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**Datasheet for the decision
of 30 May 2008**

Case Number: T 0656/05 - 3.5.01

Application Number: 97911276.0

Publication Number: 1012760

IPC: G06F 17/60

Language of the proceedings: EN

Title of invention:

Implementation of charging in a telecommunications system

Applicant:

Nokia Corporation

Opponent:

-

Headword:

Charging for network services / NOKIA

Relevant legal provisions:

EPC Art. 123(2)

Relevant legal provisions (EPC 1973):

EPC Art. 54(1)(2), 56

Keyword:

"Inventive step - no (all requests)"

Decisions cited:

T 1194/97, T 0641/00, T 0258/03

Catchword:

-



Case Number: T 0656/05 - 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 30 May 2008

Appellant: Nokia Corporation
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 23 November 2004
refusing European application No. 97911276.0
pursuant to Article 97(1) EPC 1973.

Composition of the Board:

Chairman: S. Steinbrener
Members: K. Bumés
A. Pignatelli

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division to refuse European patent application No. 97911276.0, published as
- A1: WO-A1-98/21676,
- for lack of inventive step over
- D4: Bottura, Giuseppe: Charging and Tariffing Functions and Capabilities for MANs [Metropolitan Area Networks]. Network Operations and Management Symposium, IEEE 1992, pages 8.3.1 (0208) to 8.3.11 (0218), XP 000344755.
- The examining division acknowledged differences over D4 but noted that the differences related to "administrative matter (contract settlement) or general technical choices."
- II. The appellant requests that the decision under appeal be set aside and a patent be granted on the basis of one of three claim sets (main request, first and second auxiliary requests) filed with a facsimile letter on 30 April 2008.
- (a) Claim 1 of the main request reads:
- "1. A method for implementing charging in a telecommunications network which includes provider servers (SP1; S3) for providing services to customers and billing means (BS, BS') for receiving charging records and billing the customers, the customers using customer terminals (CT) connected to the telecommunications network for ordering services, the method comprising the steps of:
- selecting a service at a provider server by means of a customer terminal (CT), and

- delivering the selected service to the customer terminal,
 - characterised in that the method comprises the steps of:
 - in response to selecting said service, sending a first message to the customer terminal, said first message notifying the customer to make a contract concerning the selected service and including information about charging parameters for the selected service for generating charging records,
 - receiving from the customer terminal a second message which is a contract notifying that the customer has accepted terms for the selected service, and
 - receiving in a separate billing server (WD), after receiving said second message, at least one charging record generated in the customer terminal and associated with the selected service for forwarding said at least one charging record from the billing server to said billing means (BS, BS') for forming a bill."
- (b) Claim 1 according to the first auxiliary request specifies the provider servers as "content provider servers" and the selected service as "content of the selected service".
- (c) Claim 1 according to the second auxiliary request additionally specifies that the at least one charging record includes digital signatures which are verified by the billing server.
- III. The Board summoned the appellant to oral proceedings, as requested on an auxiliary basis. In an annex to the summons, the Board expressed and substantiated its

preliminary opinion that all versions of claim 1 seemed to cover obvious embodiments of a charging method known from D4.

IV. The appellant's arguments are summarised as follows.

- (a) The disclosure of D4, as far as understandable in view of a sketchy presentation and inconsistent terminology, is not relevant to the topic of the invention. While the application is about charging for selected "services", the Metropolitan Area Network (MAN) of D4 charges for data packets (Protocol Data Units, PDUs). Another conceptual difference is that D4 considers the sender, or source, of data to be the customer (i.e. as the party to be billed) whereas the customer according to the application is situated at the terminal which receives the selected service.

- (b) Even if taken into consideration, D4 relates to different subject-matter at the implementation level. In particular, D4 does not disclose generation of charging records in a destination terminal. The Figure on page 8.3.3 of D4 may show a destination terminal and an associated Network Access Module which accommodates Charging Management Local Functions to generate and send charging data to the MAN operating system. However, the Network Access Module constitutes a remote network element serving a plurality of destination terminals rather than being dedicated to and integrated with a single terminal. A centralised accounting structure reflects the trend prevailing at the time of D4 (1992) and the application (priority of 1996) because accounting by the network is technically simpler and less expensive than a decentralised accounting

structure which requires charging records to be generated in and collected from individual terminals. The skilled person would not shift complexity from a few specialised network elements to numerous cheap terminals. Therefore, D4 does not imply that the Network Access Module of page 8.3.3 might be an enhanced component (such as a modem) of a PC, for example.

- (c) The claimed features have to be taken as a whole to evaluate their synergy. It is true that the exchange of contracting messages entails commercial aspects; the customer's contract is established with the billing server rather than with a provider server, thus allowing the customer to conclude *ad hoc* contracts with the billing server instead of having long-term contracts with multiple providers. However, considerable technical effects are also achieved: signalling traffic in the network is reduced, and the provider servers can operate with smaller databases.
- (d) Regarding the amendment by the first auxiliary request, it may be generally known to charge network users for the *content* of a selected service rather than for individual *data packets* representing the service (D4). However, the explicit reference to content corroborates the conceptual difference of the claimed method over the teaching of D4 and, thus, helps to demonstrate that D4 is not a realistic starting point for an obviousness objection.
- (e) The additional amendment by the second auxiliary request completes a package of features which enables reliable charge data records to be generated in the

customer terminals. Since the invention delegates some accounting power from the network to potentially insecure customer terminals, digital signatures advantageously help to restore security and, while known as such, represent an efficient tool to safeguard the integrity and authenticity of charge data records to be sent to the billing server.

- V. The Board pronounced its decision at the end of the oral proceedings.

Reasons for the decision

1. *The invention*

- 1.1 The application relates to a method and system for charging for services provided over a telecommunications network. While using an existing billing infrastructure (A1, page 4, lines 5 to 8 and lines 24/25), the method is supposed to eliminate a number of drawbacks mentioned in the application (page 3, last paragraph). The statement of grounds of appeal defines a more general objective problem: providing an "alternative solution" to charging for a selected service.
- 1.2 The thrust of the application is for a charging concept in which a separate billing server "negotiates an on-line contract with the customer" for the service selected, and the *customer terminal* measures its own receipt of services, generates charge data records and sends them to the billing server (A1, page 4, lines 11 to 23). The separate billing server may be handled by a

billing service provider who is a separate organisational unit (A1, page 7, last paragraph).

- 1.3 Regarding the effects achieved, the application mentions a number of advantages: easy implementation, data security, easy market access for new service providers, customer's control of the billing process, compatibility with other payment methods, suitability for wireless networks, independence from data transfer protocols (A1, page 4, line 24 to page 5, line 13). Those advantages mirror the drawbacks to be overcome.

2. *Prior art according to D4*

While the appellant has argued that the inventors' starting point and mindset were quite different from a Metropolitan Area Network described in D4, the Board considers this prior art to be highly relevant on an objective basis as can be seen from the following discussion.

- 2.1 D4, in particular the overview on page 8.3.3, describes charging and tariffing functions in Metropolitan Area Networks (MANs). D4 is not a patent specification but a scientific paper outlining principles in general language rather than in terms of technical implementation. However, D4 does disclose that each source of user data (corresponding to a provider server) is linked to the MAN via a Network Access Module, and another Network Access Module is arranged between the MAN and each destination of user data.
- 2.2 Page 8.3.3 of D4 presents two "Options for charging MAN services".

(a) "Charging measurements at the ingress":

Measurements for charging purposes are taken at the source (see page 8.3.3, penultimate paragraph). Details are presented on page 8.3.4 which also implies a definition of the word "customer": "additional measurements are necessary to determine the amount of traffic delivered to the customer" (3rd paragraph from the bottom). In other words, D4 contemplates that the customer may be the recipient of the data transmission. (In practice, the recipient is the service provider's customer, and the service provider may be the network provider's customer.)

(b) The second option - "Charging measurements at the egress" - represents the examining division's starting point:

The flow of data packets (Protocol Data Units, PDUs) is measured (for charging purposes) "at the *destination*", and charging records are kept in the network "at the destination side" (see page 8.3.3, last paragraph). A prominent advantage of this option is that only data packets which reach the destination are charged for (D4, page 8.3.3, last paragraph, and page 8.3.5). In other words, the recipient of the data controls the initial part of the billing process (an effect also sought by A1, see page 4, last paragraph, and original claim 26).

More specifically, the second option of D4 is based on "Charging Management Local Functions" in the Network Access Module associated with the destination. For billing purposes, that module sends charging data to the MAN Operating System. The charging data may represent a summary of the measured data packets (see

page 8.3.2, third bullet: "Need for near-real-time summarization procedures"); due to the huge volume of charging data, "some form of near-real-time elaboration is needed" (page 8.3.2, penultimate paragraph). Typical details of a charging data record are set out in D4, page 8.3.8 (centre part).

Main request

3. *Article 123(2) EPC - Original basis of amendment*

The Board has no doubt about the original basis of the claimed charging concept, see in particular claim 1 as filed and the description at page 4, lines 11 to 23 of A1. By way of amendment, the servers for offering services to customers have been distinguished from the billing server by designating them as "provider servers". This amendment is based on A1, page 8, line 7, for example.

4. *Article 54(1)(2) EPC 1973 - Novelty over D4*

As compared to the second option of D4 ("Charging measurements at the egress"), the method according to claim 1 of the main request presents the following differences establishing novelty over the disclosure of D4.

4.1 At least one charging record associated with the selected service is generated in the customer terminal.

The Board concurs with the appellant in considering that D4 does not disclose clearly and unambiguously a destination terminal which generates charging records.

While each destination terminal is clearly assigned to a Network Access Module (which generates charging records and sends them to the MAN operating system), the Network Access Module apparently may be associated with the network rather than dedicated to a destination terminal, i.e. the Network Access Module of D4 might serve plural destination terminals; cf. e.g. the Figures on pages 8.3.3 and 8.3.6 of D4 in this context, showing separate modem-like units and network integrated units, respectively.

- 4.2 "Using customer terminals (CT) connected to the telecommunications network for ordering services" and "selecting a service at a provider server by means of a customer terminal" is not anticipated explicitly by D4, since D4 does not mention whether the transfer of MAN services is initiated by the source of the user data (push operation) or by the destination (pull operation).
- 4.3 D4 does not deal with first and second messages, to and from the customer terminal, to communicate the provider's tariff applicable to the selected service and to return the customer's acceptance of the terms of service. D4 specifies tariff data only in relation to the operating system of the network ("resident in the central MAN Operations System", see page 8.3.8, line 10 of the text).
- 4.4 Another feature not disclosed by D4 is a "separate billing server" which receives the charging record and forwards it to the pre-existing billing means.
- 4.5 A major argument by the appellant has been that D4 does not relate to the offering of "services" and does not

address charging for "services" offered by provider servers.

However, offering "services" from a provider server (claim 1, all requests) does not entail any technical difference over offering "user data" (D4). Moreover, D4 expressly uses the terms "data service" (page 8.3.2, first bullet of the box), "network resources and services" (page 8.3.2, first paragraph of the continuous text), "MAN services" (page 8.3.3, line 1 of the box), and "service code" (page 8.3.8, line 6 of the text), etc. Charging for data packets, in particular charging for summarised packets, implies charging for the service represented by the data packets. Hence, the "service" aspect of claim 1 would also be too general to provide any distinction over D4.

5. *Effects achieved and problems solved by the differing features*

- 5.1 Generating a charging record in the customer terminal (rather than in a network element such as the Network Access Module of D4) provides an alternative way of measuring the data flow of a service from the provider server to the customer terminal (destination) in such a way that only service which reaches the destination is charged for.

A by-effect is that the power of generating a corresponding charging record is delegated to the customer terminal (which is controlled by the same party that will have to pay the bill) so that the network is relieved of some accounting work.

5.2 Using the customer terminal for selecting and ordering a service from a service provider (instead of transmitting the service on the provider's initiative, for example) gives the customer control of the procedure for downloading the service for which he will have to pay.

5.3 The first message informs the customer about the terms applicable to the selected service. Thus, it allows the customer to make an informed decision and enables the customer terminal to generate the charging record/s resulting from delivery of the service to the terminal.

The second message is sent by the customer to acknowledge the terms of service. The claim wording leaves open whether the second message is received in the billing server or in the provider server. Hence, the most specific effect that can be safely attributed to the second message is that an acknowledgement (establishing a "contract") is returned to one of the servers.

5.4 Sending the charging record to a separate billing server (rather than to the network operating system such as the MAN operating system indicated in the Figure on page 8.3.3 of D4) achieves the effects generally provided by splitting up computer functions: computing power and storage capacity can be increased and decentralised for purposes of geographic distribution, maintenance, security, redundancy, ownership etc. More specifically, a separate billing server may be used to cooperate with a separate billing system (in particular a pre-existing one) so that the technical network provider does not have to deal with

commercial billing and accounting tasks.

6. *Article 56 EPC 1973 - Inventive step*

The Board judges that the aforementioned contributions over D4 are obvious from common general knowledge in the light of obvious purposes.

6.1 In a packet-switched or connectionless network (as opposed to a network providing point-to-point connections), it is conventional (see D4) that the amount of data transferred (and not the duration of a connection) is charged for. From a technical point of view, it is clear that the data packet flow has to be measured at some point between the source and the destination. In particular, it is known that the flow of data packets can be monitored at the ingress or egress of a network, the aim of the second option being that only traffic which has reached its destination is charged for (D4, page 8.3.5, paragraph 2 of the continuous text). That aim may even be prescribed by regulatory bodies (D4, page 8.3.7, second paragraph of the continuous text). As a result, D4 exhibits a preference for charging at the egress (D4, page 8.3.7, last paragraph).

6.1.1 From a technical point of view it is also clear, by definition, that "traffic which has reached its destination" (D4) is most accurately measured at the destination itself, i.e. at the terminal, since data may get lost or corrupted en route (see e.g. D4, page 8.3.2, last paragraph).

Hence, a skilled person looking for an alternative way of measuring data packets for charging purposes will identify the customer terminal as the ultimate, theoretically ideal place where to take the measurements.

A straightforward way of recording the results of the measurements is to record them at the point of measurement, i.e. in the customer terminal.

At the same time, it is obvious to perform the measurements and build the charging records on the basis of charging parameters which in any case are sent to the customer terminal, namely when the selected service is offered to the customer ("first message" in the language of claim 1; see point 6.3 *infra*).

In other words, the idea of generating charging records in the customer terminal for subsequent use in a billing system is obvious to a technically skilled person.

6.1.2 The appellant has argued that the skilled person *could* implement the egress option of D4 in the customer terminal but *would not* do so for practical reasons:

(i) each terminal would have to be equipped with expensive hardware and/or software for measuring the incoming data flow and for generating corresponding charging records, and

(ii) the service provider would have to take a risk of fraud since customers might tamper with their terminals to issue forged charging records.

However, those barriers are of an economic and psychological rather than technical nature. Moreover, the mere acceptance of a (technical or non-technical) disadvantage does not turn an obvious idea into an inventive idea. The claimed method lacks any step for overcoming the asserted disincentives.

6.2 Although D4 does not mention explicitly that a user may use his terminal ("destination") to request data from a server ("source"), this is a normal way of using any network for transferring data from a server to a user terminal. Using a Metropolitan Area Network in the same way for the same purpose is obvious.

6.3 It is true that D4 (page 8.3.8) mentions tariff data only in relation to the operating system of the network. However, according to notorious download request procedures, the charging parameters applicable to a selected service are forwarded to the customer terminal (corresponding to the "first message" in claim 1), and the customer returns a confirmation that he accepts the terms ("second message"). The first type of message is required by law or regulatory bodies in order to protect consumer rights by allowing the prospective customer to make an informed decision. The second type of message (user's consent) is typically implied in an order message returned by the customer if he decides to purchase the selected service.

Both types of message are exclusively driven by administrative, legal and/or business purposes so that a technical contribution resides only in their implementation which, however, is straightforward.

Nothing to the contrary is apparent from the original disclosure or has been elaborated by the appellant.

- 6.4 Billing the customer from either the network operating system or a separate billing organisation represents an administrative choice which does not provide any technical contribution beyond its implementation. The same assessment applies to the choice of billing the sender or the recipient of a data service.

On the implementation level, when a charging record is sent to the billing system to issue a bill, the billing system obviously has to be set up in a way suitable for carrying out that task. Where the skilled person considers a separate billing server useful for any usual reason (listed at point 5.4 *supra*), it is up to him to provide the billing system with any appropriate number of additional servers. This assessment is confirmed indirectly by the application itself which does not provide any technical detail on how to implement a separate server and, thus, leaves the implementation to the skilled person.

- 6.5 At the same time, the Board does not see any non-obvious technical synergy of the features discussed above. The appellant has asserted that the signalling traffic in the network and the storage requirements in the provider servers are reduced because the customer is caused to contract with the billing server rather than with each provider server. However, claim 1 does not bring out that feature (see point 5.3 *supra*), and the application does not disclose the asserted technical effects.

Even if the claim specified the billing server as the customer's contracting counterpart (on the basis of A1, page 4, lines 11 to 15, for example), that choice would define a modified business scheme which by administrative measures would circumvent technical problems (i.e. the bandwidth and memory limitations) rather than solve them by technical means. Such a step would not contribute to the technical character of the method (T 258/03-*Auction method/HITACHI*, Headnote II, OJ EPO 2004, 575) and, thus, would not enter into the examination for inventive step (T 641/00-*Two identities/COMVIK*, Headnote I, OJ EPO 2003, 352).

- 6.6 The Board concludes that the method according to claim 1 of the main request does not involve an inventive step.

First auxiliary request

7. *Article 123(2) EPC - Original basis of amendment*

The amended claim 1 sets out from claim 1 of the main request and additionally specifies the provider servers as "content provider servers" and the selected service as "content of the selected service". This amendment is based on A1, page 2, line 32 to page 3, line 6.

8. *Article 54(1)(2) EPC 1973 - Novelty over D4;*
Article 56 EPC 1973 - Inventive step

- 8.1 D4 states that each packet of data can be considered as an independently billable event (page 8.3.2, third paragraph from the bottom). Therefore, the appellant has argued that D4 fails to consider the content of a

selected service for charging. On the other hand, the appellant's application likewise envisages transferring information in packets from the provider server to the customer terminal (A1, page 18, lines 35/36), and accounting can take place on a periodical basis (A1, paragraph bridging pages 15/16). At the oral proceedings before the Board, the appellant has not been able to draw a clear technical line between data packets and content. In any event, if "content" were meant to relate to cognitive information, such a difference could not be taken into account (T 1194/97-*Data structure product/PHILIPS*, OJ EPO 2000, 525).

- 8.2 Therefore, the Board holds that the first auxiliary request does not add any novel matter beyond the features of claim 1 of the main request. Hence, the first auxiliary request fails for the same reasons as brought forward against the main request.

Second auxiliary request

9. *Article 123(2) EPC - Original basis of amendment*

Claim 1 according to the second auxiliary request additionally specifies that the at least one charging record includes digital signatures which are verified by the billing server.

Basis for this amendment is provided by original claims 7 and 12 as well as the description of A1 (e.g. page 8, lines 19 to 23; page 10, lines 6 to 29; page 11, line 30 to page 12, line 5; page 16, lines 24 to 33).

10. *Article 54(1)(2) EPC 1973 - Novelty over D4*

10.1 The part of D4 describing Operations System Functions of the Metropolitan Area Network anticipates a "control of the charging data correctness" (page 8.3.9, last paragraph). This is not surprising since at least some basic (plausibility) check of the correctness of the charging record/s must take place in practice in the billing system of D4. Obvious data errors have to be ruled out for technical and commercial reasons.

10.2 On the other hand, D4 does not specify that the charging records sent to the MAN operating system of D4 are protected by digital signatures. Further, as D4 does not mention a "separate" billing server, the aspect of verifying the digital signatures in such a server is novel over D4.

11. *Effect achieved and problem solved by the additional differing features*

11.1 Digital signatures serve a security purpose (as acknowledged indirectly by A1, page 23, lines 27 to 29). A digital signature of a message is an encrypted version of a digest of the message (A1, page 10, lines 14 to 18). When the digital signature is successfully verified by the recipient of the message, the recipient can be sure that the message originated from the alleged source and has not been altered en route. In particular, the sender cannot later deny the fact that he has sent the message (A1, page 10, lines 13/14), this aspect being known as non-repudiation (A1, page 4, lines 24 to 29).

11.2 On the other hand, digitally signing a charging record at the customer terminal does not eliminate the risk of fraud in the customer terminal according to the present invention; a fraudulent customer may forge a charging record before signing it.

12. *Article 56 EPC 1973 - Inventive step*

12.1 Digital signatures and their effects are admittedly not an invention by the appellant (see A1, page 10, lines 9/10 and lines 19 to 25). As the present accounting system allows the customer to generate his own charging data records, it is self-evident for a recipient to be cautious and at least ensure non-repudiation (so that the sender of the charging record cannot later deny his authorship). That well-known purpose constitutes a business-driven constraint for the skilled person to implement such an authentication mechanism by adding a conventional digital signature to the charging records emanating from the customer terminal.

12.2 It is the very purpose of a digital signature that it is verified by the recipient of the message. Carrying out such a check at a central or decentral location of the network operating system or the billing system constitutes a design choice which is independent of the concept of digital signatures and does not require any ingenuity at the implementation level.

12.3 Therefore, verifying digital signatures of the charging record in the separate billing server does not provide any inventive contribution, either.

13. The Board thus concludes that none of the three versions of claim 1 involves an inventive step.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The registrar:

The chairman:

T. Buschek

S. Steinbrener