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Datasheet for the decision of 2 June 2010

Case Number: T 0353/08 - 3.5.03

Application Number: 01989614.1

Publication Number: 1457074

IPC: H04Q 7/34

Language of the proceedings: EN

Title of invention:
Intercepting a call connection to a mobile subscriber roaming in a visited PLMN (VPLMN)

Applicant:
Nokia Corporation

Opponent:
-

Headword:
Call interception/NOKIA

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (main and auxiliary requests) - no"

Decisions cited:
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Catchword:
-

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Case Number: T 0353/08 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 2 June 2010

Appellant: Nokia Corporation
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Representative: TBK-Patent
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 8 August 2007 refusing European patent application No. 01989614.1 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: A. S. Clelland
Members: T. Snell
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division refusing European patent application No. 01989614.1, with publication number EP-A-1457074. The decision was based on the ground that the subject-matter of claim 1 did not meet the requirement of inventive step under Article 56 EPC.

II. In the notice of appeal the appellant requested that the decision be set aside and a patent granted.

III. With the statement of grounds of appeal the appellant filed a new set of claims intended to replace the previous set of claims.

Oral proceedings were conditionally requested.

IV. In a communication accompanying a summons to oral proceedings the board gave a preliminary opinion that the subject-matter of claim 1 was not new, or at least did not involve an inventive step, with respect to the "prior art" solution described in the description of the present application.

Reference was also made to the following documents:

D1: K. Miettinen: "Lawful Interception in GPRS/UMTS Network", University of Helsinki, May 1999 (cited in the application);
D4: M. Mouly et al: "The GSM System for Mobile Communications", Chapter 8, "Communication Management", pages 501-565;

D5: ETSI TS 101 629 v7.0.0 (1998-08), Technical Specification, "Digital cellular telecommunications system (Phase 2+); Support of Optimal Routeing (sic) (SOR); Service definition (Stage 1), (GSM 02.79 version 7.0.0 Release 1998).

V. Together with a reply to the board's communication dated 27 April 2010, the appellant filed amended claims of a main and an auxiliary request. It also stated that the "prior art" referred to in the description of the application was to be regarded as "internal prior knowledge of the applicant" not published before the application date.

VI. In a fax letter sent by the board to the appellant dated 27 May 2010, the board referred to the following document:

GSM Technical Specification 03.33, version 1.0.0 (July 1998), "Digital cellular telecommunications system (Phase 2+); Lawful Interception - stage 2", European Telecommunications Standards Institute (ETSI).

The board gave a preliminary view that the independent claims of each request lacked an inventive step in the light of this document and the disclosure of the following document:

D2: WO-A-00/76189.

VII. Oral proceedings were held on June 02 2010. The appellant requested that the decision under appeal be set aside and a patent granted on the basis of claims 1-27 of the main request, or alternatively on the basis

of claims 1-9 of the auxiliary request, both filed with the letter of 27 April 2010.

After due deliberation, the board announced its decision.

VIII. Claim 1 of the main request reads as follows:

"A method for intercepting a connection established in a communication network system between a called terminal (B) and a calling terminal (A),

said network system comprising at least a first and a second communication network (HPLMN, VPLMN), the first network being a home communication network (HPLMN) of the called terminal (B), and the second network being a visited communication network (VPLMN) visited by the roaming called terminal (B),

said called terminal (B) being registered to a home subscriber database entity (HLR, HSS) of the first network (HPLMN) while said called terminal (B) being located in the second network (VPLMN),

each first and second network (HPLMN, VPLMN) having a gateway functionality acting as an interface towards the gateway functionality of the other network,

said method comprising the steps of:

initiating a connection establishment from said calling terminal (A) towards said called terminal (B),

requesting, during connection establishment, said home subscriber database entity (HLR, HSS) of the first network for subscriber related information,

detecting that said requested information contains an indication that connections to said called subscriber (B) are to be intercepted,

wherein both the called (B) and calling terminal (A) are located in the same communication network (VPLMN),

wherein the connection is established from the calling terminal (A) via the gateway functionality of the second network to the gateway functionality of the first network, back to the gateway functionality of the second network and further to the called terminal (B),

tapping the established connection between the called (B) and calling terminal (A) at the interface between said first and second networks,

wherein
said interface is constituted by said gateway functionalities (GMSC, I-CSCF) representing an access point to a respective network (HPLMN, VPLMN), and

wherein
tapping is performed at the gateway functionality of said first network."

Independent claims 10 and 19 are claims respectively for a system and a communication network having similar features to claim 1.

IX. Claim 1 of the auxiliary request reads as follows:

"A method for intercepting a connection established in a communication network system between a called terminal (B) and a calling terminal (A), said network system comprising at least a first and a second communication network (HPLMN, VPLMN), the first network being a home communication network (HPLMN) of the called terminal (B), and the second network being a visited communication network (VPLMN) visited by the roaming called terminal (B), said first and second communication networks being GSM networks, said called terminal (B) being registered to a home location register (HLR) of the first network (HPLMN) while said called terminal (B) being located in the second network (VPLMN),
each first and second network (HPLMN, VPLMN) having a gateway functionality acting as an interface towards the gateway functionality of the other network,
the method comprising the steps of:
initiating a connection establishment from said calling terminal (A) towards said called terminal (B),
requesting, during connection establishment, said home location register (HLR) of the first network for subscriber related information,
detecting that said requested information contains an indication that connections to said called subscriber (B) are to be intercepted,
wherein both the called (B) and calling terminal (A) are located in the same communication network (VPLMN),
wherein the connection is established from the calling terminal (A) via the gateway functionality of the

second network to the gateway functionality of the first network, back to the gateway functionality of the second network and further to the called terminal (B), tapping the established connection between the called (B) and calling terminal (A) at the interface between said first and second networks,
wherein
said interface is constituted by said gateway functionalities (GMSC, I-CSCF) representing an access point to a respective network (HPLMN, VPLMN), and
wherein
tapping is performed at the gateway functionality of said first network (HPLMN)."

Independent claims 4 and 7 are claims respectively for a system and a communication network having similar features to claim 1.

Reasons for the decision

1. *GSM Technical Specification 03.33*

1.1 This document was cited by the board by virtue of its power under Article 114(1) EPC in the light of the statement in the letter of 27 April 2010 resiling from the prior art acknowledgement set out in the description. Although the board introduced this document by fax letter shortly before the oral proceedings, given that the document concerns, in the board's view, merely common general knowledge (see below), and the appellant did not object to its introduction, the requirement of Article 113(1) EPC is met.

1.2 In the board's view, standard documents issued by the European Telecommunications Standards Institute (ETSI) setting out the specifications of the GSM system belong to the common general knowledge of the skilled person. The appellant disagreed, arguing that the period of one *[sic]* year between the date of issue and the filing date of the application was insufficient time for the content of the standard 03.33 to be regarded as common general knowledge. However, in actual fact more than three years elapsed between the issuing date and the priority date of the application. Hence, even if for the sake of argument such standards were not held to be common general knowledge from their date of publication, the present standard was made available to the public well before the claimed priority date.

2. *Inventive step - Articles 52(1) and 56 EPC*

2.1 *Claim 1 - main request*

2.1.1 The present invention concerns legal interception in GSM mobile phone networks. As is well-known in the art, a GSM system consists of several interconnected public land mobile networks (PLMN) each belonging to a particular operator. Each subscriber is registered with a home PLMN (HPLMN) and may roam into a visited PLMN (VPLMN). As is also well-known, roaming is supported by means of, *inter alia*, a home location register (HLR) in the home network which contains subscriber data, including the current location of the subscriber, and a visitor location register (VLR) associated with each mobile switching centre (MSC). A further node in each network, known as a gateway mobile switching controller

(GMSC), acts as a gateway to and from the network for communications to and from another mobile network or the public switched telephone network.

2.1.2 Claim 1 concerns the case of call interception when a calling mobile subscriber and a called mobile subscriber are both in the same visited network. In this situation, as is also well-known in the art, during call set-up a call request is first routed to the gateway MSC (GMSC) of the home network of the called subscriber which obtains the current location of the called subscriber from the HLR. As regards the routing of the call itself, there appear to be two possibilities known in the art. Firstly, the call might be routed directly within the visited network (known as "Optimal Routing", cf. eg D5, page 6, section 4). Alternatively, the call could be routed via the home network of the called subscriber, a technique commonly referred to by the term "tromboning" (cf. eg D4, page 520, Fig. 8.9). The board observes that claim 1 embraces both possibilities. It appears from documents D4 and D5 both of which were discussed during the examining procedure that optimal routing was a feature added only later to GSM systems and was apparently not universally in use at the filing date of the application (21.12.2001). "Tromboning" was thus evidently the standard method of call routing at least in the early years of GSM operation. "Tromboning" can therefore be regarded as inherent to at least some GSM networks at the filing date of the present application. When a call to a roaming subscriber is routed via the home network ("tromboning"), it passes through the gateway functionality of the GMSC of the home network.

2.1.3 In view of the above, a conventional ("tromboning") method for routing a call in use at the filing date of the application comprises the following features of claim 1:

A method [for establishing] a connection ... in a communication network system between a called terminal (B) and a calling terminal (A),

said network system comprising at least a first and a second communication network (HPLMN, VPLMN), the first network being a home communication network (HPLMN) of the called terminal (B), and the second network being a visited communication network (VPLMN) visited by the roaming called terminal (B),

said called terminal (B) being registered to a home subscriber database entity (HLR, HSS) of the first network (HPLMN) while said called terminal (B) being located in the second network (VPLMN),

each first and second network (HPLMN, VPLMN) having a gateway functionality acting as an interface towards the gateway functionality of the other network,

said method comprising the steps of:

initiating a connection establishment from said calling terminal (A) towards said called terminal (B),

requesting, during connection establishment, said home subscriber database entity (HLR, HSS) of the first network for subscriber related information,

wherein both the called (B) and calling terminal (A) are located in the same communication network (VPLMN), and

wherein the connection is established from the calling terminal (A) via the gateway functionality of the second network to the gateway functionality of the first network, back to the gateway functionality of the second network and further to the called terminal (B).

2.1.4 The subject-matter of claim 1 differs from the above-described conventional method in the following features:

The call is intercepted, interception being carried out by:

detecting that said requested information from the home subscriber database entity contains an indication that connections to said called subscriber (B) are to be intercepted,

tapping the established connection between the called (B) and calling terminal (A) at the interface between said first and second networks,

wherein
said interface is constituted by said gateway functionalities (GMSC, I-CSCF) representing an access point to a respective network (HPLMN, VPLMN), and

wherein
tapping is performed at the gateway functionality of said first network.

2.1.5 The problem to be solved is regarded as being how to legally intercept a call when the called and calling parties are in the same visited network and the call is routed via the GMSC of the home network of the called subscriber.

2.1.6 In order to solve this problem, the skilled person would consult the GSM standard 03.33 which is the relevant standard concerned with legal interception. In accordance with the standard, data connections are provided from an administrative function ADMF linked to one or more law enforcement agencies (cf. page 7, section 4 and Figure 1). "Every physical MSC/VLR and GMSC is linked ... to the ADMF" (cf. page 8, line 1). "Consequently, every single MSC/VLR and GMSC performs interception .... independently from other MSC/VLRs and GMSCs" (cf. page 8, lines 2-3). As explained in the description of the present application on page 3, lines 19-26 , when a called subscriber is roaming, interception by a MSC/VLR currently serving the subscriber may not be possible because, for example due to legal reasons, information about the interception is not transferred from one network to another. Hence, in the call configuration embraced by claim 1 it would not be possible to intercept the call at the MSC/VLR. It follows that interception would take place at the GMSC, the only other intercept point mentioned in the 03.33 standard.

2.1.7 The appellant referred to document D1 and argued that interception could be performed at many different nodes. Hence it was not obvious to choose the GMSC. However, the board observes that D1 concerns packet switching via a GPRS network, which has different network

entities to a GSM network. The skilled person would thus regard D1 as less relevant than the GSM standard, which points only to interception at the GMSC or the MSC/VLR.

2.1.8 The only remaining difference is the step of detecting that the requested information from the home subscriber database entity of the first network contains an indication that connections to a subscriber are to be intercepted.

2.1.9 The standard is not specific as to how the network stores the information that a particular subscriber is to be monitored. Faced with this problem, the skilled person would consult other documents dealing with this aspect of legal interception. Document D2 is a document concerned with legal interception in a GSM network and describes the following (cf. page 7, lines 10-29):

> "It should be noted that the expression "marked subscriber" refers to a subscriber whose communications are to be monitored by the monitoring functionality of the cellular telecommunication network. Such monitoring can be achieved in various manners. One of ordinary skilled (sic) in the art should readily appreciate that the present invention is independent of the way cellular operators use for marking a subscriber to be monitored. However, for the sake of completeness and illustration, a brief description of some of the **typical marking methods** [board's emphasis] used in the telecommunications industry is provided hereinbelow.

> According to one approach, the MSC 16 or the IAP 14 may comprise a database with data related to the monitored subscribers. All monitored subscribers whose communications are to be monitored from the MSC 16 have a record in that database and at call set-up, the MSC 16 or the IAP 14 verifies if identification data relating to the subscriber involved in the communication session being set up are present in the monitored subscribers' database. If so, the call will be monitored.
>
> In a second possible approach, **the subscriber profile is typically held within the HLR 17** [board's emphasis], and may comprises *[sic]* a field containing the information that communications involving the marked subscriber are to be monitored. According to this approach, when the HLR is interrogated by the MSC with the ANSI-41 LOCREQ message at call set-up, it answers with the locreq response to the MSC, and this locreq response may also contain information directing the MSC to monitor the call".

Thus, in accordance with D2, the data indicating that a caller will be intercepted will be held either in the MSC (which implicitly is also a GMSC as it has a gateway to the PSTN), or in the HLR. The latter is the same solution as currently claimed.

2.1.10 The appellant argued that the standard, by providing data connections to every GMSC, would lead the skilled person to store the intercept data at the GMSC and not

at the HLR. The board however considers that in the light of D2, the HLR embodiment would be considered by the skilled person. Indeed, based on D2, the skilled person merely has to choose between two alternatives (ie the GMSC or HLR), neither of which poses any particular technical difficulty. Such a choice between a small number of simple alternatives normally does not require inventive skill. Moreover, the skilled person would immediately recognise the advantage of using the HLR in a network with several GMSCs, in that only a single database has to be maintained, and would thus be led to choose the claimed solution.

2.1.11 The appellant also argued that the skilled person could not be expected to extract one part of D2 in isolation. Moreover, D2 would not be consulted for a solution as it does not deal with a roaming situation.

However, in the board's view the section of D2 referred to above is self-contained and merely summarises commonly-known methods for storing the information regarding subscribers to be intercepted. This information can be used by the skilled person independently of the particular embodiments disclosed in D2. Hence, the board finds the appellant's arguments unconvincing.

2.1.12 The board concludes that the subject-matter of claim 1 does not involve an inventive step (Articles 52(1) and 56 EPC).

2.2 These comments apply, mutatis mutandis, to independent system claims 10 and 19.

2.3 *Claim 1 - auxiliary request*

2.3.1 Claim 1 of the auxiliary request differs from claim 1 of the main request in that the mobile phone system is specifically a GSM system and the "home subscriber database entity" is specifically the HLR.

2.3.2 However, both these aspects have already been considered in relation to claim 1 of the main request. Claim 1 of the auxiliary request therefore contains no additional features which could contribute to inventive step.

2.3.3 The board concludes that the subject-matter of claim 1 of the auxiliary request does not involve an inventive step either (Articles 52(1) and 56 EPC).

2.4 These comments apply, mutatis mutandis, to independent claims 4 and 7 of the auxiliary request.

3. As there is no allowable request, it follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Magliano A. S. Clelland