3GPP TSG CT Meeting #28 **CP-0500037**
1st – 3rd June 2005. Quebec, CANADA.

Source: **CT3**

Title: **CR to Rel-6 related to ALG on Work Item "IMS"**

Agenda item: **9.11**

Document for: **APPROVAL**

Introduction:

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

WG_tdoc	Spec	CR	R	Cat	Title	Rel	C_Ver	Work Item
C3-050431	29.162	002	2	F	ALG transparency	Rel-6	6.0.0	IMS-CCR-IWIP

3GPP TSG-CT WG3 Meeting #36
Cancun, Mexico. 25th - 29th April 2005.

Tdoc ⌘C3-050431

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.162** **CR** **002** ⌘**rev** **2** ⌘ Current version: **6.0.0** ⌘

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

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

Title:	⌘	ALG transparency
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR-IWIP
Date:	⌘	18/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	The ALG must behave as a B2BUA to perform the address translation functions specified in 29.162, but there is otherwise no guidance as to its behavior. As a B2BUA, the ALG may be implemented in many different ways without this guidance. How should various headers related to routing be populated? What degree of transparency should there be with respect to methods, headers and attachments? There are also references to the use of Record-Route that are more appropriate to a proxy than a B2BUA.
Summary of change:	⌘	The references to the use of Record-Route are stricken. A new section is added to specify that the ALG should behave as transparently as possible with respect to methods, headers and attachments.
Consequences if not approved:	⌘	There is a risk of interoperability problems since the ALG behavior is incorrect with regard to the handling of Record-Route and otherwise largely unspecified.

Clauses affected:	⌘	9.1.1.1, 9.1.1.2, 9.1.2.1, 9.1.2.2, 9.1.4

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

Other comments: ⌘

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

9 IP Version Interworking at the IMS-ALG/TrGW

9.1 Control plane interworking

9.1.1 Originating Session Set-up to IPv4 SIP network

9.1.1.1 Receipt of the first SDP offer

At the receipt of the first SDP offer the IMS-ALG:

- Provides to the TrWG the IPv6 address(es) and port number(s) as received in the c-line(s) and m-line(s) in the SDP, and
- Requests the TrGW to bind corresponding IPv4 address(es) and port number(s) from its pool to the received IPv6 address(es) and port number(s) to enable the routing of user plane traffic from the IPv4 SIP network through the TrGW.

When the IMS-ALG has received the requested information from the TrGW the IMS-ALG shall include the IPv4 address(es) and port number(s) in a new offer, which shall be sent to the IPv4 network. The IMS-ALG shall create a SIP message in accordance with the rules for the IMS_ALG described in ~~TS 24.229 [1] and~~ subclause 9.1.4 with the following clarification:

- The IPv4 address(es) and port number(s) shall replace the IPv6 address(es) and port number(s) in the SDP.

~~- The IMS-ALG shall create a Record-Route header containing its own SIP-URI.~~

9.1.1.2 Receipt of the first SDP answer

At the receipt of the first SDP answer from the IPv4 network the IMS-ALG:

- Provides to the TrGW the IPv4 address(es) and port number(s) as received in the c-line(s) and m-line(s) in the SDP, and
- Requests the TrGW to bind corresponding IPv6 address(es) and port number(s) from its pool to the received IPv4 address(es) and port number(s) to enable the routing of user plane traffic towards the IPv4 SIP network through the TrGW.

When the IMS-ALG has received the requested information, the IMS-ALG shall send an SDP answer to the IPv6 network. The IMS-ALG shall create the SIP message in accordance with the rules for the IMS ALG described in ~~3GPP TS 24.229 [1] and~~ subclause 9.1.4 with the following clarification:

- The IPv6 address(es) and port number(s) ~~-~~shall replace the received IPv4 address(es) and port number(s) in the SDP.

9.1.2 Terminating Session set-up from IPv4 SIP network

9.1.2.1 Receipt of an SDP offer

At the receipt of the first SDP offer the IMS-ALG:

- Provides to the TrGW the IPv4 address(es) and port number(s) as received in the c-lin(es) and m-lin(es) in the SDP, and
- Requests the TrGW to bind corresponding IPv6 address(es) and port number(s) from its pool to the received IPv4 address(es) and port number(s) to enable the routing of user plane traffic towards the IPv4 SIP network through the TrGW.

When the IMS-ALG has received the requested information from the TrGW the IMS-ALG shall send an SDP offer to the IPv6 network. The IMS-ALG shall create a SIP message in accordance with the rules for the IMS ALG described in ~~3GPP TS 24.229 [1] and~~ subclause 9.1.4 with the following clarifications:

- The IPv6 address(es) and port number(s) shall replace the received IPv4 address(es) and port number(s) in the SDP.

~~- The IMS-ALG shall create a Record-Route header containing its own SIP-URI if the SIP message is a request.~~

9.1.2.2 Receipt of SDP answer

At the receipt of a SDP answer from the IPv6 network the IMS-ALG:

- Provides to the TrGW the IPv6 address(es) and port number(s) as received in the c-line(s) and m-line(s) in the SDP.
- Requests the TrGW to bind corresponding IPv4 address(es) and port number(s) from its pool with the received IPv6 address(es) and port number(s) to enable the routing of user plane traffic from the IPv4 SIP network through the TrGW.

When the IMS-ALG has received the requested information, the IMS-ALG shall send a SDP answer to the IPv4 network. The IMS-ALG shall create the SIP message in accordance with the rules for the IMS ALG described in ~~3GPP TS 24.229 [1] and~~ subclause 9.1.4 with the following clarification:

- The IPv4 address(es) and port number(s) shall replace the received IPv6 address(es) and port number(s) in the SDP.

9.1.3 Change of connection information

After the dialog is established it is possible for both ends of the session to change the connection data for the session. When the IMS-ALG/TrGW receives a SDP offer/answer where port number(s) or IP address(es) is included., there are four different possibilities:

1) IP address(es) or/and port number(s) have been added. In this case additional binding(s) shall be provided by the IMS-ALG/TrGW as detailed for the first SDP offer in the Clauses above;
2) IP address(es) or/and port number(s) have been deleted. In this case binding(s) shall be made free by the IMS-ALG/TrGW;
3) IP address(es) and port number(s) have been reassigned of the users. In this case the binding(s) shall reflect the reassignment;
4) No change has been made to the IP address(es) and port number(s). In this case no change shall be made to the existing binding(s).

9.1.4 ~~Release of the session~~Interworking of SIP messages

The IMS-ALG behaves as a SIP B2BUA when interworking SIP messages. The IMS-ALG shall forward all SIP messages transparently with respect to all methods, result codes, headers and attachments except as follows:

- The IMS-ALG modifies SDP according to ~~clause~~subclauses 9.1.1, 9.1.2 and 9.1.3;
- When forwarding an incoming SIP request, the IMS-ALG should perform UAC procedures towards the intended target according to IETF RFC 3261 [2], by modifying those headers necessary to ensure that all transactions within the dialog pass through the IMS-ALG;
- When forwarding an incoming SIP response, the IMS-ALG should perform UAS procedures towards the originator of the corresponding request according to IETF RFC 3261 [2], by modifying those headers necessary to ensure that all transactions within the dialog pass through the IMS-ALG and
- The IMS-ALG may perform any appropriate error recovery procedures in the event that an incoming message contains errors inconsistent with the forwarding procedures above.

At the receipt of a BYE request, CANCEL request or ~~non~~ non-200 final response~~s~~, the IMS-ALG shall release the session and request the TrGW to release the bindings established for the session.