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**Datasheet for the decision
of 25 January 2018**

Case Number: T 0950/12 - 3.5.06

Application Number: 04023852.9

Publication Number: 1679596

IPC: G06F9/54, G06F11/30, G06F9/46

Language of the proceedings: EN

Title of invention:
Flexible architecture for notifying applications of state changes

Applicant:
Microsoft Technology Licensing, LLC

Headword:
Notifying applications of state changes/MICROSOFT

Relevant legal provisions:
EPC 1973 Art. 84, 111(1)

Keyword:
Claims - clarity after amendment (yes)
Remittal to the department of first instance - (yes)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0950/12 - 3.5.06

D E C I S I O N
of Technical Board of Appeal 3.5.06
of 25 January 2018

Appellant: Microsoft Technology Licensing, LLC
(Applicant) One Microsoft Way
Redmond, WA 98052 (US)

Representative: CMS Cameron McKenna Nabarro
Olswang LLP
Cannon Place
78 Cannon Street
London EC4N 6AF (GB)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 6 December 2011
refusing European patent application No.
04023852.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman W. Sekretaruk
Members: A. Teale
S. Krischer

Summary of Facts and Submissions

I. This is an appeal against the decision, dispatched with reasons on 6 December 2011, to refuse European patent application No. 04 023 852.9 on the basis that the claims according to a main request lacked clarity, Article 84 EPC, and that the subject-matter of the claims according to five auxiliary requests lacked inventive step, Article 56 EPC, in view of the disclosure of the following document:

D1: US 5 991 536 A

and the "observer" design pattern, which formed common general knowledge for the skilled person.

II. The following document was cited in examination proceedings, but not relied upon in the appealed decision:

D2: Gamma et al., "Design Patterns", 2000, Addison-Wesley, XP002441855, ISSN: 201633612, ISBN: 0-201-63361-2, pages 293 to 304.

III. A notice of appeal was received on 27 January 2012 against the decision in its entirety. The appeal fee was paid on the same day.

IV. With a statement of grounds of appeal, received on 16 April 2012, the appellant filed amended claims according to a main and four auxiliary requests. The appellant also requested that the decision be set aside and that a patent be granted based on the claims according to said main and four auxiliary requests and requested that oral proceedings be arranged.

- V. In an annex to a summons to oral proceedings the board expressed the provisional opinion that claim 1 of all requests was clear, Article 84 EPC 1973, but that the subject-matter of claim 1 of all requests seemed not to involve an inventive step, Article 56 EPC 1973, starting from either D1 or D2.
- VI. With a response, received on 15 December 2017, the appellant filed amended claims according to a new main and first, second and third auxiliary requests. The appellant requested that the decision be set aside and that a patent be granted on the basis of the new requests.
- VII. At the oral proceedings, held on 25 January 2018, the appellant submitted amended claims according to a new main request. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request, filed on 25 January 2018, or on the basis of one of the auxiliary requests 1 to 3, all filed on 15 December 2017. At the end of the oral proceedings the board announced its decision.
- VIII. The application is thus being considered in the following form:

Description (all requests):

pages 2 to 48, as originally filed, and pages 1, 1a, 1b and 49, filed with the letter dated 4 November 2008.

Claims:

Main request: 1 to 10, submitted in the oral proceedings on 25 January 2018.

First auxiliary request: 1 to 10, received on 15 December 2017.

Second auxiliary request: 1 to 10, received on 15 December 2017.

Third auxiliary request: 1 to 10, received on 15 December 2017.

Drawings (all requests):

Pages 1/5 to 5/5, as originally filed.

IX. Claim 1 according to the main request reads as follows:

"A method, performed by a notification system (300) on a mobile device, for providing notifications to client applications (315, 320) on the mobile device in response to state property changes, wherein the notification system (300) includes at least some state properties that are updated by different components within the mobile device, the method comprising: receiving a notification request from a client application to be launched and to receive a notification from the notification system (300) in response to a change of a state property associated with the mobile device; ensuring that the state property is registered with the notification system (300); determining when the state property changes; determining when the client application (315, 320) should receive notification of the state property change; launching the client application (315, 320) in response to the state property change; and notifying the client application (315, 320) of the state property change when determined."

The claims according to the main request also comprise independent claims to a data processing system (claim 9) and a computer-readable medium (claim 10), both referring to the method steps of claims 1 to 8.

Reasons for the Decision

1. The admissibility of the appeal

In view of the facts set out at points I, III and IV above, the appeal satisfies the admissibility criteria under the EPC and is consequently admissible.

2. Summary of the invention

2.1 The application relates to mobile devices, for instance personal digital assistants (PDAs), wireless phones and email devices, connected to networks such as the Internet; see page 1, lines 10 to 11. The invention concerns how the various applications running on the mobile device are informed of events, such as the reception of an email or phone call, elsewhere in the mobile device; see page 1, lines 15 to 17.

2.2 According to the invention (see figure 3), client applications (315, 320) may register, by means of a notification request (see page 3, lines 20 to 21), with a "notification broker" (335) (referred to in the claims as a "notification system") to receive notifications when specified state properties (310) are changed by a component of the mobile device (310). As illustrated in figure 4, when a state property changes, the notification broker determines which client applications to notify and notifies them accordingly.

2.3 Not all applications on the mobile device run all the time. For instance, an application requiring a WiFi connection to access a database may only be launched when the WiFi connection is available; see page 12, lines 6 to 18. In this case, the notification request

from the client application to the notification broker not only specifies that the application be notified when the specified state change occurs but, as a preliminary step, that the application be launched so that it can receive the notification; see page 12, lines 14 to 15, figure 5, and page 14, line 27, to page 15, line 2.

3. The prior art on file

The European Search Report only cites two documents, namely D1 and D2.

3.1 Document D1

As illustrated in figure 1, D1 relates to an object-oriented tool for modelling an application. The system allows a user to execute the model to simulate processing by the application; see column 2, lines 53 to 54. The model comprises a notification system in which "observer" objects (116) can register with a notification manager (110) to receive notifications regarding changes to "observed" objects (112) in an object hierarchy (114). The issue arises (see column 1, lines 46 to 57) that observer objects may receive change notifications before all processing has been completed, causing the observer objects to operate on premature information. Hence D1 seeks to provide a notification system that issues notifications after all processing has been completed. The notification manager maintains a list of both observed objects and observer objects, where each observed object may have multiple observer objects; see column 4, lines 44 to 48. In the embodiment shown in figure 5 the notification manager notifies all observer objects of changes made to the object hierarchy; see the sentence bridging columns 5

and 6. In the embodiment shown in figure 7, a complex calculation is abstracted into two parts: a calculation observer object (700) and a total observer object 702. The latter object only displays the total of the calculation once all processing has been completed, and hence only receives notifications when the total changes.

3.2 Document D2

3.2.1 As the appellant has stated in the grounds of appeal, D2 is an influential reference work in software engineering. The board takes the view that the skilled person would have been aware of D2 and, in particular, the "Observer" design pattern it discusses.

3.2.2 The observer or "Publish-Subscribe" design pattern (see page 293, "Also Known As") solves the problem of maintaining consistency between related objects in a partitioned system; see page 293, "Motivation", first paragraph. Observer objects subscribe with a subject object to receive notifications from the subject regarding changes in its state (see figure on page 293), the subject publishing notifications of changes to all subscribers; see "Motivation", paragraphs 2 to 5.

4. The amendments to claim 1 of the main request, Article 123(2) EPC

4.1 Editorial amendments aside, claim 1 is based on claim 1 as originally filed, restricted by adding the expressions "notification system" (see page 6, lines 3 to 5), "mobile device" (see page 5, lines 14 to 27, and figure 2), "application" (see page 5, line 28, to page 6, line 2, and page 8, lines 1 to 2) and "launching the

client application [...] in response to the state property change" (see page 14, lines 8 to 12).

4.2 The board is satisfied that the amendments to claim 1 comply with Article 123(2) EPC regarding added subject-matter.

5. Clarity, Article 84 EPC 1973

5.1 According to the reasons for the appealed decision, the step of "activating the client", set out in claim 1 of the then main request, was unclear in view of the earlier step of "receiving a notification request from a client" without an intervening, essential step (see page 8, lines 2 to 4), of deactivating the client.

5.2 Claim 1 of the present main request sets out the step of "launching the client application ...", which is narrower than the expression "activating the client" referred to in the decision. The board finds that the skilled person would understand that launching the client application after a previous step of "receiving a notification request from a client application" implies that the client application was terminated in the interim. Hence claim 1 is sufficiently clear without explicitly specifying that the client application is only launched if it has previously been terminated.

6. Inventive step, Article 56 EPC 1973, main request

6.1 According to the reasons for the appealed decision, the subject-matter of claim 1 differed from the disclosure of D1 in that the device was a mobile device, the state change was caused by different components and the client was started if it was not already running. The

first difference had no technical effect on the steps of the method and was therefore not relevant to inventive step. The second and third differences were a mere aggregation of features lacking a synergistic effect. The second difference was an obvious design choice, and the third difference solved the problem of modifying the method known from D1 to ensure that the notification could be received by the client. It was obvious to the skilled person that a running application was a prerequisite for receiving a notification and therefore an obvious design choice.

6.2 Of the two documents in the search report, D1 comes closer to the subject-matter of claim 1 in disclosing the notification manager (see column 4, lines 44 to 51). Hence the board agrees with the statement in the decision that, of the two documents, D1 forms the closest prior art on file.

6.3 The subject-matter of claim 1 therefore differs from the disclosure of D1 in the features that:

- a. the method is performed on a mobile device and
- b. launching the client application in response to the state property change.

6.4 In the oral proceedings the appellant argued that the objective technical problem starting from D1 was to provide a notification system for minimizing computing load and energy consumption. The board is not persuaded that any reduction in energy consumption is achieved by terminating and launching client applications according to state changes, since claim 1 does not exclude the possibility that when one application is terminated another is launched. The board does however accept

that, by terminating an application, computing resources are freed for other purposes.

- 6.5 The board takes the appellant's point that D1 relates to modelling the notifications passing between objects, rather than being the modelled system itself. However this still means that D1 discloses notifications passing between objects, albeit in a model. Moreover, the skilled person would have regarded modelling a system as being a precursor to realizing the system itself, for instance a mobile device. Hence the board has doubts whether difference feature "a" (the device being a mobile one) lends inventive step to claim 1. The board however accepts the appellant's argument that feature "a" restricts the method and, contrary to what is stated in the decision (see page 8, point 2.3.1.3), cannot be regarded as "not relevant for evaluating inventive step".
- 6.6 Turning to feature "b", the board agrees with the appellant that neither D1 nor D2, the only documents in the European Search Report, discloses launching client applications in response to state property changes. In the reasons for the appealed decision, the examining division stated, in connection with the first auxiliary request (see page 8, point 2.3.1.4.2), that "it would be apparent that a running application is a prerequisite for receiving a notification, connection ... Therefore, this is an obvious design choice for the person skilled in the art ..." The decision provides no evidence for this assertion, which has since been challenged by the appellant. Moreover this argument seems to miss the point that the client applications are terminated before being launched on a state change. No document in the European Search Report discloses terminating and launching client applications

and, since neither the expression "activating" nor "launching" appears in the original claims, the question arises *whether it was searched for*.

6.7 To summarise, it is clear that in D1 and D2 it is assumed that the object receiving the notification exists (in main memory), i.e. that the program which has created this object is running. The question of launching the client application does not arise. For these reasons, the board refrains from taking a position on the obviousness of feature "b" and instead exercises its discretion under Article 111(1) EPC 1973 to remit the case to the first instance for further prosecution.

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The case is remitted to the examining division for further prosecution.

The Registrar:

The Chairman:



B. Atienza Vivancos

W. Sekretaruk

Decision electronically authenticated