

Source: TSG CN WG 1
Title: CRs to Rel-5 on Work Item IMS-CCR towards 23.218
Agenda item: 8.1
Document for: APPROVAL

Introduction:

This document contains **6** CRs, **Rel-5** to Work Item **"IMS-CCR"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #20 for approval.

| Spec | CR | Rev | Cat | Phase | Subject | Version-Current | Version-New | Meeting-2nd-Level | Doc-2nd-Level |
|--------|-----|-----|-----|-------|---|-----------------|-------------|-------------------|---------------|
| 23.218 | 043 | 5 | F | Rel-5 | Correction on Handling of MO request | 5.4.0 | 5.5.0 | N1-30 | N1-030943 |
| 23.218 | 044 | 1 | F | Rel-5 | Corrections regarding SPTs and Filter Criteria handling on REGISTER request | 5.4.0 | 5.5.0 | N1-29 | N1-030516 |
| 23.218 | 046 | 1 | F | Rel-5 | Clarifications on SPT. | 5.4.0 | 5.5.0 | N1-29 | N1-030517 |
| 23.218 | 048 | | F | Rel-5 | Clarification concerning the use of Service Key | 5.4.0 | 5.5.0 | N1-30 | N1-030663 |
| 23.218 | 051 | 1 | F | Rel-5 | S-CSCF behavior correction to enable call forwarding | 5.4.0 | 5.5.0 | N1-30 | N1-030855 |
| 23.218 | 055 | 1 | F | Rel-5 | Filtering of unknown header fields and header parameters | 5.4.0 | 5.5.0 | N1-30 | N1-030924 |

CR-Form-v7

CHANGE REQUEST

⌘ **23.218 CR 043** ⌘ rev **5** ⌘ Current version: **5.4.0** ⌘

For [HELP](#) on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

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

| | | | |
|---|--|---|--------------|
| Title: | ⌘ Correction on Handling of MO request | | |
| Source: | ⌘ NEC | | |
| Work item code: | ⌘ IMS-CCR | Date: | ⌘ 12/05/2003 |
| Category: | ⌘ F | Release: | ⌘ Rel-5 |
| Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | | Use <u>one</u> 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: | ⌘ An inconsistent paragraph states that it shall be checked if a request is MO or MT by checking the trigger points. |
| Summary of change: | ⌘ It is corrected that a request shall first be identified as MO or MT in order to perform the matching procedure with SPT within initial filter criteria and then the specific initial Filter Criteria , which include Trigger Points , shall be checked determined . At the same time, wording is improved in §6.4 and the same wording improvement applies for §6.5 |
| Consequences if not approved: | ⌘ Inconsistency within the specification |

| | | | | | | | | | | | |
|------------------------------|---|---|---|---|---|---|---|---|---|--|---|
| Clauses affected: | ⌘ 6.4, 6.5 | | | | | | | | | | |
| Other specs affected: | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> | Y | N | ⌘ | X | ⌘ | X | ⌘ | X | Other core specifications Test specifications O&M Specifications | ⌘ |
| Y | N | | | | | | | | | | |
| ⌘ | X | | | | | | | | | | |
| ⌘ | X | | | | | | | | | | |
| ⌘ | X | | | | | | | | | | |
| Other comments: | ⌘ N1-030515 is superseded by this CR. | | | | | | | | | | |

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.

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](#). ~~its trigger points (i.e. this is a mobile originating request or a mobile terminating request)~~. 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.

-----Second change-----

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 [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 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;
- 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.

CHANGE REQUEST

⌘ **23.218 CR 044** ⌘ rev **1-** ⌘ Current version: **5.4.0** ⌘

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

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

| | | | |
|------------------------|--|---------------------------|---|
| Title: | ⌘ Corrections regarding SPTs and Filter Criteria handling on REGISTER request | | |
| Source: | ⌘ Orange | | |
| Work item code: | ⌘ IMS-CCR | Date: | ⌘ 17/03/2003 |
| Category: | ⌘ F | Release: | ⌘ Rel-5 |
| | Use <u>one</u> of the following categories: | | Use <u>one</u> of the following releases: |
| | F (correction) | 2 (GSM Phase 2) | |
| | A (corresponds to a correction in an earlier release) | R96 (Release 1996) | |
| | B (addition of feature), | R97 (Release 1997) | |
| | C (functional modification of feature) | R98 (Release 1998) | |
| | D (editorial modification) | R99 (Release 1999) | |
| | Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | | Rel-4 (Release 4) |
| | | | Rel-5 (Release 5) |
| | | | Rel-6 (Release 6) |

| | |
|--------------------------------------|---|
| Reason for change: | ⌘ This CR aims at: <ul style="list-style-type: none"> - correcting the fact that the states 'registered', 'unregistered' or 'both' are SPTs and not trigger points indicating SPTs to be triggered - correcting the fact that on REGISTER message reception at S-CSCF, the procedure regarding Filter Criteria is different from other messages as the AS will not send back the REGISTER message and the same REGISTER message has to be sent to all AS for which Filter criteria match, as described in TS24.229. |
| Summary of change: | ⌘ <ol style="list-style-type: none"> 1. the statement regarding 'registered', 'unregistered' or 'both' is removed as those states are included in SPTs 2. In the handling of a request regarding Filter Criteria, a paragraph is added for the REGISTER request |
| Consequences if not approved: | ⌘ <ol style="list-style-type: none"> 1. inconsistency with TS29.228 2. inconsistency with TS24.229 |

| | | | | | | | | | | | |
|------------------------------|---|---|---|--|---|--|---|--|---|--|---|
| Clauses affected: | ⌘ 5.2 | | | | | | | | | | |
| Other specs affected: | <table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> <tr> <td style="width: 20px;"> </td> <td style="width: 20px;">X</td> </tr> </table> | Y | N | | X | | X | | X | Other core specifications Test specifications O&M Specifications | ⌘ |
| Y | N | | | | | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| 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.

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 header field;
- content of any 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.

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 registered, unregistered, or both (i.e., registered and unregistered) trigger Points, which indicated the Service Point Triggers (SPTs) ~~triggered by this Filter Criteria~~. 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 ~~when the S-CSCF receives a message via the Mw interface~~, 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, i.e. 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.

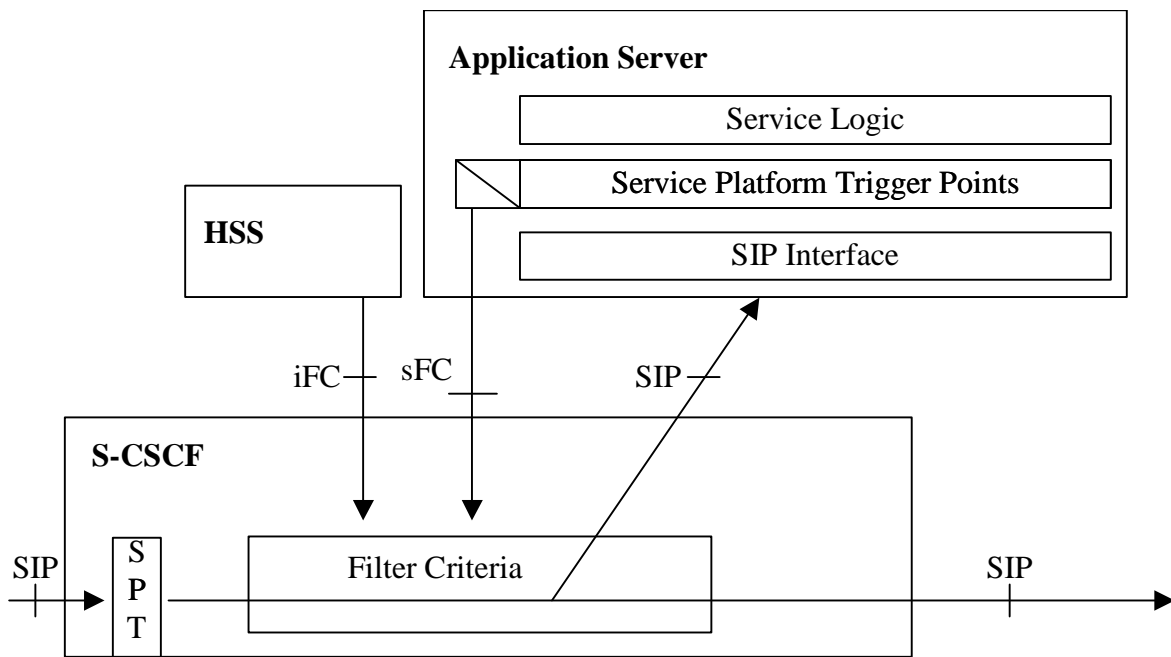


Figure 5.2.1: Application triggering architecture

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.

CR-Form-v7

CHANGE REQUEST

⌘ **23.218 CR 046** ⌘ rev **-1** ⌘ Current version: **5.4.0** ⌘

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

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

| | | | |
|------------------------|--|-----------------|---|
| Title: | ⌘ Clarifications on SPT. | | |
| Source: | ⌘ NEC Corporation | | |
| Work item code: | ⌘ IMS-CCR | Date: | ⌘ 24/03/2003 |
| Category: | ⌘ F | Release: | ⌘ Rel 5 |
| | Use <u>one</u> of the following categories: | | Use <u>one</u> of the following releases: |
| | F (correction) | 2 | (GSM Phase 2) |
| | A (corresponds to a correction in an earlier release) | R96 | (Release 1996) |
| | B (addition of feature), | R97 | (Release 1997) |
| | C (functional modification of feature) | R98 | (Release 1998) |
| | D (editorial modification) | R99 | (Release 1999) |
| | Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | Rel-4 | (Release 4) |
| | | Rel-5 | (Release 5) |
| | | Rel-6 | (Release 6) |

| | |
|--------------------------------------|---|
| Reason for change: | ⌘ In subclause 5.2, direction of the request within SPT is not clear for users. |
| Summary of change: | ⌘ As the direction of the request is defined in 24.229, it is added the note which states that See 3GPP TS 24.229[5] for further information about how to determine MO or MT. |
| Consequences if not approved: | ⌘ The definition remains unclear and causes wrong implementation. |

| | | | | | | | | | | | |
|------------------------------|--|---|---|---|--|---|--|---|--|---------------------------|---|
| Clauses affected: | ⌘ 5.2 | | | | | | | | | | |
| Other specs affected: | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="text-align: center; padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="text-align: center; padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="text-align: center; padding: 2px;">X</td> <td style="padding: 2px;"></td> </tr> </table> | Y | N | X | | X | | X | | Other core specifications | ⌘ |
| | Y | N | | | | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| X | | | | | | | | | | | |
| Test specifications | ⌘ | | | | | | | | | | |
| 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.

Start of change

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 header field;
- content of any 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;
- registered, unregistered, or both (i.e., registered and unregistered) trigger Points, which indicated the Service Point Triggers (SPTs) triggered by this Filter Criteria. 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 when the S-CSCF receives a message via the Mw interface, the S-CSCF shall check the filter criteria one by one according to their indicated priority, i.e. 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.

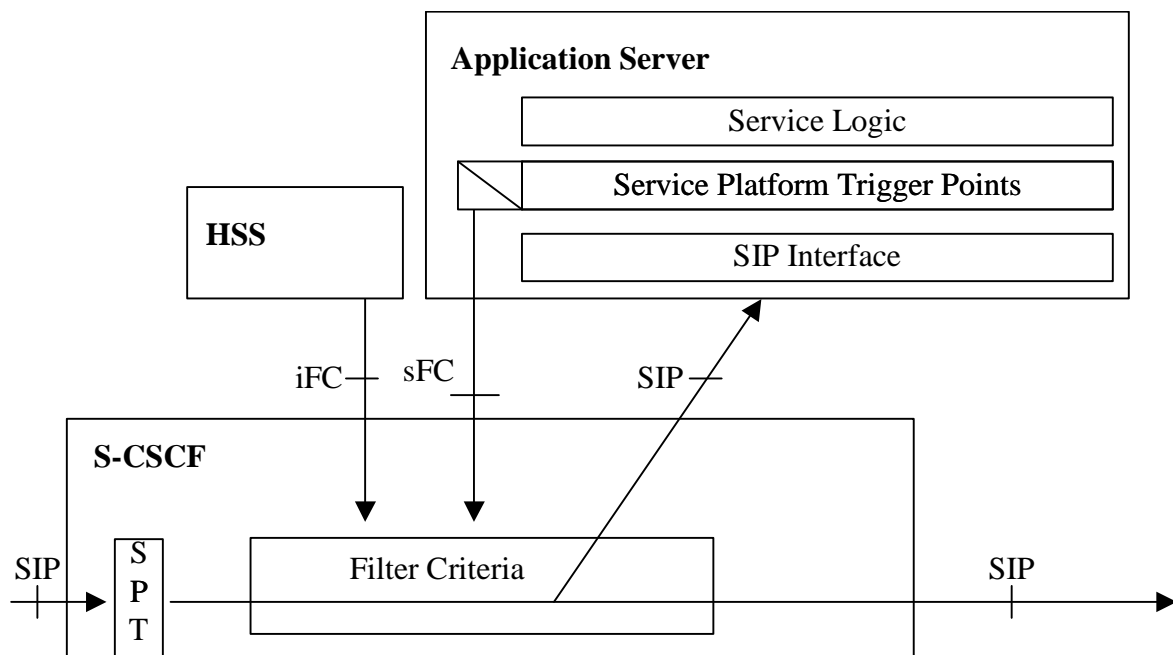


Figure 5.2.1: Application triggering architecture

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 change

CHANGE REQUEST

⌘ **23.218 CR 048** ⌘ rev **-** ⌘ Current version: **5.4.0** ⌘

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

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

| | | | |
|------------------------|--|---------------------------|---|
| Title: | ⌘ Service Key Clarification | | |
| Source: | ⌘ Marconi Communications | | |
| Work item code: | ⌘ IMS-CCR | Date: | ⌘ 13/05/2003 |
| Category: | ⌘ F | Release: | ⌘ Rel-5 |
| | Use <u>one</u> of the following categories: | | Use <u>one</u> of the following releases: |
| | F (correction) | 2 (GSM Phase 2) | |
| | A (corresponds to a correction in an earlier release) | R96 (Release 1996) | |
| | B (addition of feature), | R97 (Release 1997) | |
| | C (functional modification of feature) | R98 (Release 1998) | |
| | D (editorial modification) | R99 (Release 1999) | |
| | Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | | Rel-4 (Release 4) |
| | | | Rel-5 (Release 5) |
| | | | Rel-6 (Release 6) |

| | |
|--------------------------------------|--|
| Reason for change: | ⌘ To align the definition for Service Key with the usage of Service Key as described in 23.008, 23.228, 23.278 and 32.200 |
| Summary of change: | ⌘ The existing definition is simplified |
| Consequences if not approved: | ⌘ Confusion on the usage of Service Key and misalignment with the information and procedures described in 23.008, 23.228, 23.278 and 32.200. |

| | | | | | | | | | |
|------------------------------|---|-------------------------------------|---------------------|----------|--|-------------------------------------|-------------------------------------|---------------------------|---|
| Clauses affected: | ⌘ 3.1 | | | | | | | | |
| Other specs affected: | <table border="1"> <tr> <td></td> <td>Y</td> <td>N</td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table> | | Y | N | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Other core specifications | ⌘ |
| | Y | N | | | | | | | |
| | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | |
| | <input checked="" type="checkbox"/> | | Test specifications | | | | | | |
| | <input checked="" type="checkbox"/> | | O&M Specifications | | | | | | |
| Other comments: | ⌘ Rationale for change is further addressed in N1-030662 | | | | | | | | |

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.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [2] and the following apply:

Application Server Incoming Leg Control Model (AS-ILCM): models AS behaviour for handling SIP information for an incoming leg.

Application Server information (AS-info): AS-info contains individualized information concerning one particular Application Server entry.

This information contains e.g. Application Server Address (6.9.1.1) and its corresponding Default IP Multimedia Handling information (6.9.1.2).

Application Server Outgoing Leg Control Model (AS-OLCM): models AS behaviour for handling SIP information for an outgoing leg.

Combined ILSM OLSM – Incoming/outgoing Leg State Model: models the behaviour of an S-CSCF for handling SIP messages on an incoming and outgoing session leg.

Filter Criteria (FC): the information which the S-CSCF receives from the HSS or the AS that defines the relevant SPTs for a particular application.

They define the subset of SIP requests received by the S-CSCF that should be sent or proxied to a particular application.

Incoming Leg Control Model (ILCM): models the behaviour of an S-CSCF for handling SIP information sent to and received from an AS for an incoming session leg.

Initial Filter Criteria (iFC): filter criteria that are stored in the HSS as part of the user profile and are downloaded to the S-CSCF upon user registration.

They represent a provisioned subscription of a user to an application.

Initial Request: a SIP request that either initiates the creation of a new dialog or is part of a standalone transaction.

IP Multimedia Service Switching Function (IM-SSF): functional entity that interfaces SIP to CAP.

IP Multimedia CAMEL Subscription Information (IM-CSI): identifies the subscriber as having IP Multimedia CAMEL services.

IP Multimedia session: IP Multimedia session and IP Multimedia call are treated as equivalent in the present document.

Originating IP Multimedia CAMEL Subscription Information (O-IM-CSI): identifies the subscriber as having originating IP Multimedia CAMEL services.

Outgoing Leg Control Model (OLCM): models the behaviour of an S-CSCF for handling SIP information received from and sent to an AS for an outgoing session leg.

Private User Identity: a unique global identity defined by the Home Network Operator, as defined in 3GPP TS 23.228 [3].

Public User Identity: the public user identity/identities are used by any user for requesting communications to other users and are in the form of a SIP URL or TEL URL as defined in 3GPP TS 23.228[3].

Service Key: the Service Key identifies to the Application Server the service logic that shall apply.

~~Service Key identifies to the gsmSCF the service logic. The Service Key is administered by the HPLMN, and shall be passed transparently by the S-CSCF to the gsmSCF. The Service Key is a part of the T/O-IM-CSI. For CAMEL services, the Service Key is an element of the CAMEL Subscription Information (CSI).~~

Service Point Trigger (SPT): the points in the SIP signalling that may cause the S-CSCF to send/proxy the SIP message to an SIP AS/OSA SCS/IM-SSF.

The subset of all possible SPTs which are relevant to a particular application are defined by means of Filter Criteria.

Service Platform Trigger Points (STP): the points in the SIP signalling that instruct the SIP AS, OSA SCS and IM-SSF to trigger the service logic.

For the IM-SSF the IP Multimedia Camel Subscriber Information (IM-CSI) defines them.

Subsequent Filter Criteria (sFC): filter criteria that are signalled from the SIP AS/OSA SCS/IM-SSF to the S-CSCF. They allow for dynamic definition of the relevant SPTs at application execution time.

Subsequent Request: a SIP request which is part of an existing dialog. This also includes target refresh requests as defined in RFC 3261 [6].

Standalone Transaction: a SIP transaction that is not part of an existing dialog and does not initiate the creation of a new dialog.

Terminating IP Multimedia CAMEL Subscription Information (T-IM-CSI): identifies the subscriber as having terminating IP Multimedia CAMEL services.

3GPP TSG-CN1 Meeting #30
San Diego, California, USA, 19 – 23 May 2003

Tdoc N1-030855788

| | |
|--|---------------------------------|
| CR-Form-v7 | |
| CHANGE REQUEST | |
| ⌘ 23.218 CR 051 ⌘ rev 1- ⌘ | Current version: 5.4.0 ⌘ |

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

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

| | | | |
|------------------------|---|-----------------|---|
| Title: | ⌘ S-CSCF behavior correction to enable call forwarding | | |
| Source: | ⌘ Nokia | | |
| Work item code: | ⌘ IMS-CCR | Date: | ⌘ 09/05/2003 |
| Category: | ⌘ F | Release: | ⌘ Rel 5 |
| | Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | | Use <u>one</u> 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: | ⌘ Call forwarding is disabled in Rel-5 by S-CSCF behavior. Currently, the terminating S-CSCF always replaces the Request-URI with Contact address without even checking whether a forwarding application (located in an AS) has modified the Request-URI. |
| Summary of change: | ⌘ Additional step is proposed to make a comparison on the incoming Request-URI and the Request-URI after the request has visited all the ASs. |
| Consequences if not approved: | ⌘ Services based on Request-URI modification won't work in Rel-5 |

| | | | | | | | | | | | |
|------------------------------|--|---|---|---|--|--|---|--|---|---------------------------|----------|
| Clauses affected: | ⌘ 6.5.1 | | | | | | | | | | |
| Other specs affected: | <table border="1" style="font-size: x-small;"> <tr><td>Y</td><td>N</td></tr> <tr><td>X</td><td></td></tr> <tr><td></td><td>X</td></tr> <tr><td></td><td>X</td></tr> </table> | Y | N | X | | | X | | X | Other core specifications | ⌘ 24.229 |
| | Y | N | | | | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| | X | | | | | | | | | | |
| Test specifications | | | | | | | | | | | |
| 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.

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 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, ~~and route the request based on the changed value of the Request-URI and 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.

CHANGE REQUEST

⌘ **23.218 CR 055** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

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

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

| | | | |
|------------------------|--|-----------------|---|
| Title: | ⌘ Filtering of unknown header fields and header parameters | | |
| Source: | ⌘ Nokia | | |
| Work item code: | ⌘ IMS-CCR | Date: | ⌘ 21/05/03 |
| Category: | ⌘ F | Release: | ⌘ Rel-5 |
| | Use <u>one</u> of the following categories: | | Use <u>one</u> of the following releases: |
| | F (correction) | | 2 (GSM Phase 2) |
| | A (corresponds to a correction in an earlier release) | | R96 (Release 1996) |
| | B (addition of feature), | | R97 (Release 1997) |
| | C (functional modification of feature) | | R98 (Release 1998) |
| | D (editorial modification) | | R99 (Release 1999) |
| | Detailed explanations of the above categories can be found in 3GPP TR 21.900 . | | Rel-4 (Release 4) |
| | | | Rel-5 (Release 5) |
| | | | Rel-6 (Release 6) |

| | |
|--------------------------------------|--|
| Reason for change: | ⌘ It is currently not stated in 23.218 that filtering can also be applied to unknown header fields and their content |
| Summary of change: | ⌘ It is added that filtering can also be applied to unknown header fields and their content |
| Consequences if not approved: | ⌘ Incomplete specification |

| | | | | | | | | | | | |
|------------------------------|--|---------------------|---|--------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|-------------------------------------|---------------------------|---|
| Clauses affected: | ⌘ 5.2 | | | | | | | | | | |
| Other specs affected: | <table border="1"> <tr> <td>Y</td> <td>N</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table> | Y | N | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other core specifications | ⌘ |
| Y | N | | | | | | | | | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| | | Test specifications | | | | | | | | | |
| | | 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.

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.

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;
- registered, unregistered, or both (i.e., registered and unregistered) trigger Points, which indicated the Service Point Triggers (SPTs) triggered by this Filter Criteria. 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 when the S-CSCF receives a message via the Mw interface, the S-CSCF shall check the filter criteria one by one according to their indicated priority, i.e. 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.

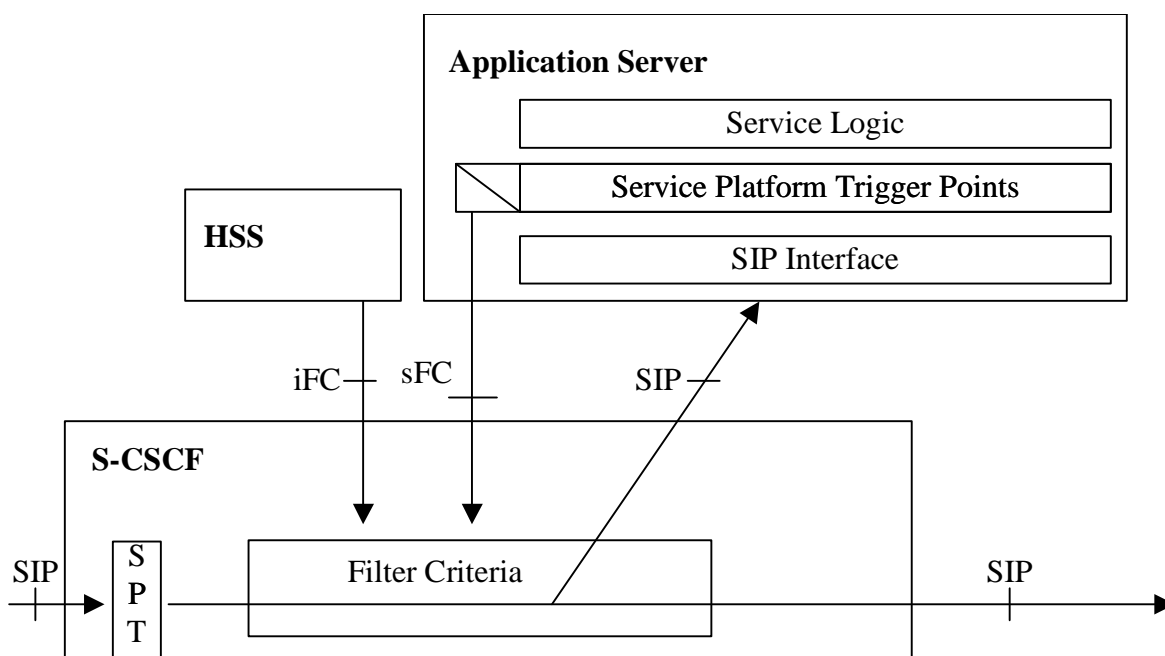


Figure 5.2.1: Application triggering architecture

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.