

[0022] FIG. 2 illustrates signalling according to the invention. In the example of FIG. 2 it is assumed for clarity's sake that the called one, i.e. subscriber B, is registered in the T_CSCF and that the mandatory CAMEL-related information for billing is added and generated in the I_CSCF.

[0023] When the subscriber A makes a call to the subscriber B, the O_CSCF sends a SIP INVITE message 2-1 to the I_CSCF of the subscriber B. The SIP INVITE message is an example of an IP telephony signalling protocol initiating a session. The I_CSCF is found on the basis of a host-part of the logical IP address, i.e. IP address in the form a@x.y where the host-part is after the @-sign. If the address of the subscriber B is B@try.com, the logical address of the I_CSCF of the subscriber B is icscf.try.com.

[0024] Upon reception of message 2-1, the I_CSCF requests from the HSS a routing address for the subscriber B in message 2-2. The HSS sends at least the routing address, i.e. the address of the T_CSCF, to the I_CSCF in message 2-3. The I_CSCF of the invention then generates a CAMEL call reference number and codes it with its own address to a digit string and adds the digit string to an INVITE message. After that the I_CSCF sends the INVITE message 2-4 to the T_CSCF, stores the CAMEL-related information and uses it when generating CDRs, for example.

[0025] When the T_CSCF of the invention receives message 2-4, it separates the CAMEL-related information from message 2-4, decodes it to obtain the CAMEL call reference number and the address of the I_CSCF, stores them and uses them when generating CDRs or triggering a CAMEL-related service, for example. Thus, both the I_CSCF and the T_CSCF have the same CAMEL-related information used in CDRs.

[0026] The I_CSCF is preferably arranged always to add to the INVITE message 2-4 CAMEL-related information, i.e. its address and the CAMEL call reference number, as a coded digit string or as such. The advantage of this is that the I_CSCF does not need information on the status of the terminating CAMEL subscription information, i.e. it does not need to know whether the address and the CAMEL call reference number is needed. However, the I_CSCF may be arranged not to add the CAMEL-related information to each INVITE message.

[0027] In a first preferred embodiment of the invention the I_CSCF adds the CAMEL-related information to the SIP header of the INVITE message as one of the subheaders.

[0028] The following SIP INVITE message header is one example of a SIP INVITE message header according to the first preferred embodiment of the invention, which could be forwarded from the I_CSCF to the T_CSCF. The header comprises 9 subheaders in this example. The IP addresses are logical IP addresses for clarity's sake. The eighth subheader (starting by word CAMEL) includes CAMEL-related information, i.e. the address of the I_CSCF and the CAMEL call reference number generated by the I_CSCF, coded in a digit string the T_CSCF understands. The T_CSCF then decodes the digit string. In other embodiments of the invention each piece of CAMEL-related information may be given in separate subheaders or in one subheader in a predetermined order so that information is separated by a comma, for example. It is also possible to code only part of CAMEL-related information and send the other part of the CAMEL-related information uncoded.

[0029] INVITE sip:ue_b@home_b.com SIP/2.0

[0030] Via: SIP/2.0/UDP icscf.home_b.com

[0031] From: User_A<sip:ue_a@home_a.com>

[0032] To: User_B <sip:ue_b@home_b.com>

[0033] Call-ID: a@ue_a.home_a.com

[0034] Cseq: 1 INVITE

[0035] Content-Length: 829

[0036] CAMEL: 23446321247984349

[0037] Encryption: PGP version=2.6.2,encoding=ascii

[0038] Message body

[0039] In a second preferred embodiment of the invention, the I_CSCF adds the CAMEL-related information to the body of the SIP INVITE message. In the following example of a SIP INVITE message according to the second preferred embodiment of the invention, only the CAMEL-related information, coded to a digit string, is shown. In other embodiments of the invention each piece of CAMEL-related information may be given in separate message body rows or in one row in a predetermined order so that different information is separated by a comma, for example.

[0040] INVITE sip:ue_b@home_b.com SIP/2.0

[0041] Via: SIP/2.0/UDP icscf.home_b.com

[0042] From: User_A<sip:ue_a@home_13_a.com>

[0043] To: User_B<sip:ue_b@home_b.com>

[0044] Call-ID: a@ue_a.home_a.com

[0045] Cseq: 1 INVITE

[0046] Content-Length: 829

[0047] Encryption: PGP version=2.6.2,encoding=ascii

[0048] Message body starts . . .

[0049] CAMEL: 23446321247984349

[0050] . . . Message body ends

[0051] Although the invention has been described above with the CAMEL call reference number and the address of the I_CSCF, it is obvious to a person skilled in the art that other corresponding information needed in a call state control function for CAMEL services may also be transmitted in the SIP INVITE message from the I_CSCF to the T_CSCF and generated in the I_CSCF, if needed.

[0052] Although the invention has been described above assuming that the I_CSCF generates the CAMEL call reference number (and corresponding information), it is obvious to a person skilled in the art that some other network node, such as the HSS, may also generate the needed information and send it to the I_CSCF, which then just adds this information to the SIP INVITE message.

[0053] Although the invention has been described above assuming that the CAMEL-related information is added in the I_CSCF, it is obvious to a person skilled in the art that CAMEL-related information may also be added to a SIP INVITE message by the caller's serving call state control function O_CSCF. In this embodiment the I_CSCF may pass the CAMEL-related information to the T_CSCF as such,