3GPP TSG-CN Meeting #23
10th - 12th March 2004. Pheonix, USA.

Tdoc NP-040108

CR-Formv7

CHANGE REQUEST

24.229	CR	605	rev	3	Current version:	6.1.0

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

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

Title:	Determination of S-CSCF role	
Source:	Lucent, Nokia	
Work item code:	IMS2	***Date:*** 04/03/2004
Category:	**B**	***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:

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

Reason for change:	ASs may send request on behalf of the user. When that happens, the request has to be sent to the S-CSCF of the user, and the S-CSCF shall act in originating role. The AS can query the HSS to find out the address of the S-CSCF serving that specific user, but that address embeds the terminating role of the S-CSCF, but in this case the role has to be originating. It is therefore proposed to append a parameter to the Request URI, which would let the S-CSCF to recognise that it needs to perform originating services.
Summary of change:	The orig parameter has been defined. The AS appends the parameter, while the S-CSCf removes it.
Consequences if not approved:	Thee won't be possible to tell to the S-CSCF that it has to perform originating services instead of terminating services.

Clauses affected:	5.4.3.1, 5.7.3, 7.2A.6			
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.

PROPOSED CHANGE

5.4.3.1 Determination of mobile-originated or mobile-terminated case

Upon receipt of an initial request or a target refresh request or a stand-alone transaction, the S-CSCF shall:

- perform the procedures for the mobile-originating case as described in subclause 5.4.3.2 if the request makes use of the information for mobile-originating calls, which was added to the Service-Route header entry of the S-CSCF during registration (see subclause 5.4.1.2), e.g. the message is received at a certain port or the topmost Route header contains a specific user part or parameter; or,

- perform the procedures for the mobile-originating case as described in subclause 5.4.3.2 if the topmost Route header of the request contains the "orig" parameter. The S-CSCF shall remove the "orig" parameter from the topmost Route header; or,

- perform the procedures for the mobile-terminating case as described in subclause 5.4.3.3 if this information is not used by the request.

PROPOSED CHANGE

5.7.3 Application Server (AS) acting as originating UA

When acting as an originating UA the AS shall behave as defined for a UE in subclause 5.1.3, with the exceptions identified in this subclause.

The AS, although acting as a UA, does not initiate any registration of its associated addresses. These are assumed to be known by peer-to-peer arrangements within the IM CN subsystem.

When an AS acting as an originating UA generates an initial request for a dialog or a request for a standalone transaction, the AS shall insert a P-Charging-Vector header with the icid parameter populated as specified in 3GPP TS 32.260 [17]. The AS may retrieve CCF and/or ECF adresses from HSS on Sh interface.

When an AS acting as an originating UA generates a subsequent request that does not relate to an INVITE dialog, the AS shall insert a P-Charging-Vector header with the icid parameter populated as specified in 3GPP TS 32.260 [17].

The AS shall extract charging function addresses from any P-Charging-Function-Addresses header that is received in any 1xx or 2xx responses to the requests.

Furthermore the AS shall insert a Route header pointing to the S-CSCF of the UE on whose behalf the request is generated.

NOTE: The address of the S-CSCF may be obtained either from a previous request terminated by the AS, by querying the HSS on the Sh interface or from static configuration.

The AS shall always append the "orig" parameter to the URI of the S-CSCF whenever it generates a request on behalf of the user and sends it to the S-CSCF where the user is registered.

PROPOSED CHANGE

7.2A Extensions to SIP headers defined within the present document

7.2A.1 Extension to WWW-authenticate header

7.2A.1.1 Introduction

This extension defines a new authentication parameter (auth-param) for the WWW-Authenticate header used in a 401 (Unauthorized) response to the REGISTER request. For more information, see RFC 2617 [21] subclause 3.2.1.

7.2A.1.2 Syntax

The syntax for for auth-param is specified in table 7.4.

Table 7.4: Syntax of auth-param

```
auth-param      = 1#( integrity-key / cipher-key )
integrity-key   = "ik" EQUAL ik-value
cipher-key      = "ck" EQUAL ck-value
ik-value        = LDQUOT *(HEXDIG) RDQUOT
ck-value        = LDQUOT *(HEXDIG) RDQUOT
```

7.2A.1.3 Operation

This authentication parameter will be used in a 401 (Unauthorized) response in the WWW-authenticate header during UE authentication procedure as specified in subclause 5.4.1.

The S-CSCF appends the integrity-key parameter (directive) to the WWW.-Authenticate header in a 401 (Unauthorized) response. The P-CSCF stores the integrity-key value and removes the integrity-key parameter from the header prior to forwarding the response to the UE.

The S-CSCF appends the cipher-key parameter (directive) to the WWW-Authenticate header in a 401 (Unauthorized) response. The P-CSCF removes the cipher-key parameter from the header prior to forwarding the response to the UE. In the case ciphering is used, the P-CSCF stores the cipher-key value.

7.2A.2 Extension to Authorization header

7.2A.2.1 Introduction

The integrity-protected authentication parameter (auth-param) is an extension parameter defined for the Authorization header used in REGISTER requests. For more information, see RFC 2617 [21] subclause 3.2.2.

7.2A.2.2 Syntax

The syntax for for auth-param is specified in table 7.5.

Table 7.5: Syntax of auth-param

```
integrity-protected = “integrity-protected” EQUAL (“yes” / “no”)
```

7.2A.2.3 Operation

This authentication parameter is inserted by the P-CSCF in all the REGISTER requests received from the UE. The value of the parameter is set to “yes” in case the request was integrity protected, otherwise the value of it is set to “no”. This information is used by S-CSCF to decide whether to challenge the REGISTER request or not, as specified in subclause 5.4.1.

7.2A.3 Tokenized-by parameter definition (various headers)

7.2A.3.1 Introduction

The tokenized-by parameter is an extension parameter appended to encrypted entries in various SIP headers as defined in subclause 5.3.3.1.

7.2A.3.2 Syntax

The syntax for the tokenized-by parameter is specified in table 7.6:

Table 7.6: Syntax of tokenized-by-param

```
uri-parameter =  transport-param / user-param / method-param
/ ttl-param / maddr-param / lr-param / tokenized-by-param / other-param
tokenized-by-param = “tokenized-by” EQUAL hostname
```

The BNF for uri-parameter is taken from IETF RFC 3261 [26] and modified accordingly.

7.2A.3.3 Operation

The tokenized-by parameter is appended by I-CSCF(THIG) after all encrypted strings within SIP headers when network configuration hiding is active. The value of the parameter is the domain name of the network which encrypts the information.

7.2A.4 Void

7.2A.5 P-Charging-Vector header

7.2A.5.1 Introduction

The P-Charging-Vector header field is extended to include specific charging correlation information needed for IM CN subsystem functional entities.

7.2A.5.2 Syntax

The syntax of the P-Charging-Vector header field is described in RFC 3455 [52]. There may be additional coding rules for this header depending on the type of IP-CAN, according to access technology specific descriptions.

7.2A.5.3 Operation

The operation of this header is described in subclauses 5.2, 5.3, 5.4, 5.5, 5.6, 5.7 and 5.8.

7.2A.6 Orig parameter definition

Editor’s note: According to draft-ietf-sip-uri-parameter-reg-01, all SIP and SIPS URI parameters MUST be documented in an RFC in order to be registered by IANA. Registered SIP or SIPS URI parameters are to be considered "reserved words". 3GPP shall consider to describe this parameter in an informational RFC and register it by IANA. When that happens, subclause 7.2A.6 will be removed.

7.2A.6.1 Introduction

The "orig" parameter is a uri-parameter intended to tell to the S-CSCF that it has to perform the originating services instead of terminating services.

7.2A.6.2 Syntax

The syntax for the orig parameter is specified in table 7.7:

Table 7.7: Syntax of orig parameter

```
uri-parameter =  transport-param / user-param / method-param / ttl-param / maddr-param / lr-param /
        orig / other-param
orig = "orig"
```

The BNF for the uri-parameter is taken from RFC 3261 [26] and modified accordingly.

7.2A.6.3 Operation

The orig parameter is appended to the address of the S-CSCF by the ASs, when those initiate requests on behalf of the user. The S-CSCF will run originating services whenever the orig parameter is present next to its address.