3GPP TSG CN Meeting #27 **NP-050069**
9th - 11th March 2005. Tokyo, Japan.

Source: **TSG CN WG1**

Title: **CR to Rel-5 WI "IMS-CCR"**

Agenda item: **8.1**

Document for: **APPROVAL**

This document contains 14 **CRs on Rel-5 Work Item "IMS-CCR"**, that have been agreed by TSG CN WG1 CN#37 meeting and forwarded to TSG CN Plenary meeting #27 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	WI	Rel
N1-050051	Deregistration effect on active sessions	24.229	784		F	5.11.1	IMS-CCR	Rel-5
N1-050052	Deregistration effect on active sessions	24.229	785		A	6.5.1	IMS-CCR	Rel-6
N1-050220	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration	24.229	839		F	5.11.1	IMS-CCR	Rel-5
N1-050221	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration	24.229	840		A	6.5.1	IMS-CCR	Rel-6
N1-050222	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration	23.218	75		F	5.7.0	IMS-CCR	Rel-5
N1-050223	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration	23.218	76		A	6.2.0	IMS-CCR	Rel-6
N1-050287	Default handling	23.218	73	1	F	5.7.0	IMS-CCR	Rel-5
N1-050291	Use of original dialog identifier at AS	24.229	805	1	F	5.11.1	IMS-CCR	Rel-5
N1-050292	Use of original dialog identifier at AS	24.229	806	1	A	6.5.1	IMS-CCR	Rel-6
N1-050295	IOI storage at MGCF	24.229	809	1	F	5.11.1	IMS-CCR	Rel-5
N1-050296	IOI storage at MGCF	24.229	810	1	A	6.5.1	IMS-CCR	Rel-6
N1-050298	Correction to interaction between S-CSCF and HSS in Network initiated deregistration procedure	24.228	137	2	F	5.11.0	IMS-CCR	Rel-5
N1-050401	Checking Request-URI for terminating requests at the S-CSCF	24.229	807	2	F	5.11.1	IMS-CCR	Rel-5
N1-050402	Checking Request-URI for terminating requests at the S-CSCF	24.229	808	2	A	6.5.1	IMS-CCR	Rel-6

3GPP TSG-CN1 Meeting #37 **Tdoc N1-050051**
Sydney, Australia, 14-18 February 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.229** **CR** **784** ⌘**rev** **-** ⌘ Current version: **5.11.1** ⌘

*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:	⌘	Deregistration effect on active sessions
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	21/01/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

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

Use one of the following releases:

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

Reason for change:	⌘	When UE sends de-REGISTER request, S-CSCF currently is required to tear down all sessions "associated" with the PUID that is deregistered, or other PUIDs from the same implicit registration set. However, it may be possible to have a session that is associated with a PUID but the UE for that PUID is no longer actively involved in the session. For example, when call forwarding (A calls B, and forwarded to C) or call transfer (B calls A, B calls C, and B transfers A to C) takes place. After this happens, it is not desired to have de-REGISTER for party B affect the session between A and C. Rather, only sessions that still actively involve the user being deregistered should be torn down.
Summary of change:	⌘	The wording is changed from sessions "belonging" and being "associated" with the user to sessions "including" the user.
Consequences if not approved:	⌘	Sessions may be torn down when they should have been left alone. For example, call forwarding (A calls B, and forwarded to C) or call transfer (B calls A, B calls C, and B transfers A to C) takes place, and after this happens party B sends de-REGISTER. Without the change from this CR, the session between A and C will be torn down.

Clauses affected:	⌘	5.4.1.4, 5.4.1.5 and 5.4.5.1.2A

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.

*** FIRST MODIFICATION ***

5.4.1.4 User-initiated deregistration

When S-CSCF receives a REGISTER request with the Expires header field containing the value zero, the S-CSCF shall:

- check whether the "integrity-protected" parameter in the Authorization header field is set to "yes", indicating that the REGISTER request was received integrity protected. The S-CSCF shall only proceed with the following steps if the "integrity-protected" parameter is set to "yes";
- release each multimedia session that includes this user, where the session ~~which~~ was initiated with the public user identity found in the P-Asserted-Identity header field or with one of the implicitly registered public used identities by applying the steps listed in subclause 5.4.5.1.2;
- deregister the public user identity found in the To header field together with the implicitly registered public user identities;
- send a third-party REGISTER request, as described in subclause 5.4.1.7, to each AS that matches the Filter Criteria from the HSS for the REGISTER event; and
- if this is a deregistration request for the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered) and there are still active multimedia sessions ~~associated with this user~~ that includes this user, where the session was initiated with the public user identity currently registered or with one of the implicitly registered public used identities, release each of these multimedia sessions ~~belonging to the served user~~ by applying the steps listed in subclause 5.4.5.1.2.

If all public user identities of the UE are deregistered, then the S-CSCF may consider the UE and P-CSCF subscriptions to the reg event package cancelled (i.e. as if the UE had sent a SUBSCRIBE request with an Expires header containing a value of zero).

If the Authorization header of the REGISTER request did not contain an "integrity-protected" parameter, or the "integrity-protected" parameter was set to the value "no", the S-CSCF shall apply the procedures described in subclause 5.4.1.2.1.

On completion of the above procedures in this subclause and of the Cx Server Assignment procedure with the HSS, as described in 3GPP TS 29.229 [15], for one or more public user identities, the S-CSCF shall update or remove those public user identities, their registration state and the associated service profiles from the local data (based on operators' policy the S-CSCF can request of the HSS to either be kept or cleared as the S-CSCF allocated to this subscriber).

*** END OF FIRST MODIFICATION ***

*** SECOND MODIFICATION ***

5.4.1.5 Network-initiated deregistration

~~Prior to initiating the network-initiated deregistration for the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered) while there are still active multimedia sessions belonging to this user, the S-CSCF shall release all multimedia sessions belonging to this user as described in subclause 5.4.5.1.~~

Prior to initiating the network-initiated deregistration while there are still active multimedia sessions that are associated with this user, the S-CSCF shall release none, some or all of these multimedia sessions by applying the steps listed in subclause 5.4.5.1.2 under the following conditions:

- when the S-CSCF does not expect the UE to reregister (i.e. S-CSCF will set the event attribute within the <contact> element to "rejected" for the NOTIFY request, as described below), the S-CSCF shall release all

sessions that are associated with the public user identities being deregistered, which includes the implicitly registered public user identities.

- when the S-CSCF expects the UE to reregister (i.e. S-CSCF will set the event attribute within the <contact> element to "deactivated" for the NOTIFY request, as described below), the S-CSCF shall only release sessions that currently include the user, where the session was initiated with the one of the public user identities being deregistered, which includes the implicitly registered public user identities.

When a network-initiated deregistration event occurs for one or more public user identity, the S-CSCF shall send a NOTIFY request to all subscribers that have subscribed to the respective reg event package. ~~Prior to sending the NOTIFY request, the S-CSCF shall release all sessions related to the public user identity being deregistered, if any.~~ For each NOTIFY request, the S-CSCF shall:

1) set the Request-URI and Route header to the saved route information during subscription;

2) set the Event header to the "reg" value;

3) in the body of the NOTIFY request, include as many <registration> elements as many public user identities the S-CSCF is aware of the user owns;

4) set the aor attribute within each <registration> element to one public user identity:

   a) set the <uri> sub-element inside the <contact> sub-element of each <registration> element to the contact address provided by the UE;

   b) if the public user identity:

      i) has been deregistered then:

         - set the state attribute within the <registration> element to "terminated";

         - set the state attribute within the <contact> element to "terminated"; and

         - set the event attribute within the <contact> element to "deactivated" if the S-CSCF expects the UE to reregister or "rejected" if the S-CSCF does not expect the UE to reregister; or

      ii) has been kept registered then:

         - set the state attribute within the <registration> element to "active"; and

         - set the state attribute within the <contact> element to "active"; and

5) add a P-Charging-Vector header with the icid parameter populated as specified in 3GPP TS 32.225 [17].

The S-CSCF shall only include the non-barred public user identities in the NOTIFY request.

Also, the S-CSCF shall send a third-party REGISTER request, as described in subclause 5.4.1.7, to each AS that matches the Filter Criteria from the HSS for the REGISTER event.

In case of the deregistration of the old contact information when the UE is roaming, registration is done in a new network and the previous registration has not expired, on completion of the above procedures, the S-CSCF shall remove the registration information related to the old contact from the local data.

Otherwise, on completion of the above procedures in this subclause for one or more public user identities, the S-CSCF shall deregister those public user identities and the associated implicitly registered public user identities. On completion of the Cx Server Assignment procedure with the HSS, as described in 3GPP TS 29.229 [15], the S-CSCF shall update or remove those public user identities, their registration state and the associated service profiles from the local data (based on operators' policy the S-CSCF can request of the HSS to either be kept or cleared as the S-CSCF allocated to this subscriber). On the completion of the Cx Registration-Termination procedure with the HSS, as described in 3GPP TS 29.228 [14], the S-CSCF shall remove those public user identities, their registration state and the associated service profiles from the local data.

*** END OF SECOND MODIFICATION ***

*** THIRD MODIFICATION ***

5.4.5.1.2A Release of the existing dialogs due to registration expiration

When the registration lifetime of the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered) expires while there are still active multimedia sessions ~~belonging to the served user~~ that includes this user, where the session was initiated with the public user identity currently registered or with one of the implicitly registered public used identities, the S-CSCF shall release each of these multimedia sessions ~~belonging to the served user~~ by applying the steps listed in the subclause 5.4.5.1.2.

*** END OF THIRD MODIFICATION ***

3GPP TSG-CN1 Meeting #37 **Tdoc N1-050052**
Sydney, Australia, 14-18 February 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.229** **CR** **785** ⌘**rev** **-** ⌘ Current version: **6.5.1** ⌘

*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:	⌘	Deregistration effect on active sessions
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	21/01/2005
Category:	⌘	**A**
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)*
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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:	⌘	When UE sends de-REGISTER request, S-CSCF currently is required to tear down all sessions "associated" with the PUID that is deregistered, or other PUIDs from the same implicit registration set. However, it may be possible to have a session that is associated with a PUID but the UE for that PUID is no longer actively involved in the session. For example, when call forwarding (A calls B, and forwarded to C) or call transfer (B calls A, B calls C, and B transfers A to C) takes place. After this happens, it is not desired to have de-REGISTER for party B affect the session between A and C. Rather, only sessions that still actively involve the user being deregistered should be torn down.
Summary of change:	⌘	The wording is changed from sessions "belonging" and being "associated" with the user to sessions "including" the user.
Consequences if not approved:	⌘	Sessions may be torn down when they should have been left alone. For example, call forwarding (A calls B, and forwarded to C) or call transfer (B calls A, B calls C, and B transfers A to C) takes place, and after this happens party B sends de-REGISTER. Without the change from this CR, the session between A and C will be torn down.

Clauses affected:	⌘	5.4.1.4, 5.4.1.5 and 5.4.5.1.2A			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘

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

*** FIRST MODIFICATION ***

5.4.1.4 User-initiated deregistration

When S-CSCF receives a REGISTER request with the Expires header field containing the value zero, the S-CSCF shall:

- check whether the "integrity-protected" parameter in the Authorization header field set to "yes", indicating that the REGISTER request was received integrity protected. The S-CSCF shall only proceed with the following steps if the "integrity-protected" parameter is set to "yes";

- release each multimedia session that includes this user, where the session ~~which~~ was initiated by this UE with the public user identity found in the P-Asserted-Identity header field or with one of the implicitly registered public used identities by applying the steps listed in subclause 5.4.5.1.2;

- if this public used identity was registered only by this UE, deregister the public user identity found in the To header field together with the implicitly registered public user identities. Otherwise, the S-CSCF will only remove the contact address that was registered by this UE;

- send a third-party REGISTER request, as described in subclause 5.4.1.7, to each AS that matches the Filter Criteria from the HSS for the REGISTER event; and

- if this is a deregistration request for the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered) and there are still active multimedia sessions ~~associated with this user~~ that includes this user, where the session was initiated with the public user identity currently registered or with one of the implicitly registered public used identities, release each of these multimedia sessions ~~belonging to the served user~~ by applying the steps listed in subclause 5.4.5.1.2.

If all public user identities of the UE are deregistered, then the S-CSCF may consider the UE and P-CSCF subscriptions to the reg event package cancelled (i.e. as if the UE had sent a SUBSCRIBE request with an Expires header containing a value of zero).

If the Authorization header of the REGISTER request did not contain an "integrity-protected" parameter, or the "integrity-protected" parameter was set to the value "no", the S-CSCF shall apply the procedures described in subclause 5.4.1.2.1.

On completion of the above procedures in this subclause and of the Cx Server Assignment procedure with the HSS, as described in 3GPP TS 29.228 [14], for one or more public user identities, the S-CSCF shall update or remove those public user identities, their registration state and the associated service profiles from the local data (based on operators' policy the S-CSCF can request of the HSS to either be kept or cleared as the S-CSCF allocated to this subscriber).

*** END OF FIRST MODIFICATION ***

*** SECOND MODIFICATION ***

5.4.1.5 Network-initiated deregistration

NOTE 1: A network-initiated deregistration event that occurs at the S-CSCF may be received from the HSS or may be an internal event in the S-CSCF.

Prior to initiating the network-initiated deregistration for the only currently registered public user identity and its associated set of implicitly registered public user identities that have been registered with the same contact (i.e. no other public user identity is registered with this contact) while there are still active multimedia sessions belonging to this contact, the S-CSCF shall release only the multimedia sessions belonging to this contact as described in ~~subclause 5.4.5.1~~ in the following paragraph. The multimedia sessions for the same public user identity, if registered with another contact remain unchanged.

Prior to initiating the network-initiated deregistration while there are still active multimedia sessions that are associated with this user and contact, the S-CSCF shall release none, some or all of these multimedia sessions by applying the steps listed in subclause 5.4.5.1.2 under the following conditions:

- when the S-CSCF does not expect the UE to reregister (i.e. S-CSCF will set the event attribute within the <contact> element to "rejected" for the NOTIFY request, as described below), the S-CSCF shall release all sessions that are associated with the public user identities being deregistered, which includes the implicitly registered public user identities.

- when the S-CSCF expects the UE to reregister (i.e. S-CSCF will set the event attribute within the <contact> element to "deactivated" for the NOTIFY request, as described below), the S-CSCF shall only release sessions that currently include the user, where the session was initiated with the one of the public user identities being deregistered, which includes the implicitly registered public user identities.

When a network-initiated deregistration event occurs for one or more public user identities that are bound to one or more contacts, the S-CSCF shall send a NOTIFY request to all subscribers that have subscribed to the respective reg event package. ~~Prior to sending the NOTIFY request, the S-CSCF may release all sessions related to the contacts that will be deregistered.~~ For each NOTIFY request, the S-CSCF shall:

1) set the Request-URI and Route header to the saved route information during subscription;

2) set the Event header to the "reg" value;

3) in the body of the NOTIFY request, include as many <registration> elements as many public user identities the S-CSCF is aware of the user owns;

4) set the aor attribute within each <registration> element to one public user identity:

   a) set the <uri> sub-element inside the <contact> sub-element of each <registration> element to the contact address provided by the UE;

   b) if the public user identity:

      i) has been deregistered then:

         - set the state attribute within the <registration> element to "terminated";

         - set the state attribute within the <contact> element to "terminated"; and

         - set the event attribute within the <contact> element to "deactivated" if the S-CSCF expects the UE to reregister or "rejected" if the S-CSCF does not expect the UE to reregister; or

      ii) has been kept registered then:

         I) set the state attribute within the <registration> element to "active";

         II) set the state attribute within the <contact> element to:

            - for the contact address to be removed set the state attribute within the <contact> element to "terminated", and event attribute element to "deactivated" if the S-CSCF expects the UE to reregister or "rejected" if the S-CSCF does not expect the UE to reregister; or

            - for the contact address which remain unchanged, if any, leave the <contact> element unmodified; and

NOTE 2: There might be more than one contact information available for one public user identity. When deregistering this UE, the S-CSCF will only modify the <contact> elements that were originally registered by this UE using its private user identity. The <contact> elements of the same public user identitity, if registered by another UE using different private user identities remain unchanged.

5) add a P-Charging-Vector header with the icid parameter populated as specified in 3GPP TS 32.260 [17].

The S-CSCF shall only include the non-barred public user identities in the NOTIFY request.

Also, the S-CSCF shall send a third-party REGISTER request, as described in subclause 5.4.1.7, to each AS that matches the Filter Criteria from the HSS for the REGISTER event.

In case of the deregistration of the old contact information when the UE is roaming, registration is done in a new network and the previous registration has not expired, on completion of the above procedures, the S-CSCF shall remove the registration information related to the old contact from the local data.

Otherwise, on completion of the above procedures for one or more public user identities linked to the same private user identity, the S-CSCF shall deregister those public user identities and the associated implicitly registered public user identities. On completion of the Cx Server Assignment procedure with the HSS, as described in 3GPP TS 29.228 [14], the S-CSCF shall update or remove those public user identities linked to the same private user identity, their registration state and the associated service profiles from the local data (based on operators' policy the S-CSCF can request of the HSS to either be kept or cleared as the S-CSCF allocated to this subscriber). On the completion of the Cx Registration-Termination procedure with the HSS, as described in 3GPP TS 29.228 [14], the S-CSCF shall remove those public user identities, their registration state and the associated service profiles from the local data.

*** END OF SECOND MODIFICATION ***

*** THIRD MODIFICATION ***

5.4.5.1.2A Release of the existing dialogs due to registration expiration

When the registration lifetime of the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered) expires while there are still active multimedia sessions ~~belonging to the served user~~ that includes this user, where the session was initiated with the public user identity currently registered or with one of the implicitly registered public used identities, the S-CSCF shall release each of these multimedia sessions ~~belonging to the served user~~ by applying the steps listed in the subclause 5.4.5.1.2.

*** END OF THIRD MODIFICATION ***

3GPP TSG-CN1 Meeting #37 **Tdoc N1-050220**
Sydney, Australia, 14-18 February 2004

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.229** **CR** **839** ⌘**rev** **-** ⌘ Current version: **5.11.1** ⌘

*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:	⌘	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	04/02/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

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

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Ph2	*(GSM Phase 2)*
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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:	⌘	Subclause 5.4.1.5 of 24.229 specifies that when a network-initiated deregistration event is received, the S-CSCF will deregister the user. Part of the involved procedures are identical to those for the user-initiated deregistration, and involve the analysis of the filter criteria, and the potential generation of a third-party REGISTER request to application servers. However both these procedures rely on the existence of an incoming REGISTER request, against the contents of which a filter criteria analysis is performed, and on which the procedures of subclause 5.4.1.7 rely for contents of some of the parameters in the outgoing third-party REGISTER request. While it would be possible to delete these procedures for network-initiated deregistration, and rely on applications servers subscribing for the reg event package if they need this information, these procedures have been extant since release 5, and it is clear that some application server developments implement, or plan to implement, reliance on information gained from the third-party REGISTER requests, rather than that available from the reg event package. It is also quite clear from the equivalent requirements in 23.218 subclause 9.4.3 for the application server, that the application server expects to be able to build a full picture of registration state from use of either of the two available mechanisms. It therefore appears appropriate to fix the procedures at the S-CSCF, rather than remove an apparently valid (to application server vendors) capability from application servers.
Summary of change:	⌘	Subclause 5.4.1.5 is amended to specify how such filter criteria are analysed and

		the third-party REGISTER request is built.
Consequences if not approved:	⌘	No procedures will exist for the detail of performing the filter criteria matching, or for the contents of some parameters of the third-party REGISTER request, resulting in applications servers receiving inconsistent and unreliable information on network-initiated deregistration. This may result in application servers not being able to reliably deliver the services, or may deliver services inconsistently or differently, when network operator has S-CSCFs supplied by multiple vendors.

Clauses affected:	⌘	5.4.1.5			
Other specs affected:	⌘	**Y** / **N**		⌘	23.218, CR 75
		X /	Other core specifications		
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘	Proposed changes are suggested to the stage 2 in 23.218 to match the stage 3 procedures in 24.229.			

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

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

5.4.1.5 Network-initiated deregistration

Prior to initiating the network-initiated deregistration for the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered) while there are still active multimedia sessions belonging to this user, the S-CSCF shall release all multimedia sessions belonging to this user as described in subclause 5.4.5.1.

When a network-initiated deregistration event occurs for one or more public user identity, the S-CSCF shall send a NOTIFY request to all subscribers that have subscribed to the respective reg event package. Prior to sending the NOTIFY request, the S-CSCF shall release all sessions related to the public user identity being deregistered, if any. For each NOTIFY request, the S-CSCF shall:

1) set the Request-URI and Route header to the saved route information during subscription;

2) set the Event header to the "reg" value;

3) in the body of the NOTIFY request, include as many <registration> elements as many public user identities the S-CSCF is aware of the user owns;

4) set the aor attribute within each <registration> element to one public user identity:

   a) set the <uri> sub-element inside the <contact> sub-element of each <registration> element to the contact address provided by the UE;

   b) if the public user identity:

      i) has been deregistered then:

         - set the state attribute within the <registration> element to "terminated";

         - set the state attribute within the <contact> element to "terminated"; and

         - set the event attribute within the <contact> element to "deactivated" if the S-CSCF expects the UE to reregister or "rejected" if the S-CSCF does not expect the UE to reregister; or

      ii) has been kept registered then:

         - set the state attribute within the <registration> element to "active"; and

         - set the state attribute within the <contact> element to "active"; and

5) add a P-Charging-Vector header with the icid parameter populated as specified in 3GPP TS 32.225 [17].

The S-CSCF shall only include the non-barred public user identities in the NOTIFY request.

Also, the S-CSCF shall send a third-party REGISTER request, as described in subclause 5.4.1.7, to each AS that matches the Filter Criteria from the HSS as if a equivalent REGISTER request had been received from the user deregistering that public user identity, or combination of public user identities~~for the REGISTER event~~.

In case of the deregistration of the old contact information when the UE is roaming, registration is done in a new network and the previous registration has not expired, on completion of the above procedures, the S-CSCF shall remove the registration information related to the old contact from the local data.

Otherwise, on completion of the above procedures in this subclause for one or more public user identities, the S-CSCF shall deregister those public user identities and the associated implicitly registered public user identities. On completion of the Cx Server Assignment procedure with the HSS, as described in 3GPP TS 29.229 [15], the S-CSCF shall update or remove those public user identities, their registration state and the associated service profiles from the local data (based on operators' policy the S-CSCF can request of the HSS to either be kept or cleared as the S-CSCF allocated to this subscriber). On the completion of the Cx Registration-Termination procedure with the HSS, as described in 3GPP TS 29.228 [14], the S-CSCF shall remove those public user identities, their registration state and the associated service profiles from the local data.

3GPP TSG-CN1 Meeting #37
Sydney, Australia, 14-18 February 2004

Tdoc N1-050221

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.229** **CR** **840** ⌘ **rev** **-** ⌘ Current version: **6.5.1** ⌘

*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:	⌘	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	04/02/2005
Category:	⌘	**A**
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:	⌘	Subclause 5.4.1.5 of 24.229 specifies that when a network-initiated deregistration event is received, the S-CSCF will deregister the user. Part of the involved procedures are identical to those for the user-initiated deregistration, and involve the analysis of the filter criteria, and the potential generation of a third-party REGISTER request to application servers. However both these procedures rely on the existence of an incoming REGISTER request, against the contents of which a filter criteria analysis is performed, and on which the procedures of subclause 5.4.1.7 rely for contents of some of the parameters in the outgoing third-party REGISTER request. While it would be possible to delete these procedures for network-initiated deregistration, and rely on applications servers subscribing for the reg event package if they need this information, these procedures have been extant since release 5, and it is clear that some application server developments implement, or plan to implement, reliance on information gained from the third-party REGISTER requests, rather than that available from the reg event package. It is also quite clear from the equivalent requirements in 23.218 subclause 9.4.3 for the application server, that the application server expects to be able to build a full picture of registration state from use of either of the two available mechanisms. It therefore appears appropriate to fix the procedures at the S-CSCF, rather than remove an apparently valid (to application server vendors) capability from application servers.
Summary of change:	⌘	Subclause 5.4.1.5 is amended to specify how such filter criteria are analysed and

		the third-party REGISTER request is built.
Consequences if not approved:	⌘	No procedures will exist for the detail of performing the filter criteria matching, or for the contents of some parameters of the third-party REGISTER request, resulting in applications servers receiving inconsistent and unreliable information on network-initiated deregistration. This may result in application servers not being able to reliably deliver the services, or may deliver services inconsistently or differently, when network operator has S-CSCFs supplied by multiple vendors.

Clauses affected:	⌘	5.4.1.5			
Other specs affected:	⌘	**Y** / **N** **X** / ☐ Other core specifications ☐ / **X** Test specifications ☐ / **X** O&M Specifications	⌘	23.218 CR 76	
Other comments:	⌘	Proposed changes are suggested to the stage 2 in 23.218 to match the stage 3 procedures in 24.229.			

How to create CRs using this form:

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

5.4.1.5 Network-initiated deregistration

NOTE 1: A network-initiated deregistration event that occurs at the S-CSCF may be received from the HSS or may be an internal event in the S-CSCF.

Prior to initiating the network-initiated deregistration for the only currently registered public user identity and its associated set of implicitly registered public user identities that have been registered with the same contact (i.e. no other public user identity is registered with this contact) while there are still active multimedia sessions belonging to this contact, the S-CSCF shall release only the multimedia sessions belonging to this contact as described in subclause 5.4.5.1. The multimedia sessions for the same public user identity, if registered with another contact remain unchanged.

When a network-initiated deregistration event occurs for one or more public user identities that are bound to one or more contacts, the S-CSCF shall send a NOTIFY request to all subscribers that have subscribed to the respective reg event package. Prior to sending the NOTIFY request, the S-CSCF may release all sessions related to the contacts that will be deregistered. For each NOTIFY request, the S-CSCF shall:

1) set the Request-URI and Route header to the saved route information during subscription;

2) set the Event header to the "reg" value;

3) in the body of the NOTIFY request, include as many <registration> elements as many public user identities the S-CSCF is aware of the user owns;

4) set the aor attribute within each <registration> element to one public user identity:

   a) set the <uri> sub-element inside the <contact> sub-element of each <registration> element to the contact address provided by the UE;

   b) if the public user identity:

      i) has been deregistered then:

         - set the state attribute within the <registration> element to "terminated";

         - set the state attribute within the <contact> element to "terminated"; and

         - set the event attribute within the <contact> element to "deactivated" if the S-CSCF expects the UE to reregister or "rejected" if the S-CSCF does not expect the UE to reregister; or

      ii) has been kept registered then:

         I) set the state attribute within the <registration> element to "active";

         II) set the state attribute within the <contact> element to:

            - for the contact address to be removed set the state attribute within the <contact> element to "terminated", and event attribute element to "deactivated" if the S-CSCF expects the UE to reregister or "rejected" if the S-CSCF does not expect the UE to reregister; or

            - for the contact address which remain unchanged, if any, leave the <contact> element unmodified; and

NOTE 2: There might be more than one contact information available for one public user identity. When deregistering this UE, the S-CSCF will only modify the <contact> elements that were originally registered by this UE using its private user identity. The <contact> elements of the same public user identitity, if registered by another UE using different private user identities remain unchanged.

5) add a P-Charging-Vector header with the icid parameter populated as specified in 3GPP TS 32.260 [17].

The S-CSCF shall only include the non-barred public user identities in the NOTIFY request.

Also, the S-CSCF shall send a third-party REGISTER request, as described in subclause 5.4.1.7, to each AS that matches the Filter Criteria from the HSS ~~for the REGISTER event~~as if a equivalent REGISTER request had been received from the user deregistering that public user identity, or combination of public user identities.

In case of the deregistration of the old contact information when the UE is roaming, registration is done in a new network and the previous registration has not expired, on completion of the above procedures, the S-CSCF shall remove the registration information related to the old contact from the local data.

Otherwise, on completion of the above procedures for one or more public user identities linked to the same private user identity, the S-CSCF shall deregister those public user identities and the associated implicitly registered public user identities. On completion of the Cx Server Assignment procedure with the HSS, as described in 3GPP TS 29.228 [14], the S-CSCF shall update or remove those public user identities linked to the same private user identity, their registration state and the associated service profiles from the local data (based on operators' policy the S-CSCF can request of the HSS to either be kept or cleared as the S-CSCF allocated to this subscriber). On the completion of the Cx Registration-Termination procedure with the HSS, as described in 3GPP TS 29.228 [14], the S-CSCF shall remove those public user identities, their registration state and the associated service profiles from the local data.

3GPP TSG-CN1 Meeting #37
Sydney, Australia, 14-18 February 2004

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CHANGE REQUEST

⌘ **23.218** **CR** **075** ⌘ **rev** **-** ⌘ Current version: **5.7.0** ⌘

*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:	⌘	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	04/02/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

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

Use one of the following releases:

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

Reason for change:	⌘	Subclause 5.4.1.5 of 24.229 specifies that when a network-initiated deregistration event is received, the S-CSCF will deregister the user. Part of the involved procedures are identical to those for the user-initiated deregistration, and involve the analysis of the filter criteria, and the potential generation of a third-party REGISTER request to application servers. However both these procedures rely on the existence of an incoming REGISTER request, against the contents of which a filter criteria analysis is performed, and on which the procedures of subclause 5.4.1.7 rely for contents of some of the parameters in the outgoing third-party REGISTER request. While it would be possible to delete these procedures for network-initiated deregistration, and rely on applications servers subscribing for the reg event package if they need this information, these procedures have been extant since release 5, and it is clear that some application server developments implement, or plan to implement, reliance on information gained from the third-party REGISTER requests, rather than that available from the reg event package. It is also quite clear from the equivalent requirements in 23.218 subclause 9.4.3 for the application server, that the application server expects to be able to build a full picture of registration state from use of either of the two available mechanisms. It therefore appears appropriate to fix the procedures at the S-CSCF, rather than remove an apparently valid (to application server vendors) capability from application servers.
Summary of change:	⌘	Subclause 5.2 is amended to specify that generation of third-party REGISTER

		requests also apply to network-initiated deregistration.
Consequences if not approved:	⌘	No procedures will exist for the detail of performing the filter criteria matching, or for the contents of some parameters of the third-party REGISTER request, resulting in applications servers receiving inconsistent and unreliable information on network-initiated deregistration. This may result in application servers not being able to reliably deliver the services, or may deliver services inconsistently or differently, when network operator has S-CSCFs supplied by multiple vendors.

Clauses affected:	⌘	5.2			
Other specs affected:	⌘	**Y** / **N**		⌘	24.229 CR 839
		X /	Other core specifications		
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘	Proposed changes are suggested to the stage 2 in 23.218 to match the stage 3 procedures in 24.229.			

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

5.2 Service interaction with IP multimedia subsystem

Service Point Triggers (SPTs) are those points in the SIP signalling on which Filter Criteria can be set. The following SPTs are defined:

- any initial known or unknown SIP method (e.g. REGISTER, INVITE, SUBSCRIBE, MESSAGE);
- presence or absence of any known or unknown header field;
- content of any known or unknown header field or Request-URI;
- direction of the request is with respect to the served user – either mobile originated (MO) or mobile terminated (MT) to registered user; or mobile terminated to unregistered user;

NOTE 1: REGISTER is considered part of the Mobile Origination. See 3GPP TS 24.229[5] for further information about how to determine MO or MT.

NOTE 2: The S-CSCF shall verify if the end user is barred before checking if any trigger applies for that end user.

- session description information.

A Filter Criteria triggers one or more SPTs in order to send the related request to one specific application server. The set of Filter Criteria that is stored for a service profile of a specific user is called "Application Server Subscription Information". In order to allow the S-CSCF to handle the different Filter Criteria in the right sequence, a priority shall be assigned to each of them. If the S-CSCF can not reach the AS, the S-CSCF shall apply the default handling associated with the trigger. This default handling shall be :

- to continue verifying if the triggers of lower priority in the list match; or
- to abandon verification of matching of the triggers of lower priority in the list; and to release the dialogue.

Therefore a Filter Criteria shall contain the following information:

- address of the Application Server to be contacted;
- priority of the Filter Criteria providing the sequence in which the criteria shall be applied;
- Trigger Point composed by 1 to n instances of the Service Point Triggers (SPTs). The SPTs may be linked by means of logical expressions (AND, OR, NOT, etc.);
- default handling (as described above);
- optional Service Information that shall be added to the message body before it is sent to the AS (as an example this may include the IMSI for the IM-SSF).

The same priority shall not be assigned to more than one initial Filter Criteria for a given end user.

The S-CSCF shall request from the HSS the relevant set of iFCs that applies to the end user (i.e., registered, unregistered, or both). If the S-CSCF has a set of iFCs that is deemed valid (e.g., from a previous request), the S-CSCF need not request a new set.

In the case that multiple Filter Criteria are sent from the HSS to the S-CSCF, the S-CSCF shall check the filter criteria one by one according to their indicated priority when the S-CSCF receives a message via the Mw interface.

On reception of a REGISTER request, the S-CSCF shall send a third-party REGISTER request to each Application Server that matches the Filter Criteria sent from the HSS for the REGISTER event.

On an event that causes network-initiated deregistration, the S-CSCF shall send a third-party REGISTER request to each Application Server that matches the Filter Criteria sent from the HSS as if a equivalent REGISTER request had been received from the user deregistering that public user identity, or combination of public user identities.

On reception of any other request the S-CSCF shall:

1. set up the list of filter criteria for that request according to their priority – the sequence of the filter criteria shall not be changed until the request finally leaves the S-CSCF via the Mw interface again;
2. parse the received request in order to find out the Service Point Triggers (SPTs) that are included in it;
3. check whether the trigger points of the filter criteria with the next highest priority are matched by the SPTs of the request and
   a) if it does not match the S-CSCF shall immediately proceed with step 4;
   b) if it matches the S-CSCF shall:
      i) add an indication to the request which will allow the S-CSCF to identify the message on the incoming side, even if its dialog identification has been changed e.g. due to the AS performing third party call control;
      ii) forward the request via the ISC interface to the AS indicated in the current filter criteria. The AS then performs the service logic, may modify the request and may send the request back to the S-CSCF via the ISC interface;
      iii) proceed with step 4 if the request was received again from the AS via the ISC interface;
4. repeat the above steps 2 and 3 for every filter criteria which was initially set up (in step 1) until the last filter criteria has been checked;
5. route the request based on normal SIP routing behaviour.

If an Application Server decides to locally terminate a request and sends back a final response for that request via the ISC interface to the S-CSCF, the S-CSCF shall abandon verification of the matching of the triggers of lower priority in the list. The final response shall include the indicator defined in step 3 b) i) above, so that the S-CSCF can correlate the messages.

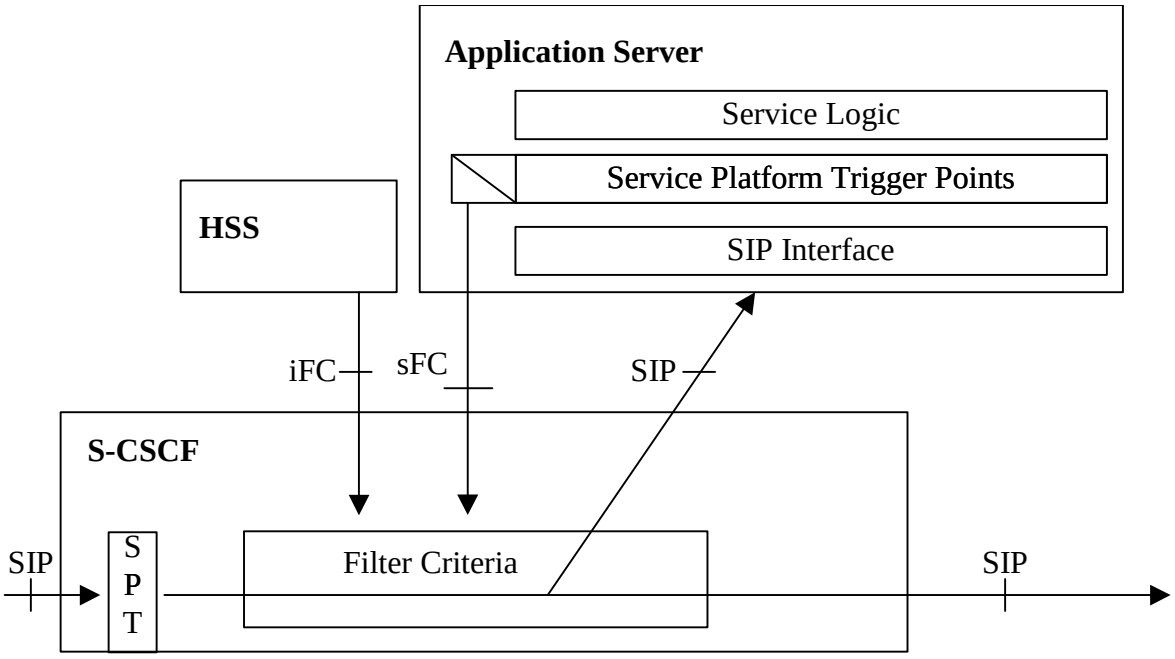

Figure 5.2.1: Application triggering architecture

Each invoked Application Server/service logic may decide not to be engaged with the invoked session by indicating that during the very first SIP transaction when the Record-Route/Route is generated for subsequent SIP requests. The denial shall mean that subsequent requests shall not be routed to such Application Servers/service logic any more during the lifetime of that session. Any Application Server, which has determined that it will not receive subsequent requests for a session cannot revoke this determination by means of Initial Filter Criteria (iFC).

NOTE: Care should be taken in design of the Initial Filter Criteria when designing services to avoid unintended loops being setup, where requests from an Application Server may be sent back to the same Application Server. This does not imply that it is not allowed for requests to be sent back to the same Application Server when that is intended behaviour as part of the design of the service and the Application Server is able to handle this correctly. Special care should be taken for the case when an Application Server may act as an originating UA or B2BUA and may originate an initial request causing evaluation of Initial Filter Criteria.

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Sydney, Australia, 14-18 February 2004

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CR-Form-v7.1

CHANGE REQUEST

⌘ **23.218** **CR** **076** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

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

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

Title:	⌘	Filter criteria matching and generation of third-party REGISTER request for network-initiated deregistration
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	04/02/2005
Category:	⌘	**A**
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)*
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Use one of the following releases:

Ph2	*(GSM Phase 2)*
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R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
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Rel-7	*(Release 7)*

Reason for change: ⌘ Subclause 5.4.1.5 of 24.229 specifies that when a network-initiated deregistration event is received, the S-CSCF will deregister the user. Part of the involved procedures are identical to those for the user-initiated deregistration, and involve the analysis of the filter criteria, and the potential generation of a third-party REGISTER request to application servers.
However both these procedures rely on the existence of an incoming REGISTER request, against the contents of which a filter criteria analysis is performed, and on which the procedures of subclause 5.4.1.7 rely for contents of some of the parameters in the outgoing third-party REGISTER request.
While it would be possible to delete these procedures for network-initiated deregistration, and rely on applications servers subscribing for the reg event package if they need this information, these procedures have been extant since release 5, and it is clear that some application server developments implement, or plan to implement, reliance on information gained from the third-party REGISTER requests, rather than that available from the reg event package.
It is also quite clear from the equivalent requirements in 23.218 subclause 9.4.3 for the application server, that the application server expects to be able to build a full picture of registration state from use of either of the two available mechanisms.
It therefore appears appropriate to fix the procedures at the S-CSCF, rather than remove an apparently valid (to application server vendors) capability from application servers.

Summary of change: ⌘ Subclause 5.2 is amended to specify that generation of third-party REGISTER

		requests also apply to network-initiated deregistration.
Consequences if not approved:	⌘	No procedures will exist for the detail of performing the filter criteria matching, or for the contents of some parameters of the third-party REGISTER request, resulting in applications servers receiving inconsistent and unreliable information on network-initiated deregistration. This may result in application servers not being able to reliably deliver the services, or may deliver services inconsistently or differently, when network operator has S-CSCFs supplied by multiple vendors.

Clauses affected:	⌘	5.2			
Other specs affected:	⌘	**Y** / **N** **X** / ☐ Other core specifications ☐ / **X** Test specifications ☐ / **X** O&M Specifications	⌘	24.229, CR 840	
Other comments:	⌘	Proposed changes are suggested to the stage 2 in 23.218 to match the stage 3 procedures in 24.229.			

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5.2 Service interaction with IP multimedia subsystem

Service Point Triggers (SPTs) are those points in the SIP signalling on which Filter Criteria can be set. The following SPTs are defined:

- any initial known or unknown SIP method (e.g. REGISTER, INVITE, SUBSCRIBE, MESSAGE);
- registration type – indicates if the REGISTER request is initial registration, re-registration, or de-registration;
- presence or absence of any known or unknown header field;
- content of any known or unknown header field or Request-URI;
- direction of the request with respect to the served user – either mobile originated (MO) or mobile terminated (MT) to registered user; or mobile terminated to unregistered user; see 3GPP TS 29.228 [8] for the details of the direction information in service point trigger;

NOTE 1: REGISTER is considered part of the Mobile Origination. See 3GPP TS 24.229[5] for further information about how to determine MO or MT.

NOTE 2: The S-CSCF shall verify if the end user is barred before checking if any trigger applies for that end user.

- session description information.

A Filter Criteria triggers one or more SPTs in order to send the related request to one specific application server. The set of Filter Criteria that is stored for a service profile of a specific user is called "Application Server Subscription Information". In order to allow the S-CSCF to handle the different Filter Criteria in the right sequence, a priority shall be assigned to each of them. If the S-CSCF can not reach the Application Server, the S-CSCF shall apply the default handling associated with the trigger. This default handling shall be :

- to continue verifying if the triggers of lower priority in the list match; or
- to abandon verification of matching of the triggers of lower priority in the list; and to release the dialogue.

Therefore a Filter Criteria shall contain the following information:

- address of the Application Server to be contacted;
- priority of the Filter Criteria providing the sequence in which the criteria shall be applied;
- Trigger Point composed by 1 to n instances of the Service Point Triggers (SPTs). The SPTs may be linked by means of logical expressions (AND, OR, NOT, etc.);
- default handling (as described above);
- optional Service Information that shall be added to the message body before it is sent to the Application Server (as an example this may include the IMSI for the IM-SSF).

The same priority shall not be assigned to more than one initial Filter Criteria for a given end user.

The S-CSCF shall request from the HSS the relevant set of iFCs that applies to the end user (i.e., registered, unregistered, or both). If the S-CSCF has a set of iFCs that is deemed valid (e.g., from a previous request), the S-CSCF need not request a new set.

In the case that multiple Filter Criteria are sent from the HSS to the S-CSCF, the S-CSCF shall check the filter criteria one by one according to their indicated priority when the S-CSCF receives a message via the Mw interface.

On reception of a REGISTER request, the S-CSCF shall send a third-party REGISTER request to each Application Server that matches the Filter Criteria sent from the HSS for the REGISTER event.

On an event that causes network-initiated deregistration, the S-CSCF shall send a third-party REGISTER request to each Application Server that matches the Filter Criteria sent from the HSS as if a equivalent REGISTER request had been received from the user deregistering that public user identity, or combination of public user identities.

On reception of any other request the S-CSCF shall:

1. set up the list of filter criteria for that request according to their priority – the sequence of the filter criteria shall not be changed until the request finally leaves the S-CSCF via the Mw interface again;
2. parse the received request in order to find out the Service Point Triggers (SPTs) that are included in it;
3. check whether the trigger points of the filter criteria with the next highest priority are matched by the SPTs of the request and
   a) if it does not match the S-CSCF shall immediately proceed with step 4;
   b) if it matches the S-CSCF shall:
      i) add an indication to the request which will allow the S-CSCF to identify the message on the incoming side, even if its dialog identification has been changed e.g. due to the Application Server performing third party call control;
      ii) forward the request via the ISC interface to the Application Server indicated in the current filter criteria. The Application Server then performs the service logic, may modify the request and may send the request back to the S-CSCF via the ISC interface;
      iii) proceed with step 4 if the request was received again from the Application Server via the ISC interface;
4. repeat the above steps 2 and 3 for every filter criteria which was initially set up (in step 1) until the last filter criteria has been checked;
5. route the request based on normal SIP routing behaviour.

If an Application Server decides to locally terminate a request and sends back a final response for that request via the ISC interface to the S-CSCF, the S-CSCF shall abandon verification of the matching of the triggers of lower priority in the list. The final response shall include the indicator defined in step 3 b) i) above, so that the S-CSCF can correlate the messages.

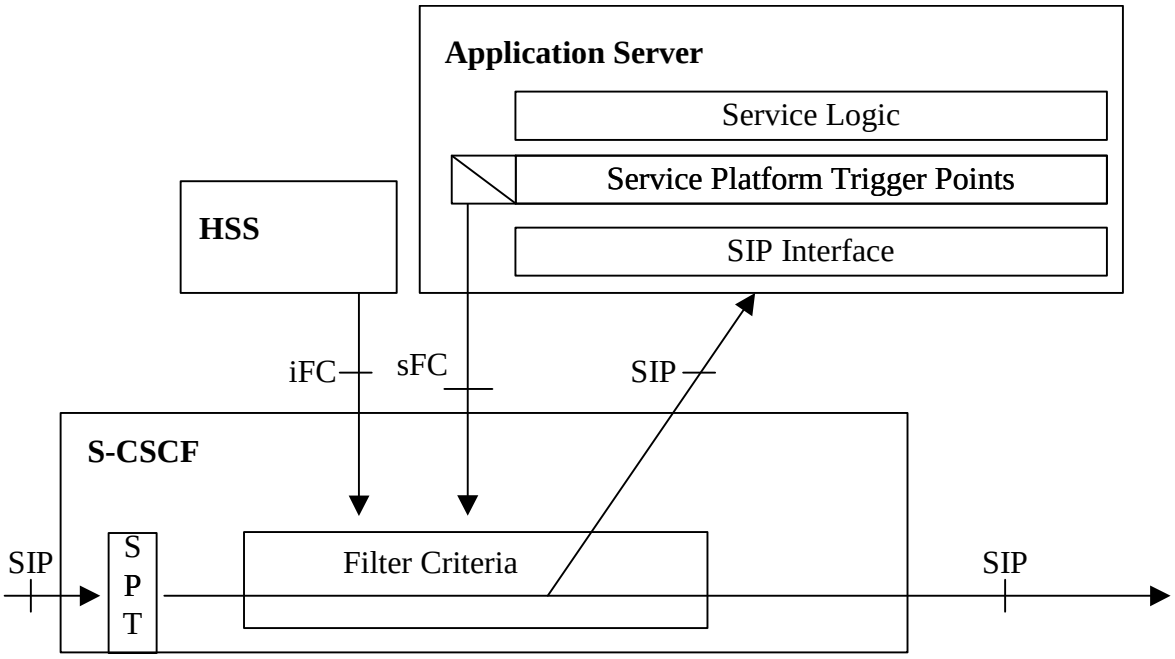

Figure 5.2.1: Application triggering architecture

Each invoked Application Server/service logic may decide not to be engaged with the invoked session by indicating that during the very first SIP transaction when the Record-Route/Route is generated for subsequent SIP requests. The denial shall mean that subsequent requests shall not be routed to such Application Servers/service logic any more during the lifetime of that session. Any Application Server, which has determined that it will not receive subsequent requests for a session cannot revoke this determination by means of Initial Filter Criteria (iFC).

NOTE: Care should be taken in design of the Initial Filter Criteria when designing services to avoid unintended loops being setup, where requests from an Application Server may be sent back to the same Application Server. This does not imply that it is not allowed for requests to be sent back to the same Application Server when that is intended behaviour as part of the design of the service and the Application Server is able to handle this correctly. Special care should be taken for the case when an Application Server may act as an originating UA or B2BUA and may originate an initial request causing evaluation of Initial Filter Criteria.

3GPP TSG–CN1 Meeting #37
Sydney, Australia, 14th to 18th February 2005

***Tdoc* ⌘N1-050287**

CR-Form-v7

CHANGE REQUEST

⌘ **23.218** **CR** **73** ⌘**rev** **1** ⌘ Current version: **5.7.0** ⌘

*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:	⌘	Default handling
Source:	⌘	Orange
Work item code:	⌘	IMS-CCR
Date:	⌘	17/02/2005
Category:	⌘	**F**
Release:	⌘	REL-5

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

Use one of the following releases:
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: ⌘

In TS 23.218 section 5.2 about Service interaction, it is stated:

"If the S-CSCF can not reach the Application Server, the S-CSCF shall apply the default handling associated with the trigger. This default handling shall be :

- to continue verifying if the triggers of lower priority in the list match; or
- to abandon verification of matching of the triggers of lower priority in the list; and to release the dialogue."

In section 6.9.2.2, it is stated that:

"Use of the default handling procedure by the AS is not supported in this version of this specification."

Consequently there is an inconsistency within TS 23.218.

There is also an inconsistency between the stage 2 TS 23.218 and the stage 3 TS 24.229 for the default handling because no default handling is defined at the stage 3 in the TS 24.229 in Release 5.

It should be clarified that default handling is not supported by the S-CSCF in Release 5.

Summary of change: ⌘

Default handling procedure is removed in the sections 5.2, 6.3, 6.4.

In section 6.9.2.2, it is clarified that the default handling procedure is not supported by the S-CSCF in Release 5.

Consequences if not approved:	Inconsistency within TS 23.218 and between TS 24.229 and TS 23.218

Clauses affected:	⌘	5.2, 6.3, 6.4, 6.9.2.2			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	TS 29.228
		X /	Other core specifications		
		/ X	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘				

How to create CRs using this form:

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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 co

*** FIRST MODIFICATION ***

5.2 Service interaction with IP multimedia subsystem

Service Point Triggers (SPTs) are those points in the SIP signalling on which Filter Criteria can be set. The following SPTs are defined:

- any initial known or unknown SIP method (e.g. REGISTER, INVITE, SUBSCRIBE, MESSAGE);
- presence or absence of any known or unknown header field;
- content of any known or unknown header field or Request-URI;
- direction of the request is with respect to the served user – either mobile originated (MO) or mobile terminated (MT) to registered user; or mobile terminated to unregistered user;

NOTE 1: REGISTER is considered part of the Mobile Origination. See 3GPP TS 24.229[5] for further information about how to determine MO or MT.

NOTE 2: The S-CSCF shall verify if the end user is barred before checking if any trigger applies for that end user.

- session description information.

A Filter Criteria triggers one or more SPTs in order to send the related request to one specific application server. The set of Filter Criteria that is stored for a service profile of a specific user is called "Application Server Subscription Information". In order to allow the S-CSCF to handle the different Filter Criteria in the right sequence, a priority shall be assigned to each of them. ~~If the S-CSCF can not reach the AS, the S-CSCF shall apply the default handling associated with the trigger. This default handling shall be :~~

~~- to continue verifying if the triggers of lower priority in the list match; or~~

~~- to abandon verification of matching of the triggers of lower priority in the list; and to release the dialogue.~~

Therefore a Filter Criteria shall contain the following information:

- address of the Application Server to be contacted;
- priority of the Filter Criteria providing the sequence in which the criteria shall be applied;
- Trigger Point composed by 1 to n instances of the Service Point Triggers (SPTs). The SPTs may be linked by means of logical expressions (AND, OR, NOT, etc.);

~~- default handling (as described above);~~

- optional Service Information that shall be added to the message body before it is sent to the AS (as an example this may include the IMSI for the IM-SSF).

The same priority shall not be assigned to more than one initial Filter Criteria for a given end user.

The S-CSCF shall request from the HSS the relevant set of iFCs that applies to the end user (i.e., registered, unregistered, or both). If the S-CSCF has a set of iFCs that is deemed valid (e.g., from a previous request), the S-CSCF need not request a new set.

In the case that multiple Filter Criteria are sent from the HSS to the S-CSCF, the S-CSCF shall check the filter criteria one by one according to their indicated priority when the S-CSCF receives a message via the Mw interface.

On reception of a REGISTER request, the S-CSCF shall send a third-party REGISTER request to each Application Server that matches the Filter Criteria sent from the HSS for the REGISTER event.

On reception of any other request the S-CSCF shall:

1. set up the list of filter criteria for that request according to their priority – the sequence of the filter criteria shall not be changed until the request finally leaves the S-CSCF via the Mw interface again;
2. parse the received request in order to find out the Service Point Triggers (SPTs) that are included in it;

3. check whether the trigger points of the filter criteria with the next highest priority are matched by the SPTs of the request and

   a) if it does not match the S-CSCF shall immediately proceed with step 4;

   b) if it matches the S-CSCF shall:

      i) add an indication to the request which will allow the S-CSCF to identify the message on the incoming side, even if its dialog identification has been changed e.g. due to the AS performing third party call control;

      ii) forward the request via the ISC interface to the AS indicated in the current filter criteria. The AS then performs the service logic, may modify the request and may send the request back to the S-CSCF via the ISC interface;

      iii) proceed with step 4 if the request was received again from the AS via the ISC interface;

4. repeat the above steps 2 and 3 for every filter criteria which was initially set up (in step 1) until the last filter criteria has been checked;

5. route the request based on normal SIP routing behaviour.

If an Application Server decides to locally terminate a request and sends back a final response for that request via the ISC interface to the S-CSCF, the S-CSCF shall abandon verification of the matching of the triggers of lower priority in the list. The final response shall include the indicator defined in step 3 b) i) above, so that the S-CSCF can correlate the messages.

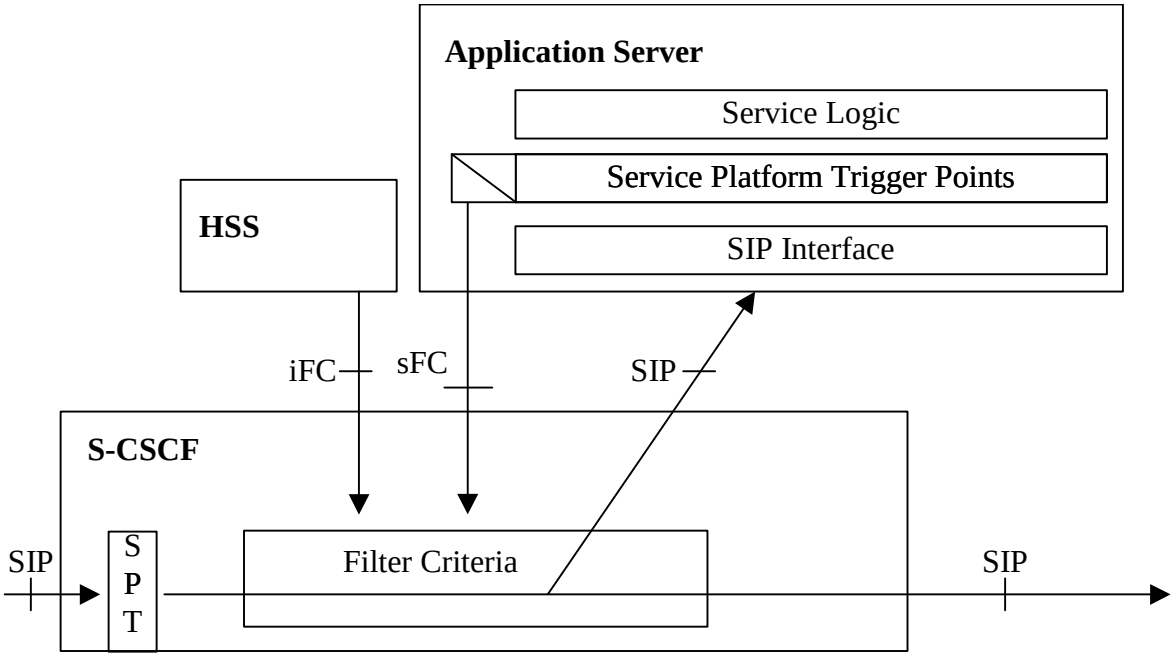

Figure 5.2.1: Application triggering architecture

Each invoked Application Server/service logic may decide not to be engaged with the invoked session by indicating that during the very first SIP transaction when the Record-Route/Route is generated for subsequent SIP requests. The denial shall mean that subsequent requests shall not be routed to such Application Servers/service logic any more during the lifetime of that session. Any Application Server, which has determined that it will not receive subsequent requests for a session cannot revoke this determination by means of Initial Filter Criteria (iFC).

NOTE: Care should be taken in design of the Initial Filter Criteria when designing services to avoid unintended loops being setup, where requests from an Application Server may be sent back to the same Application Server. This does not imply that it is not allowed for requests to be sent back to the same Application Server when that is intended behaviour as part of the design of the service and the Application Server is able to handle this correctly. Special care should be taken for the case when an Application Server may act as an originating UA or B2BUA and may originate an initial request causing evaluation of Initial Filter Criteria.

*** END OF MODIFICATION ***

*** SECOND MODIFICATION ***

6.3 Handling of SIP registration

Upon receiving the initial registration request from the user, the S-CSCF shall authenticate the user and upon receiving a subsequent registration request containing valid authentication credentials, request the HSS to send the relevant service profile(s) for the user's subscription. More than one service profile may be sent, depending on configuration options for identifying implicitly registered public user identities. For further detailed information on registration, profile download and authentication procedures see 3GPP TS 24.229 [5] and 3GPP TS 33.203 [11].

The initial filter criteria (subset of the profile) is stored locally at the S-CSCF, as specified in 3GPP TS 24.229 [5].

The S-CSCF shall verify if the triggers match, from the highest to the lowest priority (see subclause 5.2).

After a successfully authenticated registration, the S-CSCF shall download from the HSS all the implicitly registered public user identities associated with the registered public user identity. The S-CSCF shall then verify, in their order of priority, if the triggers downloaded from the HSS match. If the registration request from the user matches a trigger, the S-CSCF performs a third party registration to the application servers which are interested to be informed about the user registration event of these public user identities. This may trigger services to be executed by an AS.

The important information carried in the third party REGISTER request is the public user identity, the S-CSCF address and the expiration time. It shall be possible based on operator configuration to use one of the implicitly registered public user identities as the public user identity in the To header of the third party REGISTER request sent to the Application Server. Additional application server specific data, which is associated with the Filter Criteria and obtained from the HSS, is added to the REGISTER request body. This data should include the IMSI for an Application Server that supports CAMEL services or the private user identity for other Application Servers as received from the HSS.

This third party registration will include an expiration time that is equal to the expiration time sent to the UE by the S-CSCF in the 200 OK response to the incoming REGISTER request

~~On receiving a failure response to one of the REGISTER requests, the S-CSCF shall apply the "default handling" related with the initial Filter Criteria's trigger used (see subclauses 5.2, 6.9.2.2).~~

See figure 6.3.1:

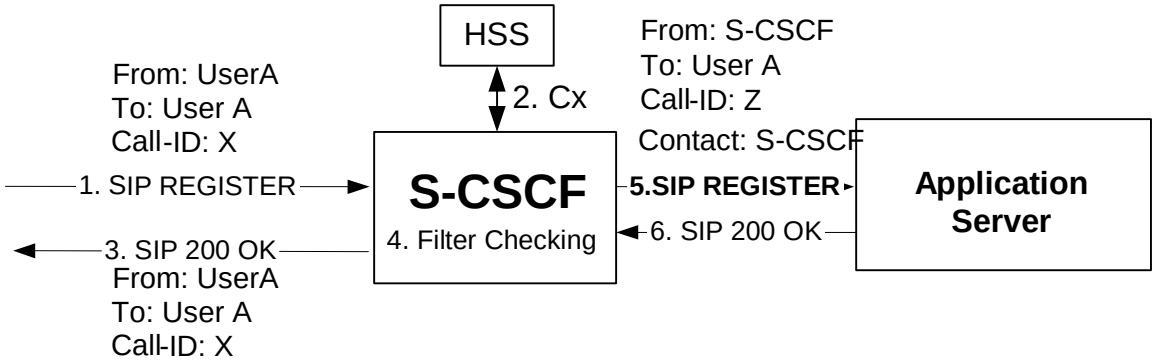

Figure 6.3.1: S-CSCF handling registration

Application Servers can in addition subscribe to the S-CSCF Registration Event Package. This provides a mechanism for the Application Server to discover all the implicitly registered public user identities without requiring multiple Register requests to be sent to the Application Server. The S-CSCF will send NOTIFY requests to the Application Server that has subscribed to the registration event package for the registered public user identity.

More information on these procedures is contained in 3GPP TS 24.229 [5].

*** END OF MODIFICATION ***

*** THIRD MODIFICATION ***

6.4 Handling of mobile originating requests

The S-CSCF shall verify if the public user identity is barred. If so, it shall respond with a 4xx error code and stop further session processing.

The S-CSCF only looks for initial filter criteria when receiving an initial request.

The initial filter criteria (subset of the profile) has already been downloaded from the HSS and is stored locally at the S-CSCF, as specified in 3GPP TS 24.228 [4], and 3GPP TS 24.229 [5].

When such a session request comes in, the S-CSCF shall first check whether this is an originating request or a terminating request in order to perform the matching procedure with SPTs within initial filter criteria. This clause describes the requirements for the S-CSCF when this request is a mobile originating request. So, if this request is a mobile originating request, the S-CSCF shall:

- check whether this request matches the initial filter criteria with the highest priority for that user by checking the service profile against the public user identity, which was used to place this request;
- if this request matches the initial filter criteria, the S-CSCF shall forward this request to that application server, then check for matching of the next following filter criteria of lower priority, and apply the filter criteria on the SIP method received from the previously contacted application server;
- if this request does not match the highest priority initial filter criteria, check for matching of the following filter criteria priorities until one applies;
- if no more (or none) of the initial filter criteria apply, the S-CSCF shall forward this request downstream based on the route decision;
- in any instance, if the contact of the application server fails, ~~the S-CSCF shall use the "default handling" associated with the initial Filter Criteria to determine if it shall either terminate the call or let the call continue based on the information in the filter criteria; if the filter criteria does not contain instruction to the S-CSCF regarding the failure of the contact to the application server,~~ the S-CSCF shall let the call continue as the default behaviour.

6.5 Handling of mobile terminating requests

6.5.1 Handling of mobile terminating requests, registered user

The S-CSCF shall verify if the public user identity is barred. If so, it shall respond with a 4xx error code and stop further session processing.

The S-CSCF only looks for initial filter criteria when receiving an initial request. A terminating initial request may also originate from an Application Server via the ISC interface. Terminating Initial requests from an Application Server via the ISC interface also cause the S-CSCF to look for initial filter criteria.

When such a request comes in, the S-CSCF shall first check whether this is an originating request or a terminating request. This clause describes the requirements for the S-CSCF when this request is a terminating request. So, if this request is a terminating request, the S-CSCF shall:

- if unavailable, download the relevant subscriber profile including the initial filter criteria from the HSS;
- use the initial Filter Criteria for the Mobile Terminating request to registered user;
- in case the Request-URI changes when visiting an AS, terminate the checking of filter criterias, route the request based on the changed value of the Request-URI and do not execute the subsequent steps;
- the subsequent requirements for the S-CSCF are the same as those for handling originating requests.

It may be possible that originating UE and terminating UE shares the same S-CSCF and AS, therefore the shared application server may interact with the S-CSCF twice in one transaction but in originating and terminating procedures respectively.

6.5.2 Handling of mobile terminating requests, unregistered user

The S-CSCF shall verify if the public user identity is barred. If so, it shall respond with a 4xx error code and stop further session processing.

The S-CSCF only looks for initial filter criteria when receiving an initial request. A terminating initial request may also originate from an Application Server via the ISC interface. Terminating Initial requests from an Application Server via the ISC interface also cause the S-CSCF to look for initial filter criteria.

When such a request comes in, the S-CSCF shall first check this is an originating request or a terminating request. This clause describes the requirements for the S-CSCF when this request is a terminating request. So, if this request is a terminating request, the S-CSCF shall:

- if unavailable, download the relevant subscriber profile including the initial filter criteria from the HSS;
- use the initial Filter Criteria for the Mobile Terminating request to unregistered user;
- the subsequent requirements for the S-CSCF are the same as those for handling originating requests.

It may be possible that originating UE and terminating UE shares the same S-CSCF and AS, therefore the shared application server may interact with the S-CSCF twice in one transaction but in originating and terminating procedures respectively.

*** END OF MODIFICATION ***

*** FOURTH MODIFICATION ***

6.9.2.2 Default handling

The default handling procedure indicates whether to abandon matching of lower priority triggers and to release the dialogue, or to continue the dialogue and trigger matching.

Use of the default handling procedure by the ~~AS~~ S-CSCF is not supported in this version of this specification.

*** END OF MODIFICATION ***

3GPP TSG–CN1 Meeting #37
Sydney, Australia, 14th to 18th February 2005

***Tdoc* ⌘N1-050291**

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **805** ⌘**rev** **1** ⌘ Current version: **5.11.1** ⌘

*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:	⌘	Use of original dialog identifier at AS
Source:	⌘	Orange
Work item code:	⌘	IMS-CCR
Date:	⌘	17/02/2005
Category:	⌘	**F**
Release:	⌘	REL-5

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

Use one of the following releases:
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: ⌘

In TS 23.218 section 5.2 about Service interaction, it is stated:

On reception of any other request than REGISTER the S-CSCF shall:

3. check whether the trigger points of the filter criteria with the next highest priority are matched by the SPTs of the request and

   a) if it does not match the S-CSCF shall immediately proceed with step 4;

   b) if it matches the S-CSCF shall:

      i) add **an indication to the request which will allow the S-CSCF to identify the message on the incoming side**, even if its dialog identification has been changed e.g. due to the Application Server performing third party call control;

      ii) forward the request via the ISC interface to the Application Server indicated in the current filter criteria. The Application Server then performs the service logic, may modify the request and may send the request back to the S-CSCF via the ISC interface;

      iii) proceed with step 4 if the request was received again from the Application Server via the ISC interface;

If an Application Server decides to locally terminate a request and sends back a final response for that request via the ISC interface to the S-CSCF, the S-CSCF shall abandon verification of the matching of the triggers of lower priority in the list. The final response shall include **the indicator defined in step 3 b) i) above**, so that the S-CSCF can correlate the messages.

In TS 24.229 section 5.4.3.4 about original dialog identifier, it is stated:

	The token identifies the original dialog of the request, so in case an AS acting as a B2BUA changes the dialog, the S-CSCF is able to identify the original dialog when the request returns to the S-CSCF. In TS 24.229 section 5.4.3.2 and 5.4.3.3 about handling of requests at the originating and terminating S-CSCF, it is stated: The S-CSCF shall "check if an original dialog identifier that it previously placed in a Route header is present in the topmost Route header of the incoming request. If present, it indicates an association with an existing dialog, the request has been sent from an AS in response to a previously sent request;" However text is missing for the AS acting as a B2BUA for inserting the original dialog identifier for standalone transaction.
Summary of change: ⌘	In sections 5.7.5.1, it is added that for standalone transactions, when the AS is acting as a Routeing B2BUA, the S-CSCF shall copy the remaining Route header(s) unchanged from the received request for a standalone transation to the new request for a standalone transaction.
Consequences if not approved:	If original dialog identifier is absent, the S-CSCF is not able to identify the association with an existing dialog for the request for standalone transaction sent from the AS (acting as B2BUA). This may cause routing problem.

Clauses affected:	⌘	5.7.5.1			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Mirror CR in R6			

How to create CRs using this form:

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3)With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause co

*** FIRST MODIFICATION ***

5.7.5 Application Server (AS) performing 3rd party call control

5.7.5.1 General

The AS performing 3rd party call control acts as a B2BUA. There are two kinds of 3rd party call control:

- Routeing B2BUA: an AS receives a request from S-CSCF, terminates it and generates a new request, which is based on the received request.
- Initiating B2BUA: an AS initiates two requests, which are logically connected together at the AS.

The B2BUA AS will internally map the message headers between the two dialogs that it manages. It is responsible for correlating the dialog identifiers and will decide when to simply translate a message from one dialog to the other, or when to perform other functions. These decisions are specific to each AS and are outside the scope of the present document.

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.

For standalone transactions, when the AS is acting as a Routeing B2BUA, the S-CSCF shall copy the remaining Route header(s) unchanged from the received request for a standalone transation to the new request for a standalone transaction.

5.7.5.2 Call initiation

5.7.5.2.1 Initial INVITE

When the AS acting as a Routeing B2BUA receives an initial INVITE request from the S-CSCF, the AS shall:

- remove its own SIP URI from the topmost Route header of the received INVITE request;
- perform the AS specific functions. See 3GPP TS 23.218 [5];
- if successful, generate and send a new INVITE request to the S-CSCF to establish a new dialog;
- copy the remaining Route header(s) unchanged from the received INVITE request to the new INVITE request;
- route the new INVITE request based on the topmost Route header.

NOTE: The topmost Route header of the received INVITE request will contain the AS's SIP URI. The following Route header will contain the SIP URI of the S-CSCF.

When the AS is acting as an Initiating B2BUA, the AS shall apply the procedures described in subclause 5.7.3 for both requests. The AS shall either set the icid parameter in the P-Charging-Vector header to be the same as received or different. The AS may retrieve CCF and/or ECF adresses from HSS on Sh interface.

5.7.5.2.2 Subsequent requests

Void.

5.7.5.3 Call release

5.7.5.4 Call-related requests

An AS may initiate a call release. See 3GPP TS 23.218 [5] for possible reasons. The AS shall simultaneously send the BYE request for both dialogs managed by the B2BUA.

5.7.5.5 Further initial requests

When the AS acting as an Initiating B2BUA the AS shall apply the procedures described in subclause 5.7.3 for both requests. The AS shall either set the icid parameter in the P-Charging-Vector header to be the same as received or different.

*** END OF MODIFICATION ***

3GPP TSG–CN1 Meeting #37
Sydney, Australia, 14th to 18th February 2005

***Tdoc* ⌘N1-050292**

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **806** ⌘**rev** **1** ⌘ Current version: **6.5.1** ⌘

*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:	⌘	Use of original dialog identifier at AS
Source:	⌘	Orange
Work item code:	⌘	IMS-CCR
Date:	⌘	17/02/2005
Category:	⌘	**A**
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: ⌘

In TS 23.218 section 5.2 about Service interaction, it is stated:

On reception of any other request than REGISTER the S-CSCF shall:

3. check whether the trigger points of the filter criteria with the next highest priority are matched by the SPTs of the request and

   a) if it does not match the S-CSCF shall immediately proceed with step 4;

   b) if it matches the S-CSCF shall:

      i) add **an indication to the request which will allow the S-CSCF to identify the message on the incoming side**, even if its dialog identification has been changed e.g. due to the Application Server performing third party call control;

      ii) forward the request via the ISC interface to the Application Server indicated in the current filter criteria. The Application Server then performs the service logic, may modify the request and may send the request back to the S-CSCF via the ISC interface;

      iii) proceed with step 4 if the request was received again from the Application Server via the ISC interface;

If an Application Server decides to locally terminate a request and sends back a final response for that request via the ISC interface to the S-CSCF, the S-CSCF shall abandon verification of the matching of the triggers of lower priority in the list. The final response shall include **the indicator defined in step 3 b) i) above**, so that the S-CSCF can correlate the messages.

In TS 24.229 section 5.4.3.4 about original dialog identifier, it is stated:

	The token identifies the original dialog of the request, so in case an AS acting as a B2BUA changes the dialog, the S-CSCF is able to identify the original dialog when the request returns to the S-CSCF. In TS 24.229 section 5.4.3.2 and 5.4.3.3 about handling of requests at the originating and terminating S-CSCF, it is stated: The S-CSCF shall "check if an original dialog identifier that it previously placed in a Route header is present in the topmost Route header of the incoming request. If present, it indicates an association with an existing dialog, the request has been sent from an AS in response to a previously sent request;" However text is missing for the AS acting as a B2BUA for inserting the original dialog identifier for standalone transaction.
Summary of change: ⌘	In sections 5.7.5.1, it is added that for standalone transactions, when the AS is acting as a Routeing B2BUA, the S-CSCF shall copy the remaining Route header(s) unchanged from the received request for a standalone transation to the new request for a standalone transaction.
Consequences if not approved:	If original dialog identifier is absent, the S-CSCF is not able to identify the association with an existing dialog for the request for standalone transaction sent from the AS (acting as B2BUA). This may cause routing problem.

Clauses affected:	⌘	5.7.5.1			
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 co

*** FIRST MODIFICATION ***

5.7.5 Application Server (AS) performing 3rd party call control

5.7.5.1 General

The AS performing 3rd party call control acts as a B2BUA. There are two kinds of 3rd party call control:

- Routeing B2BUA: an AS receives a request from S-CSCF, terminates it and generates a new request, which is based on the received request.
- Initiating B2BUA: an AS initiates two requests, which are logically connected together at the AS.

The B2BUA AS will internally map the message headers between the two dialogs that it manages. It is responsible for correlating the dialog identifiers and will decide when to simply translate a message from one dialog to the other, or when to perform other functions. These decisions are specific to each AS and are outside the scope of the present document.

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.

For standalone transactions, when the AS is acting as a Routeing B2BUA, the S-CSCF shall copy the remaining Route header(s) unchanged from the received request for a standalone transation to the new request for a standalone transaction.

5.7.5.2 Call initiation

5.7.5.2.1 Initial INVITE

When the AS acting as a Routeing B2BUA receives an initial INVITE request from the S-CSCF, the AS shall:

- remove its own SIP URI from the topmost Route header of the received INVITE request;
- perform the AS specific functions. See 3GPP TS 23.218 [5];
- if successful, generate and send a new INVITE request to the S-CSCF to establish a new dialog;
- copy the remaining Route header(s) unchanged from the received INVITE request to the new INVITE request;
- route the new INVITE request based on the topmost Route header.

NOTE: The topmost Route header of the received INVITE request will contain the AS's SIP URI. The following Route header will contain the SIP URI of the S-CSCF.

When the AS is acting as an Initiating B2BUA, the AS shall apply the procedures described in subclause 5.7.3 for both requests. The AS shall either set the icid parameter in the P-Charging-Vector header to be the same as received or different. The AS may retrieve CCF and/or ECF adresses from HSS on Sh interface.

5.7.5.2.2 Subsequent requests

Void.

5.7.5.3 Call release

5.7.5.4 Call-related requests

An AS may initiate a call release. See 3GPP TS 23.218 [5] for possible reasons. The AS shall simultaneously send the BYE request for both dialogs managed by the B2BUA.

5.7.5.5 Further initial requests

When the AS acting as an Initiating B2BUA the AS shall apply the procedures described in subclause 5.7.3 for both requests. The AS shall either set the icid parameter in the P-Charging-Vector header to be the same as received or different.

*** END OF MODIFICATION ***

3GPP TSG–CN1 Meeting #37
Sydney, Australia, 14th to 18th February 2005

***Tdoc* ⌘N1-050295**

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **809** ⌘**rev** **1** ⌘ Current version: **5.11.1** ⌘

*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:	⌘	IOI storage at MGCF
Source:	⌘	Orange
Work item code:	⌘	IMS-CCR
Date:	⌘	17/02/2004
Category:	⌘	**F**
Release:	⌘	REL-5

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

Use one of the following releases:

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: ⌘

As stated in section 4.5.4 about Inter operator identifier,

The MGCF takes responsibility for populating the orig-ioi parameter when a call/session is originated from the PSTN/PLMN. The MGCF takes responsibility for populating the term-ioi parameter when a call/session is terminated at the PSTN/PLMN.

As mentioned in TS 32.225 section 5.2.3 about CDR content, CDR generated by the MGCF can conditionally contain IOI identities (marked as "Co"), i.e. IOI identities should be present at the MGCF.

C_o This is a field that, if provisioned by the operator to be present, shall be included in the CDRs when the required conditions are met. In other words, a C_o parameter that is configured to be present is a conditional parameter.

In order to avoid to send ioi parameters in many requests and responses, it is proposed to store it when received the first time:

For calls originated from the circuit-switched networks, the MGCF shall store the term-IOI when receiving a 1xx or 2xx response to an initial request for a dialog.

For calls terminated in circuit-switched networks, the MGCF shall store the orig-IOI when receiving an initial request for a dialog.

Summary of change: ⌘

In section 5.5.1, the terms "standalone transaction" are removed.

In section 5.5.3.1.1, the MGCF shall store the term-IOI when receiving a 1xx or 2xx response to an initial request for a dialog.

In section 5.5.3.1.2, the MGCF shall store the orig-IOI when receiving an initial

		request for a dialog.
Consequences if not approved:	⌘	The MGCF is not able to retrieve the IOI identifying the remote operator if IOI is not stored in first request/response. Impacts on charging: it is not possible to reverse charges from one operator to the other when originating and terminating networks are different.

Clauses affected:	⌘	5.5.1, 5.5.3.1.1, 5.5.3.1.2			
Other specs affected:	⌘	**Y** / **N** **N** **N** **N**	Other core specifications Test specifications O&M Specifications	⌘	
Other comments:	⌘	Mirror CR in R6			

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 co

*** FIRST MODIFICATION ***

5.5 Procedures at the MGCF

5.5.1 General

The MGCF, 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. Therefore table A.4/1 and dependencies on that major capability shall not apply.

The use of the Path and Service-Route headers shall not be supported by the MGCF.

When the MGCF sends any request or response related to a dialog ~~or standalone transaction~~, the MGCF may insert previously saved values into P-Charging-Vector and P-Charging-Function-Addresses headers before sending the message.

*** NEXT MODIFICATION ***

5.5.3.1.1 Calls originated from circuit-switched networks

When the MGCF receives an indication of an incoming call from a circuit-switched network, the MGCF shall:

- generate and send an INVITE request to I-CSCF:
  - set the Request-URI to the "tel" format using an E.164 address;
  - set the Supported header to "100rel" (see RFC 3312 [30]);
  - include an P-Asserted-Identity header;
  - create a new, globally unique value for the icid parameter and insert it into the P-Charging-Vector header; and
  - insert an orig-ioi parameter into the P-Charging-Vector header. The orig-ioi parameter shall be set to a value that identifies the sending network in which the MGCF resides and the term-ioi parameter shall not be included.

When the MGCF receives a 1xx or 2xx response to an initial request for a dialog, the MGCF shall store the value of the received term-ioi parameter received in the P-Charging-Vector header, if present. The term-ioi parameter identifies the sending network of the response message.

*** NEXT MODIFICATION ***

5.5.3.1.2 Calls terminating in circuit-switched networks

When the MGCF receives an initial INVITE request with Supported header indicating "100rel", the MGCF shall:

- store the value of the orig-ioi parameter received in the P-Charging-Vector header, if present. The orig-ioi parameter identifies the sending network of the request message.
- send 100 (Trying) response;
- after a matching codec is found at the MGW, send 183 "Session Progress" response:
  - set the Require header to the value of "100rel";
  - store the values received in the P-Charging-Function-Addresses header;
  - store the value of the icid parameter received in the P-Charging-Vector header; and

- insert a term-ioi parameter into the P-Charging-Vector header. The term-ioi parameter shall be set to a value that identifies the network in which the MGCF resides.

When the MGCF does not find an available matching codec at the MGW for the received initial INVITE request, the MGCF shall:

- send 503 (Service Unavailable) response if the type of codec was acceptable but none were available; or

- send 488 (Not Acceptable Here) response if the type of codec was not supported, and may include SDP in the message body to indicate the codecs supported by the MGCF/MGW.

*** END OF MODIFICATION ***

3GPP TSG–CN1 Meeting #37
Sydney, Australia, 14th to 18th February 2005

***Tdoc* ⌘N1-050296**

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **810** ⌘**rev** **1** ⌘ Current version: **6.5.1** ⌘

*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:	⌘	IOI storage at MGCF
Source:	⌘	Orange
Work item code:	⌘	IMS-CCR
Date:	⌘	17/02/2004
Category:	⌘	**A**
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: ⌘ As stated in section 4.5.4 about Inter operator identifier,

The MGCF takes responsibility for populating the orig-ioi parameter when a call/session is originated from the PSTN/PLMN. The MGCF takes responsibility for populating the term-ioi parameter when a call/session is terminated at the PSTN/PLMN.

As mentioned in TS 32.225 section 5.2.3 about CDR content, CDR generated by the MGCF can conditionally contain IOI identities (marked as "Co"), i.e. IOI identities should be present at the MGCF.

> **C_o** This is a field that, if provisioned by the operator to be present, shall be included in the CDRs when the required conditions are met. In other words, a C_o parameter that is configured to be present is a conditional parameter.

In order to avoid to send ioi parameters in many requests and responses, it is proposed to store it when received the first time:

At originating side, the MGCF shall store the term-IOI when receiving a 1xx or 2xx response to an initial request for a dialog.

At terminating side, the MGCF shall store the orig-IOI when receiving an initial request for a dialog.

Summary of change: ⌘ In section 5.5.1, the terms "standalone transaction" are removed.

In section 5.5.3.1.1, the MGCF shall store the term-IOI when receiving a 1xx or 2xx response to an initial request for a dialog.

In section 5.5.3.1.2, the MGCF shall store the orig-IOI when receiving an initial

		request for a dialog or a request.
Consequences if not approved:	⌘	The MGCF is not able to retrieve the IOI identifying the remote operator if IOI is not stored in first request/response. Impacts on charging: it is not possible to reverse charges from one operator to the other when originating and terminating networks are different.

Clauses affected:	⌘	5.5.1, 5.5.3.1.1, 5.5.3.1.2			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

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

3)With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause co

*** FIRST MODIFICATION ***

5.5 Procedures at the MGCF

5.5.1 General

The MGCF, 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. Therefore table A.4/1 and dependencies on that major capability shall not apply.

The use of the Path and Service-Route headers shall not be supported by the MGCF.

When the MGCF sends any request or response related to a dialog ~~or standalone transaction~~, the MGCF may insert previously saved values into P-Charging-Vector and P-Charging-Function-Addresses headers before sending the message.

*** NEXT MODIFICATION ***

5.5.3.1.1 Calls originated from circuit-switched networks

When the MGCF receives an indication of an incoming call from a circuit-switched network, the MGCF shall:

- generate and send an INVITE request to I-CSCF:
  - set the Request-URI to the "tel" format using an E.164 address;
  - set the Supported header to "100rel" (see RFC 3312 [30]);
  - include an P-Asserted-Identity header;
  - create a new, globally unique value for the icid parameter and insert it into the P-Charging-Vector header; and
  - insert an orig-ioi parameter into the P-Charging-Vector header. The orig-ioi parameter shall be set to a value that identifies the sending network in which the MGCF resides and the term-ioi parameter shall not be included.

When the MGCF receives a 1xx or 2xx response to an initial request for a dialog, the MGCF shall store the value of the received term-ioi parameter received in the P-Charging-Vector header, if present. The term-ioi parameter identifies the sending network of the response message.

*** NEXT MODIFICATION ***

5.5.3.1.2 Calls terminating in circuit-switched networks

When the MGCF receives an initial INVITE request with Supported header indicating "100rel", the MGCF shall:

- store the value of the orig-ioi parameter received in the P-Charging-Vector header, if present. The orig-ioi parameter identifies the sending network of the request message.
- send 100 (Trying) response;
- after a matching codec is found at the MGW, send 183 "Session Progress" response:
  - set the Require header to the value of "100rel";
  - store the values received in the P-Charging-Function-Addresses header;
  - store the value of the icid parameter received in the P-Charging-Vector header; and
  - insert a term-ioi parameter into the P-Charging-Vector header. The term-ioi parameter shall be set to a value that identifies the network in which the MGCF resides.

When the MGCF does not find an available matching codec at the MGW for the received initial INVITE request, the MGCF shall:

- send 503 (Service Unavailable) response if the type of codec was acceptable but none were available; or
- send 488 (Not Acceptable Here) response if the type of codec was not supported, and may include SDP in the message body to indicate the codecs supported by the MGCF/MGW.

*** END OF MODIFICATION ***

3GPP TSG-CN1 Meeting #37
Sydney, Australia, 14-18 February 2004

Tdoc N1-050298
was tdoc N1-050181

CR-Form-v7

CHANGE REQUEST

⌘ **24.228** **CR** 137 ⌘ **rev** **2** ⌘ Current version: **5.11.0** ⌘

*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:	⌘	Correction to interaction between S-CSCF and HSS in Network initiated deregistration procedure
Source:	⌘	Nokia
Work item code:	⌘	IMS-CCR
Date:	⌘	03/02/05
Category:	⌘	**F**
Release:	⌘	REL-5

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

Use one of the following releases:

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:	⌘	During introduction of the CR 136 in tdoc N1-041967, an error occred. The states of the user identity in the HSS are different than described in the CR.
Summary of change:	⌘	HSS states are corrected.
Consequences if not approved:	⌘	Inconsistency with the procedure described by CN4.

Clauses affected:	⌘	6.7.1

	Y	N		
Other specs affected: ⌘		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 co

*** FIRST MODIFICATION ***

6.7.1 Network-initiated deregistration event occurs in the S-CSCF

Figure 6.7.1-1 assumes that the UE and the P-CSCF both have subscribed for the user's registration state event package according to subclause 6.5 and shows how the UE and the P-CSCF are notified when the network-initiated deregistration event occurs in the S-CSCF.

Also, it is assumed that the home network does not have network configuration hiding active.

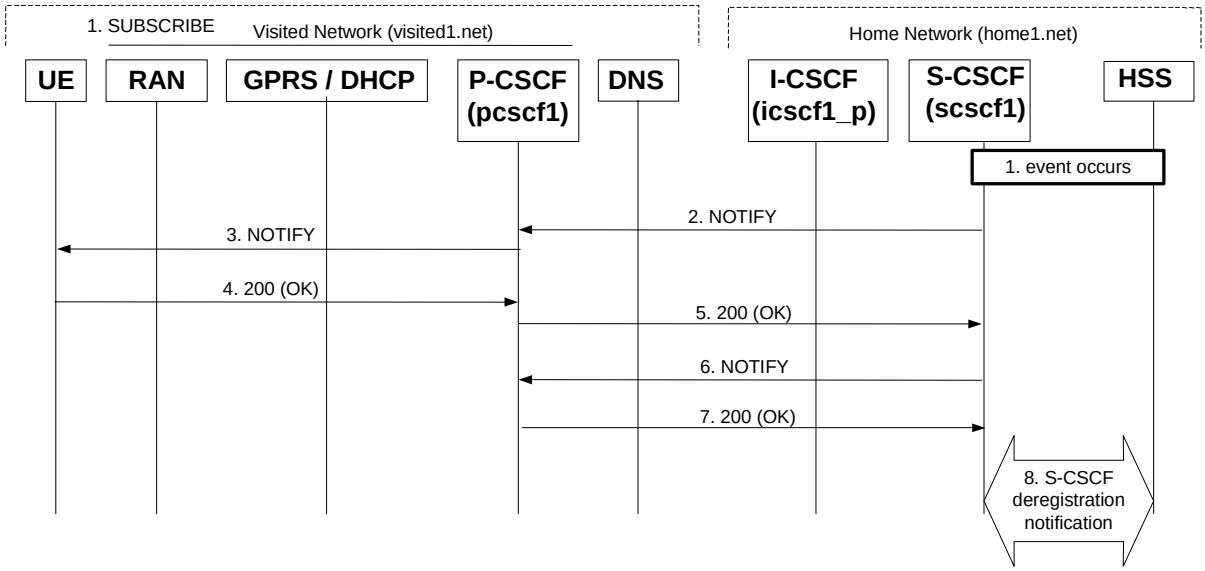

Figure 6.7.1-1: Network Initiated Deregistration event occurs in the S-CSCF

1. **Network Initiated Deregistration event occurs in the S-CSCF**

2 **SIP NOTIFY request (S-CSCF to P-CSCF) - see example in table 6.7.1-3**

After the S-CSCF deregistration notification procedure the S-CSCF immediately sends a NOTIFY request towards the UE in order to inform about the network initiated deregistration and the subscription termination. The same Request URI, To, From, Call-ID are used as in the first NOTIFY request. CSeq is incremented since this is the second NOTIFY request sent towards the UE.

Table 6.7.1-3: SIP NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net;lr>
From: <sip:user1_public1@home1.net>;tag=151170
To: <sip:user1_public1@home1.net>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222
CSeq: 43 NOTIFY
Subscription-State: terminated
Event: reg
Content-Type: application/reginfo+xml
Contact: sip:scscf1.home1.net
Content-Length: (...)

<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo"
                version="1" state="full">
     <registration aor="sip:user1_public1@home1.net" id="as9"
                   state="terminated">
       <contact id="76" state="terminated" event="deactivated">
           <uri>sip:[5555::aaa:bbb:ccc:ddd]</uri>
       </contact>
     </registration>
     <registration aor="sip:user1_public2@home1.net" id="as10"
                   state="terminated">
```

```
      <contact id="77" state="terminated" event="deactivated">
          <uri>sip:[5555::aaa:bbb:ccc:ddd]</uri>
      </contact>
    </registration>
    <registration aor="tel:+358504821437" id="as11"
                  state="terminated">
      <contact id="78" state="terminated" event="deactivated">
          <uri>sip:[5555::aaa:bbb:ccc:ddd]</uri>
      </contact>
    </registration>
  </reginfo>
```

3. **SIP NOTIFY request (P-CSCF to UE) - see example in table 6.7.1-4**

P-CSCF forwards the NOTIFY request to the UE.

Table 6.7.1-4: SIP NOTIFY request (P-CSCF to UE)

```
NOTIFY sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net:7531;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
scscf1.home1.net;branch=z9hG4bK332b23.1
Max-Forwards: 69
From:
To:
Call-ID:
CSeq:
Subscription-State:
Event:
Content-Type:
Contact:
Content-Length:
```

4. **200 (OK) response (UE to P-CSCF) - see example in table 6.7.1-5**

Table 6.7.1-5: SIP 200 (OK) response (UE to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net:7531;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
scscf1.home1.net;branch=z9hG4bK332b23.1
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

P-Access-Network-Info: the UE provides the access-type and access-info, related to the serving access network.

5. **SIP 200 (OK) response (P-CSCF to S-CSCF) - see example in table 6.7.1-6**

Table 6.7.1-6: SIP 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Content-Length:
```

P-Access-Network-Info: This header contains information from the UE.

6 **SIP NOTIFY request (S-CSCF to P-CSCF) - see example in table 6.7.1-7**

The S-CSCF also sends a NOTIFY request towards the P-CSCF to which the UE is attached to, in order to inform about the network initiated deregistration. The same Request URI, To, From, Call-ID are used as in the first NOTIFY request. CSeq is incremented since this is the second NOTIFY request sent towards the P-CSCF.

Table 6.7.1-7: SIP NOTIFY request (S-CSCF to P-CSCF)

```
NOTIFY sip:pcscf1.visited1.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1
Max-Forwards: 70
From: <sip:user1_public1@home1.net>;tag=151170
To: <sip:pcscf1.visited1.net>;tag=31415
Call-ID: dre36d2v32gnlgiiomm72445
CSeq: 43 NOTIFY
Subscription-State: terminated
Event: reg
Content-Type: application/reginfo+xml
Contact: sip:scscf1.home1.net
Content-Length: (...)

<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo"
                version="1" state="full">
     <registration aor="sip:user1_public1@home1.net" id="as9"
                   state="terminated">
       <contact id="76" state="terminated" event="deactivated">
           <uri>sip:[5555::aaa:bbb:ccc:ddd]</uri>
       </contact>
     </registration>
     <registration aor="sip:user1_public2@home1.net" id="as10"
                   state="terminated">
       <contact id="77" state="terminated" event="deactivated">
           <uri>sip:[5555::aaa:bbb:ccc:ddd]</uri>
       </contact>
     </registration>
     <registration aor="tel:+358504821437" id="as11"
                   state="terminated">
       <contact id="78" state="terminated" event="deactivated">
           <uri>sip:[5555::aaa:bbb:ccc:ddd]</uri>
       </contact>
     </registration>
   </reginfo>
```

7. **SIP 200 (OK) response (P-CSCF to S-CSCF) - see example in table 6.7.1-8**

Table 6.7.1-8: SIP 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

8. **S-CSCF deregistration notification**

When the Network Initiated Deregistration Event occurs in the S-CSCF, the S-CSCF informs the HSS that the user is no longer registered. The S-CSCF either notifies the HSS to clear or requests to keep its location information for that subscriber. The HSS then either clears or keeps the S-CSCF name for that subscriber according to request. In case the S-CSCF location information is cleared from the HSS, the state of the subscriber identity is stored as "not registered" in the HSS. In case the S-CSCF location information is kept in the HSS, the state of the subscriber identity is stored as "unregistered" in the HSS and the S-CSCF~~In both cases the state of the subscriber identity is stored as unregistered in the HSS and the S-CSCF~~. The HSS acknowledges the request.

For detailed message flows see 3GPP TS 29.228 [11].

*** END OF MODIFICATION ***

3GPP TSG–CN1 Meeting #37
Sydney, Australia, 14th to 18th February 2005

***Tdoc* ⌘N1-050401**

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **807** ⌘**rev** **2** ⌘ Current version: **5.11.1** ⌘

*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:	⌘	Checking Request-URI for terminating requests at the S-CSCF
Source:	⌘	Orange
Work item code:	⌘	IMS-CCR
Date:	⌘	17/02/2005
Category:	⌘	**F**
Release:	⌘	REL-5

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

Use one of the following releases:

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:	⌘	According to TS 23.218 (section 6.5 Handling of mobile terminating requests), in case the Request-URI changes when visiting an Application Server, the S-CSCF shall terminate the checking of filter criterias, route the request based on the changed value of the Request-URI and do not execute the subsequent steps; However in TS 24.229 section 5.4.3.3, the sequence of the steps at the S-CSCF is not described in the correct order: the check whether the Request-URI equals to the saved value of the Request-URI shall be done before the check of the next unexecuted filter criteria.
Summary of change:	⌘	In section 5.4.3.3 Requests terminated at the served user, the step 8 is moved in step 4.
Consequences if not approved:		The sequence of the steps of the S-CSCF procedure for requests terminated at the served user is not correct. This may cause routing problem if the AS changes the Request-URI.

Clauses affected:	⌘	5.4.3.3

		Y	N		
Other specs affected:	⌘		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 co

*** FIRST MODIFICATION ***

5.4.3.3 Requests terminated at the served user

When the S-CSCF receives, destined for a registered served user, an initial request for a dialog or a request for a standalone transaction, prior to forwarding the request, the S-CSCF shall:

1) determine whether the request contains a barred public user identity in the Request-URI of the request or not. In case the Request URI contains a barred public user identity for the user, then the S-CSCF shall reject the request by generating a 404 (Not Found) response. Otherwise, continue with the rest of the steps;

2) remove its own URI from the topmost Route header;

3) check if an original dialog identifier that the S-CSCF previously placed in a Route header is present in the topmost Route header of the incoming request.

   - If present, it indicates an association with an existing dialog, the request has been sent from an AS in response to a previously sent request.

   - If not present, it indicates that the request is visiting the S-CSCF for the first time, and in this case the S-CSCF shall save the Request-URI from the request;

4) if there is a original dialog identifier present in the topmost Route header of the incoming request check whether the Request-URI equals to the saved value of the Request-URI. If there is no match, then:

   a) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed; and

   b) forward the request based on the topmost Route header and skip the following steps;

   If there is a match, then check whether the initial request matches the next unexecuted initial filter criteria in the priority order and apply the filter criteria on the SIP method as described in 3GPP TS 23.218 [5] subclause 6.5. If there is a match, then insert the AS URI to be contacted into the Route header as the topmost entry followed by its own URI populated as specified in the subclause 5.4.3.4;

NOTE 1: Depending on the result of the previous process, the S-CSCF may contact one or more AS(s) before processing the outgoing Request-URI.

5) if there is no original dialog identifier present in the topmost Route header of the incoming request insert a P-Charging-Function-Addresses header field, if not present, populated with values received from the HSS if the message is forwarded within the S-CSCF home network, including towards AS;

6) if there is no original dialog identifier present in the topmost Route header of the incoming request store the value of the icid parameter received in the P-Charging-Vector header and retain the icid parameter in the P-Charging-Vector header;

7) if there is no original dialog identifier present in the topmost Route header of the incoming store the value of the orig-ioi parameter received in the P-Charging-Vector header, if present. The orig-ioi parameter identifies the sending network of the request message. The orig-ioi parameter shall only be retained in the P-Charging-Vector header if the next hop is to an AS;

~~8) check whether the Request-URI equals to the saved value of the Request-URI. If there is no match, then:~~

~~a) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed; and~~

~~b) forward the request based on the Request-URI and skip the following steps;~~

~~If there is a match, then continue with the further steps;~~

8~~9~~) in case there are no Route headers in the request, then determine, from the destination public user identity, the list of preloaded routes saved during registration or re-registration, as described in subclause 5.4.1.2. Furthermore, the S-CSCF shall:

   a) build the Route header field with the values determined in the previous step;

b) determine, from the destination public user identity, the saved Contact URI where the user is reachable saved at registration or reregistration, as described in subclause 5.4.1.2;

c) build a Request-URI with the contents of the saved Contact URI determined in the previous step; and

d) insert a P-Called-Party-ID SIP header field including the Request-URI received in the INVITE;

9~~10~~) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed;

10~~11~~) optionally, apply any privacy required by RFC 3323 [33] to the P-Asserted-Identity header; and

NOTE 2: The optional procedure above is in addition to any procedure for the application of privacy at the edge of the trust domain specified by RFC 3323 [33].

11~~12~~) forward the request based on the topmost Route header.

When the S-CSCF receives, destined for an unregistered user, an initial request for a dialog or a request for a standalone transaction, the S-CSCF shall:

1) if the S-CSCF does not have the user profile, then initiate the S-CSCF Registration/deregistration notification with the purpose of downloading the relevant user profile (i.e. for unregistered user) and informing the HSS that the user is unregistered, but this S-CSCF will assess triggering of services for the unregistered user, as described in 3GPP TS 29.228 [14];

2) execute the procedures described in the steps 1, 2 and 3 in the above paragraph (when the S-CSCF receives, destined for the registered served user, an initial request for a dialog or a request for a standalone transaction); and

3) execute the procedure described in step 4, 5, 6, 7, 8, 9, 11 and 12 in the above paragraph (when the S-CSCF receives, destined for the registered served user, an initial request for a dialog or a request for a standalone transaction).

   In case that no AS needs to be contacted, then S-CSCF shall return an appropriate unsuccessful SIP response. This response may be a 480 (Temporarily unavailable) and terminate these procedures.

When the S-CSCF receives a 1xx or 2xx response to the initial request for a dialog (whether the user is registered or not), it shall:

1) if the response corresponds to an INVITE request, save the Contact and Record-Route header field values in the response such that the S-CSCF is able to release the session if needed;

2) insert an term-ioi parameter in the P-Charging-Vector header of the outgoing response. The S-CSCF shall set the term-ioi parameter to a value that identifies the sending network of the response and the orig-ioi parameter is set to the previously received value of orig-ioi;

3) in the case where the S-CSCF has knowledge of an associated tel-URL for a SIP URI contained in the received P-Asserted-Identity header, the S-CSCF shall add a second P-Asserted-Identity header containing this tel-URL; and

4) in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

When the S-CSCF receives a response to a request for a standalone transaction (whether the user is registered or not), in the case where the S-CSCF has knowledge of an associated tel-URL for a SIP URI contained in the received P-Asserted-Identity header, the S-CSCF shall add a second P-Asserted-Identity header containing this tel-URL. In case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

When the S-CSCF receives the 200 (OK) response for a standalone transaction request, the S-CSCF shall:

1) insert a P-Charging-Function-Addresses header populated with values received from the HSS if the message is forwarded within the S-CSCF home network, including towards an AS; and

2) insert a term-ioi parameter in the P-Charging-Vector header of the outgoing response. The S-CSCF shall set the term-ioi parameter to a value that identifies the sending network of the response and the orig-ioi parameter is set to the previously received value of orig-ioi.

When the S-CSCF receives, destined for a served user, a target refresh request for a dialog, prior to forwarding the request, the S-CSCF shall:

1) remove its own URI from the topmost Route header;

2) if the request is an INVITE request, save the Contact, Cseq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed;

3) create a Record-Route header containing its own SIP URI; and

4) forward the request based on the topmost Route header.

When the S-CSCF receives a 1xx or 2xx response to the target refresh request for a dialog (whether the user is registered or not), the S-CSCF shall:

1) if the response corresponds to an INVITE request, save the Record-Route and Contact header field values in the response such that the S-CSCF is able to release the session if needed; and

2) in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

When the S-CSCF receives, destined for the served user, a subsequent request other than target refresh request for a dialog, prior to forwarding the request, the S-CSCF shall:

1) remove its own URI from the topmost Route header; and

2) forward the request based on the topmost Route header.

When the S-CSCF receives a response to a a subsequent request other than target refresh request for a dialog, in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

*** END OF MODIFICATION ***

3GPP TSG–CN1 Meeting #37
Sydney, Australia, 14th to 18th February 2005

***Tdoc* ⌘N1-050402**

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **808** ⌘**rev** **2** ⌘ Current version: **6.5.1** ⌘

*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:	⌘	Checking Request-URI for terminating requests at the S-CSCF
Source:	⌘	Orange
Work item code:	⌘	IMS-CCR
Date:	⌘	17/02/2005
Category:	⌘	**A**
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:	⌘	According to TS 23.218 (section 6.5 Handling of mobile terminating requests), in case the Request-URI changes when visiting an Application Server, the S-CSCF shall terminate the checking of filter criterias, route the request based on the changed value of the Request-URI and do not execute the subsequent steps; However in TS 24.229 section 5.4.3.3, the sequence of the steps at the S-CSCF is not described in the correct order: the check whether the Request-URI equals to the saved value of the Request-URI shall be done before the check of the next unexecuted filter criteria.
Summary of change:	⌘	In section 5.4.3.3 Requests terminated at the served user, the step 8 is moved in step 4.
Consequences if not approved:		The sequence of the steps of the S-CSCF procedure for requests terminated at the served user is not correct. This may cause routing problem if the AS changes the Request-URI.

Clauses affected:	⌘	5.4.3.3

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

Other comments:	⌘	

How to create CRs using this form:
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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 co

*** FIRST MODIFICATION ***

5.4.3.3 Requests terminated at the served user

When the S-CSCF receives, destined for a statically pre-configured PSI or a registered served user, an initial request for a dialog or a request for a standalone transaction, prior to forwarding the request, the S-CSCF shall:

1) determine whether the request contains a barred public user identity in the Request-URI of the request or not. In case the Request URI contains a barred public user identity for the user, then the S-CSCF shall reject the request by generating a 404 (Not Found) response. Otherwise, continue with the rest of the steps;

2) remove its own URI from the topmost Route header;

3) check if an original dialog identifier that the S-CSCF previously placed in a Route header is present in the topmost Route header of the incoming request.

   - If present, it indicates an association with an existing dialog, the request has been sent from an AS in response to a previously sent request.

   - If not present, it indicates that the request is visiting the S-CSCF for the first time, and in this case the S-CSCF shall save the Request-URI from the request;

4) if there is a original dialog identifier present in the topmost Route header of the incoming request check whether the Request-URI equals to the saved value of the Request-URI. If there is no match, then:

   a) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed; and

   b) forward the request based on the topmost Route header and skip the following steps;

   If there is a match, then check whether the initial request matches the next unexecuted initial filter criteria in the priority order and apply the filter criteria on the SIP method as described in 3GPP TS 23.218 [5] subclause 6.5. If there is a match, then insert the AS URI to be contacted into the Route header as the topmost entry followed by its own URI populated as specified in the subclause 5.4.3.4;

NOTE 1: Depending on the result of the previous process, the S-CSCF may contact one or more AS(s) before processing the outgoing Request-URI.

5) if there is no original dialog identifier present in the topmost Route header of the incoming request insert a P-Charging-Function-Addresses header field, if not present, populated with values received from the HSS if the message is forwarded within the S-CSCF home network, including towards AS;

6) if there is no original dialog identifier present in the topmost Route header of the incoming request store the value of the icid parameter received in the P-Charging-Vector header and retain the icid parameter in the P-Charging-Vector header;

7) if there is no original dialog identifier present in the topmost Route header of the incoming request store the value of the orig-ioi parameter received in the P-Charging-Vector header, if present. The orig-ioi parameter identifies the sending network of the request message. The orig-ioi parameter shall only be retained in the P-Charging-Vector header if the next hop is to an AS;

~~8) check whether the Request-URI equals to the saved value of the Request-URI. If there is no match, then:~~

~~a) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed; and~~

~~b) forward the request based on the Request-URI and skip the following steps;~~

~~If there is a match, then continue with the further steps;~~

8~~9~~) if necessary perform the caller preferences to callee capabilities matching according to RFC 3841 [56B];

9~~10~~) in case there are no Route headers in the request, then determine, from the destination public user identity, the list of preloaded routes saved during registration or re-registration, as described in subclause 5.4.1.2. Furthermore, the S-CSCF shall:

   a) build the Route header field with the values determined in the previous step;

b) determine, from the destination public user identity, the saved Contact URI where the user is reachable saved at registration or reregistration, as described in subclause 5.4.1.2. If there is more than one contact address saved for the destination public user identity, the S-CSCF shall:

- if the fork directive in the Request Disposition header was set to "no-fork", the contact with the highest qvalue parameter shall be used when building the Request-URI. In case no qvalue parameters were provided, the S-CSCF shall decide locally what contact address to be used when building the Request-URI; otherwise

- fork the request or perform sequential search based on the relative preference indicated by the qvalue parameter of the Contact header in the original REGISTER request, as described in RFC3261 [26]. In case no qvalue parameters were provided, then the S-CSCF determine the contact address to be used when building the Request-URI as directed by the Request Disposition header as described in RFC 3841 [56B]. If the Request-Disposition header is not present, the S-CSCF shall decide locally whether to fork or perform sequential search among the contact addresses;

c) build a Request-URI with the contents of the saved Contact URI determined in the previous step; and

d) insert a P-Called-Party-ID SIP header field including the Request-URI received in the request;

10~~11~~) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed;

11~~12~~) optionally, apply any privacy required by RFC 3323 [33] and RFC 3325 [34] to the P-Asserted-Identity header and apply the same privacy mechanism to the P-Access-Network-Info header;

NOTE 2: The optional procedure above is in addition to any procedure for the application of privacy at the edge of the trust domain specified by RFC 3325 [34].

12~~13~~) in case of an initial request for a dialog, either:

- if the request is routed to an AS which is part of the trust domain, the S-CSCF can decide whether to record-route or not. The decision is configured in the S-CSCF using any information in the received request that may otherwise be used for the initial filter criteria. If the request is record-routed the S-CSCF shall create a Record-Route header containing its own SIP URI; or

- if the request is routed elsewhere, create a Record-Route header containing its own SIP URI; and

13~~14~~) forward the request based on the topmost Route header.

When the S-CSCF receives, destined for an unregistered user, an initial request for a dialog or a request for a standalone transaction, the S-CSCF shall:

1) if the S-CSCF does not have the user profile, then initiate the S-CSCF Registration/deregistration notification with the purpose of downloading the relevant user profile (i.e. for unregistered user) and informing the HSS that the user is unregistered, but this S-CSCF will assess triggering of services for the unregistered user, as described in 3GPP TS 29.228 [14];

2) execute the procedures described in the steps 1, 2 and 3 in the above paragraph (when the S-CSCF receives, destined for the registered served user, an initial request for a dialog or a request for a standalone transaction); and

3) execute the procedure described in step 4, 5, 6, 7, 8, 10, 12 and 13 in the above paragraph (when the S-CSCF receives, destined for the registered served user, an initial request for a dialog or a request for a standalone transaction).

   In case that no AS needs to be contacted, then S-CSCF shall return an appropriate unsuccessful SIP response. This response may be a 480 (Temporarily unavailable) and terminate these procedures.

When the S-CSCF receives a 1xx or 2xx response to the initial request for a dialog (whether the user is registered or not), it shall:

1) if the response corresponds to an INVITE request, save the Contact and Record-Route header field values in the response such that the S-CSCF is able to release the session if needed;

2) insert a term-ioi parameter in the P-Charging-Vector header of the outgoing response. The S-CSCF shall set the term-ioi parameter to a value that identifies the sending network of the response and the orig-ioi parameter is set to the previously received value of orig-ioi;

3) in the case where the S-CSCF has knowledge of an associated tel-URL for a SIP URI contained in the received P-Asserted-Identity header, the S-CSCF shall add a second P-Asserted-Identity header containing this tel-URL;

4) in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header; and

5) in case the response is sent towards the originating user, the S-CSCF may remove the P-Access-Network-Info header based on local policy rules and the destination user (Request-URI).

When the S-CSCF receives a response to a request for a standalone transaction (whether the user is registered or not), in the case where the S-CSCF has knowledge of an associated tel-URL for a SIP URI contained in the received P-Asserted-Identity header, the S-CSCF shall add a second P-Asserted-Identity header containing this tel-URL. In case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header. In case the response is sent towards the terminating user, the S-CSCF may remove the header based on local policy rules and the destination user (Request-URI).

When the S-CSCF receives the 200 (OK) response for a standalone transaction request, the S-CSCF shall:

1) insert a P-Charging-Function-Addresses header populated with values received from the HSS if the message is forwarded within the S-CSCF home network, including towards an AS; and

2) insert a term-ioi parameter in the P-Charging-Vector header of the outgoing response. The S-CSCF shall set the term-ioi parameter to a value that identifies the sending network of the response and the orig-ioi parameter is set to the previously received value of orig-ioi.

When the S-CSCF receives, destined for a served user, a target refresh request for a dialog, prior to forwarding the request, the S-CSCF shall:

1) remove its own URI from the topmost Route header;

2) if the request is an INVITE request, save the Contact, Cseq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed;

3) create a Record-Route header containing its own SIP URI; and

4) forward the request based on the topmost Route header.

When the S-CSCF receives a 1xx or 2xx response to the target refresh request for a dialog (whether the user is registered or not), the S-CSCF shall:

1) if the response corresponds to an INVITE request, save the Record-Route and Contact header field values in the response such that the S-CSCF is able to release the session if needed; and

2) in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header. In case the response is sent towards the originating user, the S-CSCF may remove the header based on local policy rules and the destination user (Request-URI).

When the S-CSCF receives, destined for the served user, a subsequent request other than target refresh request for a dialog, prior to forwarding the request, the S-CSCF shall:

1) remove its own URI from the topmost Route header; and

2) forward the request based on the topmost Route header.

When the S-CSCF receives a response to a a subsequent request other than target refresh request for a dialog, in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header. In case the response is sent towards the terminating user, the S-CSCF may remove the header based on local policy rules and the destination user (Request-URI).

*** END OF MODIFICATION ***