BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS	BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE	CHAMBRES DE RECOURS DE L'OFFICE EUROPÉEN DES BREVETS

Internal distribution code:
(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision
of 18 October 2018

Case Number: T 1872/12 - 3.5.06

Application Number: 04255302.4

Publication Number: 1515231

IPC: G06F9/445, H04L12/24

Language of the proceedings: EN

Title of invention:
A system and method for automatically establishing a resource grid

Applicant:
Oracle America, Inc.

Headword:
Resource grid/ORACLE

Relevant legal provisions:
EPC 1973 Art. 56

Keyword:
Inventive step - (no)

Decisions cited:
T 0780/11, T 1541/16, T 0634/01

Catchword:

Case Number: T 1872/12 - 3.5.06

D E C I S I O N
of Technical Board of Appeal 3.5.06
of 18 October 2018

Appellant:	Oracle America, Inc.
(Applicant)	500 Oracle Parkway
	Redwood City, CA 94065 (US)

Representative:	D Young & Co LLP
	120 Holborn
	London EC1N 2DY (GB)

Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 16 February 2012 refusing European patent application No. 04255302.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

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

Summary of Facts and Submissions

I.   The appeal is directed against the decision of the
        examining division, dated 16 February 2012, to refuse
        application No. 04255302.4 for lack of clarity
        (Article 84 EPC) and lack of inventive step (Article 56
        EPC). For its reasons, the decision ("according to the
        state of the file") referred back to the annex to the
        summons for oral proceedings, dated 2 December 2011.

II.   A notice of appeal was received on 20 March 2012. The
        appeal fee was paid on the same day. A statement of
        grounds of appeal was received on 8 June 2012. Claim
        sets according to a main and an auxiliary request were
        filed.

III.   In a communication dated 19 February 2018, the
        rapporteur raised an objection of lack of inventive
        step.

IV.   In a letter dated 30 April 2018, the appellant
        submitted arguments and deleted several dependent
        claims in the auxiliary request.

V.   In its summons to oral proceedings, the board
        maintained the objection of lack of inventive step.

VI.   Oral proceedings were held on 18 October 2018. At their
        end the board announced its decision.

VII.   The appellant requests that the decision be set aside
        and that a patent be granted based on the main request
        filed with the grounds of appeal or the auxiliary
        request filed on 30 April 2018. The other application
        documents are the same as in the appealed decision.

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

"1. A method implemented by a grid establishment
component for automatically establishing a resource
grid for a plurality of nodes (206) coupled together
via an interconnect (204), the method comprising:
        determining (104), from the plurality of nodes,
        a set of grid nodes to include in a resource
        grid, wherein each grid node provides zero or
        more resources; and establishing (108) the
        resource grid, wherein said establishing
        comprises: configuring (112) each grid node to
        enable that grid node to participate as part of
        the resource grid; and
            establishing (116) one or more grid masters
            to manage access to the resources provided
            by the grid nodes, such that the resource
            grid formed by the grid nodes behaves as a
            single pool of resources accessible through
            the one or more grid masters;
            wherein configuring a grid node to enable
            that grid node to participate as part of
            the resource grid comprises:
                causing the grid node to execute a
                grid facilitation agent (210)
                thereon;
                deploying a grid participation
                module (212) to the grid facili-
                tation agent executing on the grid
                node; and instructing the grid
                facilitation agent to run the grid
                participation module on the grid
                node to enable the grid node to
                participate as part of the resource
                grid."

IX.   In claim 1 of the auxiliary request, the following
       wording is added at the end:

       "[to enable the grid node to participate as part of the
       resource grid;]
       wherein causing the grid node to execute a grid
       facilitation agent thereon comprises:
           deploying a grid facilitation agent to an operating
           system running on the grid node; and
           instructing the operating system to run the grid
           facilitation agent on the grid node;
           and wherein each of the plurality of nodes has an
           operating system running thereon,
       and wherein determining the set of grid nodes
       comprises:
           determining, for each of the plurality of nodes,
           whether the grid establishment component has
           sufficient privileged access to the operating
           system running on that node to deploy the grid
           facilitation agent to that operating system; and
           in response to a determination that the grid
           establishment component has sufficient privileged
           access to that operating system, selecting that
           node as one of the grid nodes."

Reasons for the Decision

1.   *Summary of the invention*

1.1   The application relates to configuring a so-called
       "resource grid". The term "grid" is commonly known to
       designate a system of loosely coupled, distributed,
       geographically dispersed, interconnected and

potentially heterogeneous computers (see for example
https://en.wikipedia.org/wiki/Grid_computing). A
"resource grid" is defined to be a collection of
cooperating "nodes" (A2-publication, section [11],
second sentence). A node may be a computer or a
peripheral ([12], fourth sentence). The interpretation
of a node being a "software process" (same sentence) is
not consistent with the claimed invention, since a
process can neither be rebooted (claim 2 of the main
request), nor does it have ports (claim 3). Therefore,
the board understands a node to be a computer or to
contain a computer, since a node executes a program
(the so-called "grid facilitation agent"; claim 1). It
follows that a "resource grid" is essentially a grid.

1.2   The configuration is performed by a so-called "grid
        establishment component" (GEC; [11], first sentence)
        which is interconnected to the nodes (see figures
        2A-4B). A GEC can be an ASIC (i.e. an application-
        specific integrated circuit; see [51], second sentence)
        or a computer (same sentence: "one or more processors")
        running a specific program (same sentence: "a set of
        instructions") for "automating ... the process of
        establishing a resource grid" ([11], first sentence).
        In figure 5, a computer is shown which may be used for
        a GEC (see [52], second sentence). However, even if the
        GEC is implemented as an ASIC, it behaves like a
        computer. For example, it is interconnected to the
        nodes and deploys software to them ([24] and [34]).

1.3   In order to enable a node to participate in a grid,
        two-part software is installed on a grid node: the so-
        called "grid facilitation agent"/GFA for receiving,
        installing, configuring and running the second part,
        namely the so-called "grid participation module"/GPM.

This is shown in three embodiments (called "sample implementations").

1.3.1   *First embodiment ([17]-[29]):* The node receives via "network reboot" from the GEC an operating system (OS) image containing a GFA and boots it (see [22], sentences 1-8). The GEC then deploys the GPM to the running GFA (i.e. via the GFA on the node; [23], third sentence; [24], first sentence; [22], seventh sentence).

1.3.2   *Second embodiment ([30]-[40]; claimed in the auxiliary request):* The node has already an OS running on it which is capable of allowing other computers to install and run programs on the node ([30], fifth sentence). The GEC first deploys the GFA and then the GPM to the node ([34], fourth sentence; [35], first sentence).

1.3.3   *Third embodiment ([41]-[50]; not claimed):* The node already has an OS and a GFA running on it ([41], last sentence; [42], sentences 4-6; [45], second sentence). Only a GPM is deployed to the node by the GEC ([45], third sentence).
        This embodiment is not claimed, since in claim 1 of both requests the GEC *causes* the grid node *to execute* the GFA, whereas in the embodiment there is no such step (the GFA is already running before the GEC communicates with the node; see for example [42], second and third sentence: determining which node belongs to the grid is done by determining the nodes on which the GFA is already installed and running).

2.   *Overview of the board's decision*

2.1   The board agrees with the appealed decision that the
        claimed subject-matter lacks inventive step, Article 56
        EPC 1973. However, for reasons of procedural economy
        (by simplifying the argumentation), the board prefers
        not to use the closest prior art document of the
        decision, but the prior art acknowledged in the
        description (sections [3] and [6]).

2.2   In the following, only the auxiliary request is
        analysed for inventive step, since it is more concrete
        and narrower than the main request. Therefore, a lack
        of inventive step of the auxiliary request also applies
        to the main request.

3.   *Inventiveness*

3.1   The subject-matter of claim 1 of the auxiliary request
        can be summarised as follows:

        a GEC computer automatically establishes a grid by
        -    selecting as a grid node each node interconnected
             to the GEC which provides the GEC with access
             rights to its (running) operating system to deploy
             programs on the node (see [31], third and fourth
             sentence);
        -    establishing (one or more) grid masters which
             manage access to the grid nodes (and its
             resources);
        -    deploying a GFA program on each grid node;
        -    starting the GFA program on each grid node;
        -    deploying a GPM program to the GFA program on each
             grid node and

- starting the GPM program by the GFA program on each grid node to let the grid node participate in the grid.

3.2   Except for two points, namely *how to select the grid nodes* and the *dividing of the grid node software into two parts*, these steps (i.e. establishing grid masters, deploying software to the grid nodes and starting it) are what a human system administrator usually does when establishing a well-known master-slave grid ([3] and [6]). He or she has to determine the masters and the slaves, and also has to make sure that the necessary software to participate in the grid is installed on the nodes, as acknowledged in the description, section [6] which reads:

> "Currently, the process of implementing a resource grid is quite labor and time intensive from the standpoint of a system administrator. Specifically, the administrator has to perform a number of manual tasks on each node of a resource grid to enable that node to function as part of the resource grid. *These manual tasks include, for example, manually accessing each node, loading grid participation software into each node, configuring and running the grid participation software, and setting a node to be a slave node, a master node, or both.* These manual tasks can require a significant amount of time to perform, and since they have to be performed on every node, the amount of administrator time required to set up an entire resource grid can be substantial, especially if the resource grid comprises a large number of nodes." (emphasis added by the board)

3.3   However, performing these steps on a computer (i.e. the
        GEC) results in a mere automation of the usual
        behaviour of a human system administrator in
        establishing and configuring a grid, see T780/11 of the
        same board, section 3.9 (citing T634/01, section 6)
        and 3.10. Furthermore, no technical effect going
        beyond the usual effects of establishing and
        configuring a grid and its nodes can be recognised.

3.4   As to the way in which grid nodes are selected by the
        GEC (i.e. the first of the two points mentioned above),
        namely by selecting each node as a grid node which
        offers the GEC access to its OS to deploy programs on
        the node, it is first noted that such an access is
        indispensable for the GEC in order to install the grid
        node software on the node. Secondly, this selection
        method merely describes a convention amongst (human)
        system administrators of the (possibly world-wide
        dispersed) grid nodes which are interconnected to the
        GEC, namely to express the acceptance of a node's
        potential adherence to a grid by configuring the OS of
        the node such that it allows the GEC to deploy and
        start software on that node. Thus, to program the GEC
        such that it selects the grid nodes depending on the
        access rights to the nodes is again a mere automation
        of what the human administrator of the GEC does when
        establishing a grid according to this convention.

3.5   During oral proceedings, the appellant argued that the
        description contained three different embodiments with
        different ways of selecting the grid nodes. This showed
        that the selection was not straightforward and not
        performed in the same way by every human system
        administrator. Thus, the claim went beyond a mere
        automation.

3.6   However, the fact that there are several ways to do
        something does not mean that one (or all) of them are
        non-obvious. They could all be obvious. In the present
        case, only the way of the second embodiment claimed in
        the auxiliary request has to be analysed. This has been
        done above, and the board came to the conclusion that
        this specific way of selecting a grid node is obvious.
        Merely automating this obviously selected way cannot
        establish an inventive step.

3.7   The second point mentioned above is that the software
        to be deployed by the GEC to the grid nodes is divided
        into two parts (GFA and GPM). However, this parti-
        tioning does not produce a technical effect going
        beyond the effects that partitioning methods typically
        have, see T1541/16 from the same board, section 2.8
        (and also 2.6).

3.8   In particular, the invention seems to suggest that
        deploying the GPM program to the already deployed and
        started GFA program, and starting it by the latter on
        the node would be different from simply deploying/
        starting the GPM program *after* having deployed/started
        the GFA program. The board cannot see a technical
        effect arising from such a methodology, since the GEC
        has sufficient access to install *any* program on the
        grid node. The GEC does not need the GFA program to
        deploy and start the GPM program via or by the GFA
        program.

3.9   During oral proceedings, the appellant argued that
        dividing the prior art grid participation software
        ([6], third sentence) into two parts makes it possible
        to concentrate the functionality common to both, master
        and slave nodes, into one part (GFA), and the

functionalities specific to either a master or a slave into the other part (GPM). This reduced maintenance costs, since the common functionality would not have to be duplicated in both, the master grid participation software and the slave one.

3.10   However, the board considers this to be a typical example of applying the general principle of partitioning software. It belongs to the daily work of a programmer to identify common functionality in different programs and to isolate it in a separate part, in order to combine it later on with the remaining programs (i.e. where the common functionality has been deleted). This well-known methodology would have the same effects here as it usually has.

3.11   Moreover, the description is completely silent about these effects. There is only one passage in the relevant second embodiment ([36], last two sentences) about the possibility of having different programs for master and slave. It reads:

        "In one embodiment, the GPM 312 is the same module for both slave and master operation, with the module being configured differently, depending upon the intended mode of operation. As an alternative, different GPMs 312 may be deployed for slave and master operation."

        There is neither a mention of having a common functionality in the GFA program, nor of the reasons for doing it one way or the other.

3.12   The appellant further argued that creating two-part grid software allowed the existing grid participation

software ([6], third sentence) to be reused in
unchanged form.

3.13   However, also this statement and its possible effects
        are not mentioned in the description and seem to be
        speculative. Furthermore, the board cannot recognise
        any unexpected advantage in reusing software in
        unchanged form, instead of, for example, reusing the
        program text of the existing grid participation
        software in a one-pice program comprising the
        functionality of both, the GFA and the GPM. Both
        approaches have their known advantages and disadvan-
        tages.

3.14   Thus, there is no technical effect produced by
        partitioning the grid node software into two parts
        which would go beyond the effects that partitioning
        typically has. Nor is any such technical effect
        described in the description.

3.15   Therefore, the subject-matter of claim 1 of the
        auxiliary request is not inventive (Article 56 EPC
        1973).

3.16   The same argumentation applies to claim 1 of the main
        request, since it is broader than that of the auxiliary
        request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

B. Atienza Vivancos   W. Sekretaruk

Decision electronically authenticated