall be included if the Cause contains the value 'Request accepted' and a QoS information element was supplied in the corresponding request message.

The SGSN shall include the Recovery information element into the Update PDP Context Response if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN receiving the Recovery information element shall handle it as when an Echo Response message is received but shall consider the PDP context as updated and active if the response cause indicates a successful operation at the SGSN.

Table 10: Information Elements in an Update PDP Context Response sent by a

Information element	Presence requirement	Reference
Cause	Mandatory	7.7.1
Recovery	Optional	7.7.11
Quality of Service Profile	Conditional	7.7.34
Private Extension	Optional	7.7.44

3GPP TSG-CN-WG4 Meeting #10 ***N4-011222***
Brighton, UK, 15th - 19th October 2001

Title:	**Reply Liaison Statement on Unique GGSN address**
Source:	CN4
To:	SA2, SA5
Cc:	CN2
Response to:	LS S2-012320 (N4-011131) on "Unique GGSN Addresses", LS S5-010423 (N4-011141) on “Unique GGSN address required for charging purposes”

Contact Person:
Name: Markus Berg
Tel. Number: +49 711 821 47464
E-mail Address: ma.berg@alcatel.de

Attachments: CRs: GGSN address for control plane must not be changed in "Update PDP Context Response" (N4-011220 for R99 and N4-011221 for Rel-4)

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1. Overall Description:

CN4 thanks SA2 and SA5 for their Liaison Statements, referenced above, on Unique GGSN Addresses.

CN4 wants to inform SA2, SA5 and CN2 that it agreed from R99 onwards on changes in 3GPP TS 29.060 preventing the GGSN address for control plane from being changed in the "Update PDP Context Response" message. This ensures that the GGSN address for control plane will remain unchanged for the lifetime of the PDP context.

CN4 thinks that this way the GGSN address for control plane together with the charging-ID can serve as the unique identifier requested for CAMEL and charging purposes.

2. Actions:

None.

3. Date of Next CN4 Meetings:

CN4 #11	26th -30th of November 2001, Cancun

3GPP TSG-CN-WG4 Meeting #10 ***N4-011234***
Brighton, UK, 15th - 19th October 2001

Title: Liaison Statement On RANAP Indication Of Modify Support Of Link Characteristics
Source: CN4
To: RAN3
Cc:
Response to:

Contact Person:
Name: phil hodges
Tel. Number: +61 3 99113414
E-mail Address: philip.hodges@ericsson.com.au

Attachments: N4-011076, N4-011077

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1. Overall Description:

CN4 has discovered a problem with the RAB Assignment modification procedure when the transport bearer protocol on the Iu Access Bearer does not allow modification of the transport link characteristics without releasing the existing connection. RANAP allows the MSC to provide a new transport association and transport address in the RAB Assignment modification which it may use. However the MSC does not know when the RNC will use these parameters, i.e. it does not know when to provide new addresses or when the existing ones can be used.

CN4 has discussed some possible solutions to this (presented in discussion paper N4-01076, attached) which included Core Network solutions but agreed that the only viable solution would be to receive an indication in the initial RAB Assignment Response. In order to be backward compatible this should only be included if the transport bearer supports Link Characteristics Modification. If no indication is received the MSC will assume that it must provide a new transport association. This solution does not add additional signalling sequences during call establishment or RAB modification and does not rely on standardisation outside 3GPP (such as in ITU).

CN4 has produced a CR for its Stage 2 call procedures specification (TS 23.205) to handle this change (N4-01077, document attached) which has been approved but is dependent on a CR on TS 25.413.

2. Actions:

To RAN WG3 group.

ACTION: CN4 kindly asks RAN3 if they can provide such a solution as a CR to their Release 4 version of RANAPs In the timeframe of CN plenary #14.

3. Date of Next CN4 Meetings:

CN4#11	26th – 30th November 2001 Cancun, Mexico
CN Plenary#14	12th – 14th December 2001 Japan

3GPP TSG-CN-WG4 Meeting #10 ***N4-011235***
Brighton, UK, 15th - 19th October 2001

Title: **Selection of S-CSCF by I-CSCF based on capability requirements**
Source: CN4
To: SA2 , SA5
Cc: CN1, SA1

Contact Person:
Name: Jeremy Fuller
Tel. Number: +44 1628 434679
E-mail Address: jfuller@nortelnetworks .com

Attached document for further information – N4-011065

It is expected the S-CSCFs within a network may have different capabilities. CN4 has agreed in principle that the HSS should send the I-CSCF a 'S-CSCF Capabilities information element' to assist the I-CSCF in the selection of a S-CSCF for a certain user. It is proposed that this new information element will contain an operator specific encoding of the capabilities required for the subscriber and/or a list of Operator Preferred S-CSCF names.

At present it is suggested that the matching criteria used in the I-CSCF to determine the actual S-CSCF to allocate is not standardised. However, a concern was raised that without any guidelines at all this could result in a multi-vendor interworking issues. CN4 will investigate this issue further.

Two other issues related to this subject which CN4 will be investigating further are:

1. What should happen if no S-CSCF is available which meets the capability requirements requested by the HSS? Is there a requirement to standardise a mechanism, which enables the HSS to indicate whether a service is optional or mandatory? However, if a S-CSCF is allocated to a subscriber which cannot meet all the service requirements then is there a requirement to indicate to the subscriber which services are available?

2. How should the I-CSCF maintain a correct view of the capabilities of the available S-CSCFs in the network? Should this be a vendor specific mechanism or should a mechanism be standardised to assist multi-vendor interworking in this respect?

Since these issues can be considered to have architectural and network management impact, SA2 and SA5 are invited to provide any guidance that they would like to give. However it should be noted that CN4 will continue with the definition of solutions to these issues in the absence of any guidance.

2. Actions:

To SA 2 group.

ACTION: SA2 are asked to provide guidance to CN4 if they have any strong opinions of the issues raised in this liaison.

To SA 5 group.

ACTION: SA5 are asked to comment on whether they see a need to standardise a mechanism to assist ensuring the I-CSCF has a correct view of the capabilities of available S-CSCF in a multi-vendor networks.

3. Date of Next CN4 Meetings:

26 – 30 November 2001	CN4 #11	Cancun, Mexico

3GPP TSG CN WG4 Meeting #11 ***N4-011383***
Cancun, Mexico, 26th - 30th November 2001

Title: Liaison Statement reply on Subscriber and Equipment Trace (TS 32.108)
Source: CN4
To: SA5 SWG_B
Cc:
Response to: S5-010645 rev.2 from WG SA5 SWG_B .

Contact Person:
Name: Seppo Kauntola
Tel. Number: +358 40 556 9959
E-mail Address: seppo.kauntola@nokia.com

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1. Overall Description:

CN4 thanks SA5 SWG_B for the first draft of TS 32.108, "Subscriber and equipment trace" for Release 5. CN4 will analyse the document and study what additions and changes to core network specifications it implies, and what is possible to introduce in Release 5 timescale.

2. Actions:

None

3. Date of Next CN4 Meetings:

CN4 #12 28 January – 1 February 2002, Sophia Antipolis, FRANCE

3GPP TSG CN WG4 Meeting #11 ***N4-011406***
Cancun, Mexico, 26th - 30th November 2001

Title: Liaison Statement on Cx User Profile
Source: CN4
To: 3GPP Joint ad-hoc on Generic User Profile (GUP)
(Chairman: Gunilla.Bratt@EMP.ERICSSON.SE)
Cc: CN1
Response to:

Contact Person:
Name: Seppo Kauntola
Tel. Number: +358 40 556 9959
E-mail Address: seppo.kauntola@nokia.com

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1. Overall Description:

CN4 is in a process of defining user profile for the Cx (HSS – CSCF) interface. CN4 would like to ask from GUP adhoc that how their efforts should be considered related to Cx user profile activities. Also CN4 likes to inform that the Cx user profile is being modelled by the UML, from which the abstract syntax notation is mapped. The abstract syntax notation (e.g. ASN.1 or XML) is not yet selected. If possible CN4 would like to hear the opinion of the GUP adhoc on the CN4 procedure and if possible their view on the abstract syntax notation.

CN4 would also like to point out, that the agreed Release-5 time frame (March 2002) and the fact that CN4 has only one scheduled meeting before this deadline require quick response.

2. Actions:

To GUP adhoc group:

CN4 asks GUP group to give their opinion on the CN4 procedure and the abstract syntax notation.

3. Date of Next CN4 Meetings:

CN4 #12	28 January – 1 February 2002, Sophia Antipolis, FRANCE

3GPP TSG CN WG4 Meeting #11 ***N4-011422***
Cancun, Mexico, 26th - 30th November 2001

Title: **LS "Supported LCS Capability Set"**

Source: **TSG CN4**

To: **TSG SA2**

Cc:

Contact Person:

Name: **Pompeo Santoro**
E-mail Address: **Pompeo.Santoro@eri.ericsson.se**

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1. Overall Description:

While reviewing document N4-011263 (in attachment to this LS) CR 345 on 29.002 to line up the handling and definition of the MAP parameter **SupportedLCS-CapabilitySets**, a number of concerns were raised at CN4 on the opportunity to accept the CR and line up with Stage 2 23.271 section 10.5.1 .

The reason for CN4 concerns were that the current LCS Stage 2 assumes that if a VLR or SGSN supports a certain release of LCS then it supports all previous capability sets. While this might be true for a VLR Rel-4, it might not be true in future for, e.g,, a Rel-5 VLR, since possibly backward incompatible changes could be done at the LCS related MAP operations, and it is certainly not true for an SGSN Rel-4, since there's no support in SGSN for Rel-99 LCS.

2. Actions:

To TSG SA2:

ACTION: TSG CN4 kindly asks **TSG SA2** to consider the above comments and update the LCS Stage 2 23.271 TS for Rel-4 onwards, in order to state that a VLR / SGSN shall communicate to the HLR all the releases of LCS it supports.

3. Attachments:

N4-011263.zip

3GPP TSG CN WG4 Meeting #11 ***N4-011449***
Cancun, Mexico, 26th - 30th November 2001

Title: **DRAFT LS on MAPsec error handling**

Source: CN4
To: SA3
Cc:
Response to: LS (S3z010121) on MAPsec error handling from SA3

Contact Person:
Name: Ulrich Wiehe
Tel. Number: +49 6621 169 139
E-mail Address: ulrich.wiehe@icn.siemens.de

Attachments: NONE

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1. Overall Description:

CN4 thank SA3 for their liaison on MAPsec error handling (S3z010121, N4-011348) and provide answers as follows:

- CN4 have checked the error handling for MAP secure transport messages in TS 29.002 and confirm that errors specific to MAPsec are rather generic. To be more specific the following MAPsec specific error information is returned to the sender of a protected MAP message:
  - "**encapsulatedAC-NotSupported**" if a MAP-dialogue opening message, which is not supported, is received in protected mode.
  - "**transportProtectionNotAdequate**" if a protected message is received, which should not be protected according to the SPD, and if an unprotected message is received, which should have been protected according to the SPD and fallback to unprotected mode is not allowed.
  - "**UnexpectedDataValue**" if an unexpected value is received in the Security Header e.g. an unknown SPI.
  - "**DataMissing**" if an optional parameter, which should be present, is missing; e.g. the protectedPayload.
  - "**Secure Transport Error**" if the application using secure transport returned an error. The parameter of the error indicates the protected payload, which carries the result of applying the protection function specified in 3G TS 33.200 to the encoding of the parameter of the original error

  CN4 believe that this is consistent with the SA3 flow provided in CR 33.200 007.

- MAP messages can be discarded at the MAP protocol level (e.g. if the TVP is out of an acceptable time window). It is however not possible to undo TCAP processing at the time when the message is processed on MAP level. This means that the dialogue cannot successfully be continued. This means that re-played messages could be used as the basis of a denial of service attack.

CN4 will be pleased to check 3GPP TS 29.002 for consistency with the received SA3-flows and perform the corresponding changes in the mentioned specification.

CN4 is interested to know what is the **maturity status** of the SA3 TS 33.200 in order to plan future changes in the specifications under responsibility of CN4. Thus CN4 will appreciate that the **final stable** version of 3GPP TS 33.200 is send to us in a LS with the changes you foresee in CN4 specifications.

2. Actions:

CN4 kindly asks SA3 to send us the final stable version of 3GPP TS 33.200 with an indication of the impacts expected in specifications under responsibility of CN4.

3. Date of Next CN4 Meetings:

CN4#12 28 January – 1 February 2002, Sophia Antipolis, France

CN4#13 8 April – 12 April 2002, North America

3GPP TSG CN Plenary Meeting #13 **NP-010538**
Beijing, China, 19th –21st September 2001

Source:	**Ericsson, Nokia, Siemens, Vodafone**
Title:	**WID for Introduction of AMR-WB speech service in 3GPP Standards Release 5 – Core Network Aspects**
Agenda item:	**9.6**
Document for:	**APPROVAL**

WID over page.

Work Item Description

Title

Introduction of AMR-WB speech service in 3GPP Standards Release 5 – Core Network Aspects

1 3GPP Work Area

	Radio Access
X	Core Network
	Services

2 Linked work items

Wideband telephony service – AMR: Codec issues (Unique ID 67)
Wideband telephony service – AMR: Implementation in UTRAN (Unique ID 893)
Wideband telephony service – AMR: Support of AMR-WB in GERAN(Unique ID 80)

3 Justification

Unlike narrow band codecs, the AMR-WB codec's 7kHz audio bandwidth reproduces a wide range of human speech frequencies and offers the opportunity for manufacturers and operators to introduce superior quality voice services. It has been demonstrated that the AMR-WB codec can also encode and decode music to acceptable listening standards thus allowing the codec to be used for other audio applications. Whilst TSG SA4 have completed much of the codec specification work, there are several critical core and access network inter-working aspects that must be specified.

This WI is initiated to co-ordinate the standardisation tasks within TSG CN required to provide a complete solution for the introduction of a mobile wideband speech service.

4 Objective

To complete the standardisation tasks within the affected working groups for 3GPP Release 5, specifically:

- End to end bandwidth support for AMR-WB;
- Codec selection and GSM-UTRAN interworking:
- TFO and TrFO signalling;
- AMR-WB and narrrowband interworking;
- Radio Access Bearer optimisation;
- Radio Access Bearer renegotiation (impact at least on 23.018)
- Interworking with fixed broadband networks;
- Tones and announcements;
- Billing, accounting and call detail record aspects;
- WB Conferencing and WB Voice Group calls;
- Adaptation of subscriber data in HLR/VLR;
- Legal interception.

The detailed AMR-WB time plan is documented in the 3GPP Work Plan.

Task	Planned Start	Planned Finish
Work Item Revision	Sep 2001	End Sep 2001
Work Item Approval		End Sep 2001
Drafting and discussion, updates of specifications	Oct 2001	Feb 2002
Submission to TSG CN for approval		CN #15 (Mar 2002)
Possible remaining corrections and clarifications		CN #16 (Jun 2002)

5 Service Aspects

The AMR wideband codec has been specified for use in GSM, GERAN and UTRAN. Stage 1 service requirements to complement existing AMR specifications may need to be defined.

Furthermore it needs to elaborated how charging shall be applied, i.e. subscription based or on a per call / per codec (change) /per ??? basis.

6 MMI-Aspects

User selection of wideband speech services and USIM subscription aspects needs to be studied in SA1.

7 Charging Aspects

Billing, accounting and call detail record aspects need to be studied in SA5 depending on the general charging requirements as specified by SA1..

8 Security Aspects

Lawful interception requirements need to be studied in SA3.

9 Impacts

Affects:	USIM	ME	AN	CN	Others
Yes		X		X	
No			X		
Don't know	X				

10 Expected Output and Time scale (to be updated at each plenary)

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments
24.008		DTAP codec type	TSG-CN #15	Possible impact if AMR-WB uses codepoints in Bearer Capability IE and supported codecs list
24.228		Call flows for the IMS	TSG-CN #15	
24.229		SDP profile	TSG-CN #15	
23.153		Introduction of AMR-WB for TrFO	TSG-CN #15	AMR-WB service interactions
23.018		Basic Call Handling	TSG-CN #15	AMR-WB call handling and MSC, HLR, VLR functional requirements

11 Work item rapporteurs

John Watson (Vodafone)

12 Work item leadership

CN WG4

13 Supporting Companies

Ericsson, Nokia, Siemens, Vodafone

14 Classification of the WI (if known)

	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature Wideband telephony service – AMR (Unique ID 1625)

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)

3GPP TSG CN Plenary Meeting #13 **NP-010538**
Beijing, China, 19th –21st September 2001

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Document for:	**APPROVAL**

WID over page.

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Introduction of AMR-WB speech service in 3GPP Standards Release 5 – Core Network Aspects

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14a The WI is a Feature: List of building blocks under this feature

(list of Work Items identified as building blocks)

14b The WI is a Building Block: parent Feature Wideband telephony service – AMR (Unique ID 1625)

(one Work Item identified as a feature)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)