

18th September 2007

PATENTS ACT 1977

APPLICANT International Business Machines
 Corporation

ISSUE Whether patent application number
 GB0329930.2 complies with
 section 1(2)

HEARING OFFICER J J Elbro

DECISION

- 1 This decision concerns whether patent application GB 0329930.2 titled "Involving participants in a distributed transaction executed in different environments" relates to excluded subject matter.
- 2 The application was filed on 24 December 2003 without a claim to priority. A first examination report was issued on 9 June 2006, the main objection on which was that the claimed invention was excluded from patentability as a computer program as such. This objection was maintained through several rounds of correspondence and amendment of the application, and the matter came before me at a hearing on 18 July 2007. The applicant was represented by its agent, Mr Michael Jennings.

The invention

- 3 This application relates to transaction management in a distributed computing system. Such systems typically use a specific distributed application architecture, such as J2EE™ or .NET. However, they often need to use legacy applications, such as databases, which were not designed with this architecture in mind, being, for example, "C" based. These can be accessed through adaptive layers, but problems can arise in doing so. For instance, it may be very expensive to provide an appropriate adaptive layer for a very specialised application. Particular problems arise in relation to transaction management, where there may be difficulties if both a legacy and a "native" application need to access the same resource.
- 4 The claimed invention aims to overcome these difficulties by using a single transaction manager in the distributed application architecture environment and

adding a wrapper to requests in the legacy environment to enable them to interact with the transaction manager.

- 5 The application currently has 13 claims, of which claims 1, 5, 7, 11 and 13 are independent. Claim 1 is as follows:

A transaction processing method for enabling execution of a unit of work in a first data processing environment, under the scope of a transaction started and co-ordinated in a second data processing environment, the method comprising the steps:

- receiving a remote request for a unit of work to be executed in the first environment;
- obtaining, from the request, a transaction identifier of a transaction started and co-ordinated in the second environment;
- using the transaction identifier to inform a resource manager that the unit of work is to join the transaction such that the resource manager recognizes resource updates carried out by the unit of work as being part of the transaction;
- executing the unit of work; and
- after execution of the unit of work, informing the resource manager that the unit of work has completed participation in the transaction;

wherein the resource manager is informed of completion of the transaction from the second environment.

- 6 Claim 5 essentially claims the data processing method used in the second environment to carry out its role in the transaction processing method of claim 1 (effectively all except executing the unit of work):

A data processing method of a transaction client in a second data processing environment to enable execution of a unit of work carried out in a first data processing environment, under the scope of a transaction started and co-ordinated in the second environment, the method comprising the steps:

- receiving an outbound request from an application for a unit of work to be performed in a first environment as part of a transaction;
- obtaining a transaction identifier for the transaction;
- adding the transaction identifier to the request;
- sending the outbound request to an application within the first environment;
- receiving a response to the outbound request, wherein the response indicates that the unit of work performed in the first environment accessed a resource manager under the scope of the transaction; and
- informing the resource manager of completion of the transaction, thereby controlling, from the second environment, completion of the unit of work carried out in the first environment.

- 7 Claim 7 claims a “transaction processing system” performing the method of claim 1. Claim 11 claims a “data processing system” performing the method of claim 5. Claim 13 claims a “computer program product” which, “when executed on a data processing system” causes it to perform the method of claim 1. It is also explicit that the first environment is not involved in transaction completion, which is not entirely clear in the other independent claims.

- 8 In a letter faxed just prior to the hearing, Mr Jennings proposes in the alternative some amended claims. The amended version of claim 1 reads as follows (with underlined text indicating additions):

A transaction processing method for enabling execution of a unit of work in a first data processing environment, under the scope of a transaction started and co-ordinated in a second data processing environment, the method comprising the steps: providing a transaction manager within the second environment and a transaction wrapper in the first environment:

the transaction wrapper receiving a remote request for a unit of work to be executed in the first environment;

the transaction wrapper obtaining, from the request, a transaction identifier of a transaction started and co-ordinated in the second environment;

the transaction wrapper using the transaction identifier to inform a resource manager that the unit of work is to join the transaction such that the resource manager recognizes resource updates carried out by the unit of work as being part of the transaction;

executing the unit of work; and

after execution of the unit of work, the transaction manager performing transaction completion operations within the second environment and the transaction wrapper responding to the transaction completion by informing the resource manager that the unit of work has completed participation in the transaction;

wherein the resource manager is informed of completion of the transaction from the second environment and completion of the transaction is contained within the second environment.

- 9 Similar amendments were proposed to the other independent claims.

The Law

- 10 The examiner has reported that the invention is excluded from patentability under section 1(2)(c) of the Act as relating to a program for a computer. The relevant parts of this section read:

“1(2) It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of -

(a) ...

(b) ...

(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;

(d) ...

but the foregoing provision shall prevent anything from being treated as an invention for the purpose of this Act only to the extent that a patent or application for a patent relates to that thing as such.”

- 11 My approach to interpreting section 1(2) will be governed by the judgment of the Court of Appeal in *Aerotel Ltd v Telco Holdings Ltd (and others) and Macrossan's Application* [2006] EWCA Civ 1371. In that judgment, a four step test was advocated which can be summarised as:

(1) properly construe the claim

(2) identify the actual contribution

(3) ask whether it falls solely within the excluded subject matter

(4) check whether the actual or alleged contribution is actually technical in nature.

- 12 As stated at paragraphs 45 – 47 of the judgment, reconciling the new test with the earlier judgments of the Court of Appeal in *Merrill Lynch* [1989] RPC 561 and *Fujitsu* [1997] RPC 608, the fourth step of checking whether the contribution is technical may not be necessary because the third step – asking whether the contribution is solely of excluded matter – should have covered the point.
- 13 Further, as noted in paragraph 44 of the judgment, it is often necessary to take the applicant's word for what a contribution is, particularly in terms of difference from the prior art. However, as the judgment cautions, this does not mean I should simply accept the patentee's version of the contribution if that is not found in the claim.

Arguments and Analysis

Construction of Claim 1

- 14 Claim 1 is to a transaction processing method in which a unit of work is executed in a given environment (such as "C"). It claims the way in which the unit of work is linked to a given transaction. This linkage is carried out in a different environment, in the embodiments the network architecture such as J2EE. This process informs a resource manager when a unit of work is to join a given transaction and when the unit of work has completed participation in the transaction. The execution of the unit of work is also claimed.

Contribution made by the invention

- 15 Mr Jennings put forward four advantages of the invention over the prior art:
- It enables lock sharing by processes running in different data processing environments, facilitating shared data access, as opposed to each process being treated as a separate transaction branch.
 - The reach of transactions in an architecture-specific transaction manager is extended to other architectures.
 - A single environment is responsible for transaction completion, avoiding the need to maintain persistent logs of transaction completion operations in the different environments. This avoids a point of failure and the need for the logs in recovery operations.
 - Improvement to inter-operability generally between different processing technologies within a distributed heterogeneous environment.
- 16 Overall, he argued this gave a more reliable distributed data processing solution.
- 17 I am willing to accept these points, bearing in mind the Court of Appeal's comment on accepting the applicant's alleged contribution. It seems to me therefore that what is provided by the method claimed in claim 1 is an allegedly

improved transaction processing system.

- 18 Mr Jennings also argued that because the transaction processing system is used in a number of applications – from manufacturing process control to managing emails – an improved system provides real-world benefits. This may be so. But the claim (and indeed the whole disclosure of the patent) is not directed to this. The application does not claim (or disclose), for example, an improved manufacturing process which works better because of better transaction processing. Instead, it is directed to the transaction process itself. Thus these potential real-world benefits are not part of the contribution made by the claimed invention.

Whether the contribution falls wholly within excluded matter

- 19 Mr Jennings cautioned me against simply determining a claim is excluded merely because it involves use of a computer program, citing the comments of Pumfrey J in *Rim v Inpro Licensing* [2006] EWHC 70 (Pat). I accept this point; the question is whether the contribution I have determined above is *solely* related to a computer program.
- 20 Mr Jennings described a “transaction processing system” as “a complete system: application generator, operation tools, database systems, utilities and what-have-you”. I accept this. But all these components are in fact computer programs – the system is an agglomeration of these, forming one multi-faceted computer program. A claim to an improved transaction processing system thus falls squarely within the exclusion for computer programs. It makes no difference that (as Mr Jennings pointed out) a transaction processing system requires an apparatus to run on – this is true of all computer programs.
- 21 Mr Jennings laid great stress on the alleged improvements being developments in transaction processing “technology” and characterized the improved reliability as a “technical” improvement which thus took the contribution outside the realm of excluded matter. I feel that this only begs the question. The improvements are improvements in a computer program – labeling them “technical” or this area as “technology” does not change this.

Check that the contribution is actually technical

- 22 Given my finding on step 3, I do not need to apply step 4 of the *Aerotel/Macrossan* test.

Other Claims

- 23 Claim 7 claims the system corresponding to the method of claim 1. No hardware features are claimed. It seems to me that this provides the same contribution as its corresponding method claim (indeed, I found the contribution was a better “system”) and is likewise excluded.
- 24 Claim 5 claims the data-processing method of the “second environment” in the method of claim 1. It therefore lacks the explicit claiming of the execution of the unit of work, although this must occur to cause the response to the request to be

generated. Apart from this, it covers the same ground as claim 1 and appears to provide the same contribution, as does its corresponding system claim, 11. It is therefore likewise excluded.

- 25 Independent validity of the dependent claims was not argued at the hearing and I see nothing in them which would avoid exclusion given the exclusion of the independent claims on which they depend.
- 26 Claim 13 being essentially to a computer program on a disk which when executed performs the method of claim 1 is necessarily excluded given my conclusions on the exclusion of claim 1. The explicit clarity on non-involvement of the first environment in transaction completion may bolster the advantages of the claim, but this does not change my view of the overall contribution. There was some discussion at the hearing about whether a claim of this form would be excluded even if claim 1 were allowable but in the event this matter falls away.
- 27 The amended claims essentially restrict the independent claims further by including reference to the transaction wrapper which is used to enable the second environment to handle the interactions with the requests and transaction manager (they are also clear on transaction completion being within the second environment). This appears to be a detail of the implementation of the coding and it does not, in my view, take the claims outside the exclusions.

Conclusion and next steps

- 28 I find that the invention as claimed in this application and as proposed to be amended is excluded from patentability under section 1(2) as a computer program. I therefore refuse the application in accordance with section 18(3).

Appeal

- 29 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

J J ELBRO

Deputy Director acting for the Comptroller