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Datasheet for the decision of 24 July 2009

Case Number: T 0408/06 - 3.5.05

Application Number: 98109085.5

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IPC: G06F 1/00

Language of the proceedings: EN

Title of invention:
Data copyright management system and apparatus

Patentee:
Intarsia Software LLC

Opponent:
-

Headword:
Data copyright management/INTARSIA

Relevant legal provisions:
EPC Art. 123(2)

Relevant legal provisions (EPC 1973):
EPC Art. 84, 56, 106, 107, 108
EPC R. 86(3)

Keyword:
"Inventive step (yes) - main request"
"Remittal for adaptation of the description and figures"

Decisions cited:
J 0010/07

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0408/06 **-** 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 24 July 2009

Appellant: Intarsia Software LLC
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 04 October 2005 refusing European application No. 98109085.5 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chair: A. Ritzka
Members: P. Corcoran
P. Schmitz

Summary of Facts and Submissions

I. This is an appeal against the decision of the examining division to refuse the European patent application No. 98 109 085.5 published as No. 880 088. The decision was announced in oral proceedings held on 8 July 2005 and written reasons were dispatched on 4 October 2005.

II. The decision under appeal made reference to the following prior art documents:

D3: EP 0 715 241 A;

D4: EP 0 677 949 A;

D5: LENNIL, P.: "The IBM Microkernel Technology", OS/2 DEVELOPER, vol.5 no.5, 1 November 1993, pages 70-72, 74, Miller Freeman, US, ISSN: 1073-0729.

In the impugned decision, the examining division declared the main request comprising claims 1-9 as filed with the letter of 8 June 2005 to be inadmissible under Rule 86(3) EPC 1973. Claim 1 of a first auxiliary request filed during the oral proceedings was found to lack inventive step in view of the disclosure of D3, D4 and the general technical knowledge of the skilled person as evidenced by D5. Claim 1 of a second auxiliary request filed during the oral proceedings was also found to lack inventive step in view of the disclosure of D3, D4 and the general technical knowledge of the skilled person as evidenced by D5.

III. In the notice of appeal received on 14 December 2005, the appellant requested that the impugned decision be set aside and that a patent be granted on the basis of the main request or, subsidiarily, on the basis of the

first or second auxiliary request on file. The appellant further submitted a precautionary request for oral proceedings. The appeal fee was paid on 14 December 2005 and the statement setting out the grounds of appeal was received on 14 February 2005.

IV. In a communication accompanying a summons to oral proceedings to be held on 24 July 2009 the board set forth its preliminary opinion that none of the appellant's requests were allowable and made reference to the following additional prior art documents which it considered to be of relevance to the proceedings:

D6: EP 0 704 785 A;

D7: G. Coulouris, J. Dollimore and T. Kindberg, "Distributed Systems: Concepts and Design", 2nd edition, Chapters 1 and 6, pp. 1-27 and 157-195, Addison-Wesley Publishing Co., 1994, ISBN 0-201-62433-8;

D8: A.S. Tanenbaum, "Modern Operating Systems", Chapters 2 and 9, pp. 27-73 and 362-394, Prentice-Hall International Inc., ISBN 0-13-595752-4, 1992;

D9: T.R. Halfhill, "Inside the Web PC", BYTE - the Small Systems Journal, Vol.21 No.3, March 1996, pp.44-48, 50, 52, 54, 56, US, ISSN 0360-5280.

V. In said communication the board expressed the opinion that the amendments to claims 3 and 5 of the main request failed to comply with the requirements of Article 84 EPC and that the amendments to claim 5 of said request potentially infringed Article 123(2) EPC. The board further noted objections against the first and second auxiliary requests under Articles 84 and

123(2) EPC as well as under Article 52(1) and 56 EPC. In particular, the specification in claim 1 of the first auxiliary request to the effect that the watch program was "constituted as a real time operating system using a micro-kernel" was considered to lack clarity (cf. summons point 4.4).

It was further noted that claim 1 of the first auxiliary request and, likewise, claim 1 of the second auxiliary request did not appear to involve an inventive step in the light of D3 or D6. The board was of the opinion that the distinguishing features of said claims resulted from a mere aggregation of routine design choices which did not require the exercise of inventive skill when due account was taken of the common general knowledge of the skilled person as evidenced by D7-D9.

VI. With a letter of reply dated 24 June 2009, and received by telefax at the EPO on the same date, the appellant replaced the claims on file by an amended main request and an amended auxiliary request and submitted observations in response to the board's preliminary opinion.

VII. In said letter of reply, the appellant referred, in particular to col.11 l. 53-57 and col.12 l.15-20 of the published application, corresponding to p.18 l.11-14 and p.18 l.29 - p. 19 l.3 of the application as filed, as providing support for the amendments to claim 1 of the main request, in particular the specification to the effect that the watch program is incorporated into a sub-system of a real-time operating system using a

micro-kernel (cf. submissions in section I.A.2 - I.A.3 of the letter of 24 June 2009).

The appellant submitted, *inter alia*, that the characterising features of the claim represented more than a mere aggregation and that said features in combination with each other provided reliable protection against illegitimate usage of digital content. According to the appellant, the incorporation of the watch program into a sub-system of a real-time micro-kernel based operating system provided protection against unauthorised manipulation of the watch program. The implementation of the watch program with a high interruption priority for watching the illegitimate usage of the digital content by interrupting a digital content use process ensured the capability of the watch program to continuously monitor the use of the digital content. In combination these features increased the security of the digital content, (cf. submissions in section I.E.2 and I.E.7 of the letter of 24 June 2009).

VIII. At the oral proceedings the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of one of the following requests:

Claims 1-4 of the main request filed with the letter dated 24 June 2009;

Claims 1-2 of the auxiliary request filed with the letter dated 24 June 2009.

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

"A digital content management system, which uses digital content, for managing digital content copyrights, the system including:

a server (51) in which a watch program is stored, characterised by

the watch program having a high interruption priority for watching the illegitimate usage of the digital content by interrupting a digital content use process which is being executed in a certain time interval, and the watch program being incorporated into a sub-system of a real time operating system using a micro-kernel, in a network (50)."

X. At the end of the oral proceedings the chair announced the board's decision.

Reasons for the Decision

1. The appeal complies with the provisions of Articles 106 to 108 EPC 1973 which are applicable according to J 0010/07, point 1 (cf. Facts and Submissions, item III above). Therefore it is admissible.

Main request

2. *Preliminary observations*

2.1 Claim 1 of the main request is directed towards a digital content management system, which uses digital content, for managing digital content copyrights. D3 which is considered to represent the closest prior art

discloses a digital content management system of a similar kind ("data copyright management system", cf. D3: col.3 l.58 - col.4 l.3) which includes a "watch program" in the form of a data copyright management system program (cf. D3: col.10 l.33-59, in particular, col.10 l.48-49 and l.56-57). According to D3 such a program for managing copyright "watches and manages to prevent users from using other than the conditions of user's request or permission [*sic*]" (cf. D3: col.3 l.3-5).

2.2 The subject-matter of claim 1 differs from the disclosure of D3 in respect of its characterising features. The differences may be summarised as follows:

(i) The claim specifies that the watch program is incorporated into a sub-system of a real-time operating system using a micro-kernel.

(ii) The claim further specifies that the watch program has a high interruption priority for watching the illegitimate usage of the digital content by interrupting a digital content use process which is being executed in a certain time interval.

3. *Observations re. Article 84 EPC 1973*

3.1 The amendment to claim 1 of the main request specifying that the watch program is incorporated into a sub-system of a real-time operating system using a microkernel is intended to address the clarity objections raised in point 4.4 of the summons with respect to the wording of claim 1 of the first

auxiliary request on file at that time, (cf. Facts and Submissions, item V above).

The term "sub-system" is a generally known term of art used in the field of microkernel-based operating systems to denote a module providing ancillary functions being linked to but not forming part of the kernel which in the case of a microkernel-based operating system typically only provides a basic set of hardware interface functions (cf. D7: p.162; application col.4 l.10-44).

On this basis, the board finds that above-mentioned amendment to claim 1 of the main request results in a definition of the matter for which protection is sought which meets the clarity requirements of Article 84 EPC 1973.

3.2 In the board's judgement, claim 1 of the main request is based on the embodiment disclosed in col.12 l.9 *et seq.*, which relates to an arrangement for watching the illegitimate use of digital content in a distributed microkernel-based operating system environment. This embodiment discloses that the servers store basic operating system elements of the microkernel and subsystem elements ("application elements which are a subsystem", cf. col.12 l.15-18). The "watching program for watching the illegitimate use of digital content" is stored in a server (cf. col.12 l.22-26).

Although the aforementioned embodiment does not explicitly state that the watch program is incorporated into a sub-system of the microkernel-based operating system it refers to "the digital content management

program which has been described so far" (cf. col.12 l.18-20), and may thus be read in conjunction with the disclosure pertaining to the digital content management program according to the embodiment of col.11 l.8 *et seq.*, which relates to a method of reinforcing a digital content management program by using a real-time operating system (cf. col.11 l.8-9). In the context of the latter embodiment, it is stated in col.11 l.53-57 that a digital content management program with a watching function is incorporated into a sub-system area which is operated in the user mode in place of the kernel of the operating system. The specification of "a sub-system area which is operated in the user mode in place of the kernel of the operating system" evidently refers back to the passage in col.10 l.52-56, which notes that there may be practical difficulties in trying to incorporate the digital content management program into the fixed area of an operating system kernel.

The board is satisfied that the above-cited passages of the description disclose that the watch program is preferably incorporated into a sub-system area of a real-time operating system which is separate from the kernel area of the operating system (cf. col.11 l.8-9 and l.53-57). The use of the known term of art "sub-system" and the reference to "a sub-system area which is operated in the user mode in place of the kernel of the operating system" implies that the real-time operating system is microkernel-based. Thus, the amendment to claim 1 of the main request noted in 3.1 above is adequately supported by the description.

3.3 The further specification in said claim 1 to the effect that the watch program has a high interruption priority for watching the illegitimate usage of the digital content by interrupting a digital content use process which is being executed in a certain time interval finds support in col.11 l.34-39 of the published application.

3.4 In view of the foregoing, the definition of the matter for which protection is sought according to claim 1 of the main request complies with the requirements of Article 84 EPC 1973.

4. *Observations re. Article 123(2) EPC*

4.1 Having regard to the fact that the passages of the description which provide support for the characterising features of claim 1 of the main request (cf. points 3.2 and 3.3 above) formed part of the content of the application as filed, the amendments to claim 1 of the main request are compliant with the requirements of Article 123(2) EPC.

5. *Observations re. Article 52(1) EPC*

5.1 Claim 1 of the main request differs from the disclosure of D3 by the following distinguishing features:

(i) Implementing the watch program as a process with a high interruption priority which interrupts a digital content use process being executed in a certain time interval provides the technical effect of permitting continuous monitoring of digital content usage.

(ii) Incorporating the watch program into a sub-system of real-time microkernel-based operating system ("a real-time operating system using a micro-kernel") stored on a network server makes the watch program less vulnerable to manipulation, e.g. by a malicious user, thereby enhancing the reliability of the monitoring process. The vulnerability of a client-side digital content management program to manipulation is referred to in col.10 l.8-16 of the application.

(iii) The use of a microkernel-based operating system facilitates the implementation of the watch program in a distributed processing environment because such operating systems are known to be particularly suited to distributed processing environments.

5.2 Whereas the distinguishing features of claim 1 appear at first glance to address a plurality of different partial technical problems, the board finds that said distinguishing features interact to provide the overall technical effect of continuous and reliable monitoring of digital content usage in a distributed processing environment.

On this basis, the objective technical problem vis-à-vis D3 is formulated as how to provide continuous and secure real-time monitoring of digital content usage in a distributed processing environment.

5.3 The board notes that specific individual elements of the claimed solution are known *per se* and that this is not disputed by the appellant.

In particular, microkernel-based operating systems were known *per se* and likewise their suitability for distributed processing environments as acknowledged in col.4 l.4-44 of the application (see also D7: Section 6.2, p.160 et seq.; and D8: Section 9.4.2, p.387-389).

The general principles of priority-based pre-emptive scheduling were also generally known as acknowledged in col.4 l.56 - col.5 l.34 of the application (see also D8: Section 2.4 entitled "Process Scheduling", in particular last full paragraph on p.63 and paragraph bridging pp.63-64 and subsection 2.4.2 entitled "Priority Scheduling").

However, the particular combination of features recited in the characterising part of claim 1 of the main request is not disclosed in any of the available prior art documents. Neither does the available prior art render said particular combination of features obvious to the skilled person.

5.4 The use of a real-time microkernel-based operating system could, in itself, be considered to represent an obvious design choice for the skilled person in the context of a distributed processing environment. However, claim 1 under consideration does not merely specify the use of a real-time microkernel-based operating system but further requires that the watch program is incorporated into a sub-system of said operating system and that the watch program has a high interruption priority for watching the illegitimate usage of the digital content by interrupting a digital

content use process which is being executed in a certain time interval.

5.5 D3, which is considered to be the closest prior art, discloses a copyright management program that can be considered a "watch program" having regard to the statement in D3 that such a program "watches and manages to prevent users from using other than the conditions of user's request or permission" (cf. D3: col.3 l.3-5).

However, the copyright management program of D3 is a program whose primary functions are the performance of encryption and decryption operations on digital content and the management of cryptographic keys. There is no indication in D3 that this program is incorporated into a sub-system of a microkernel-based operating system or that it is implemented as a process with a high interruption priority arranged to interrupt a digital content use process being executed in a certain time interval.

Similar observations apply to D6 and likewise to D4, which is cited in D3 and D6. Both D6 and D4 disclose copyright management programs but do not disclose that these programs are incorporated into a sub-system of a microkernel-based operating system or that they are implemented as processes with a high interruption priority arranged to interrupt a digital content use process being executed in a certain time interval.

Although D6 briefly refers to the desirability of incorporating the copyright management program into an operating system (cf. D6: col.46 l.27-41), the only

specific operating system mentioned in this context is DOS which is a monolithic as opposed to microkernel-based operating system and does not support real-time multitasking. D6 can at most be interpreted as suggesting the incorporation of a copyright management program into the fixed kernel of a monolithic operating system as opposed to a sub-system of a microkernel-based operating system (cf. observations under 3.2 above).

5.6 Even if the incorporation of the program of D3 into a sub-system of a microkernel-based operating system were, for the sake of argument, to be considered as a freely available design choice with respect to such an operating system, there is no hint in any of the aforementioned documents, i.e. D3, D6 or D4, that the copyright management program should be implemented as a process with a high interruption priority arranged to interrupt a digital content use process being executed in a certain time interval as required by claim 1.

The DOS operating system mentioned in D6 (cf. 5.5 above) does not support real-time multitasking and, thus, would be inherently unsuitable for such an implementation of the watch program.

5.7 Having regard to the general technical knowledge of the skilled person in relation to priority-based pre-emptive scheduling, the board judges that the skilled person would not have been inclined to modify the system of D3 in order to make the copyright management program operate in the manner required by claim 1. In an operating system employing conventional priority-based pre-emptive scheduling, processes are typically

assigned equal time slices or "quanta" for execution (cf. D8: Section 2.4 entitled "Process Scheduling", in particular last full paragraph on p.63 and paragraph bridging pp.63-64 and subsection 2.4.2 entitled "Priority Scheduling").

In a conventional priority-based scheduling environment of this kind, modifying the copyright management program of D3 to operate as required by claim 1 would involve said program consuming an equal slice of execution time each time it interrupted the digital content use process thereby causing unacceptable interference with the execution of the digital content use process. Such a result would clearly be unsatisfactory to users of the digital content use process, and on this basis the board judges that the skilled person would not have been motivated to attempt such a modification.

5.8 According to the appellant, implementing a watch program as a process with a high interruption priority as recited in claim 1 only became feasible with the availability of real-time operating systems having high interruption priority time slices of significantly shorter duration than the normal time slice for conventional program execution, e.g. 100µs as compared to 10ms (cf. col.5 l.27-34). In such an environment, the high priority watch process requires a much smaller slice of execution time each time it interrupts the digital content use process and thus the watch program can continuously monitor the digital content use process without having any noticeable impact on the execution of said digital content use process (cf. col.11 l.40-52).

5.9 The decision to implement the watch program as a process with a high interruption priority as recited in claim 1 thus depends on an awareness of the relevant technical capabilities of real-time operating systems which, according to the appellant, were only becoming generally available at the claimed priority date. The board notes in this regard that the cited prior art does not provide any indication that the relevant technical capabilities of real-time microkernel-based operating systems formed part of the general technical knowledge of the skilled person at the claimed priority date. In the absence of evidence to the contrary the board is prepared to accept the merit of the appellant's submissions in this regard.

In view of the foregoing, the implementation of the watch program as a process with a high interruption priority arranged to interrupt a digital content use process as specified in claim 1 of the main request cannot be dismissed as a straightforward and obvious design choice since it evidently involves technical considerations which, as far as can be determined on the basis of the available prior art, do not fall within the routine competence of the skilled person.

5.10 The distinguishing features of claim 1 thus represent more than a mere aggregation because said features interact to provide an overall technical effect, i.e. the continuous and reliable real-time monitoring of digital content usage in a distributed processing environment (cf. 5.2 above).

5.11 In view of the foregoing, the subject-matter of claim 1 of the main request involves an inventive step (Article 56 EPC 1973).

6. Dependent claims 2 to 4 concern particular embodiments of the subject-matter of claim 1 and likewise involve an inventive step.

Auxiliary request

7. Having regard to the board's findings in respect of the main request it is not necessary to deal with the auxiliary request.

Conclusions

8. The board concludes that the claims of the main request satisfy the requirements of the EPC. However, the claims of the said request are understood to relate primarily to the embodiment according to Fig. 4 and the related passages of the description. The description includes further embodiments which are not covered by said claims. For example, the embodiments of Figs. 2 and 3 are understood to relate to a client-side "digital content management apparatus" which is used for the secrecy protection of the digital content, (cf. col.5 l.38-47).

Since the description and figures have not yet been adapted to conform with the claims, the case is remitted to the examining division for the purposes of adaptation.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent on the basis of the main request (claims 1 - 4) filed with the letter dated 24 June 2009 and a description and figures to be adapted thereto.

The Registrar: The Chair:

K. Götz A. Ritzka