BL O/442/12

14th November 2012

PATENTS ACT 1977

APPLICANT	Quantum Corporation
ISSUE	Whether patent application GB1021747.9 complies with Section 1(2)
HEARING OFFICER	Phil Thorpe

DECISION

Introduction

1. This decision concerns whether the invention set out in patent application GB1021747.9 relates to excluded matter. The examiner has maintained throughout the examination of this application that the claimed invention is excluded from patentability under section 1(2) of the Patents Act 1977 as a program for a computer. The applicant has not been able to overcome the objections, despite amendments to the application.

2. The matter therefore came before me for a decision on the papers.

The Patent

3. GB1021747.9 was filed as PCT application PCT/US2010/022764 on 1st February 2010 with a claim to priority of 5th February 2009. The application was subsequently published as GB 2472963 A on the 23rd February 2011.

4. The application relates to a method and apparatus for storing data.

5. According to the description it is known to improve the efficiency of data storage through the use of de-duplication methodologies; De-duplication is a process whereby only one copy of data is stored. If an attempt is made to store a further copy of the same data then instead of storing that same data again, a pointer to the first copy of the data is stored instead. When the second copy is to be retrieved, the process is reversed and the full data item is 'rebuilt' using the earlier stored data. De-duplication reduces the amount of storage required for a given data set, but the price for this is an increase in the data processing load and in the retrieval time for de-duplicated data that must

be rebuilt.

6. A balance must therefore be struck between the compression of data by de-duplication and the negative consequences described above. Greater data compression can be achieved by, for instance, dividing data into smaller data blocks, but this increases the retrieval (and storage) data processing overhead. The applicant states that it is therefore usual to assess the nature of the data likely to be stored on a system at the design stage, and optimize the parameters of the de-duplication accordingly. If differing types of data are to be processed by a single system, a compromise must therefore be reached in which the parameters used are not optimal for at least some of the data stored.

7. The invention seeks to improve on the one-size fits all approach of prior art systems by applying different de-duplication methodologies depending on the nature of the data that is to be stored. Hence for example if the data is a compressed MP3 file or a word processing file then that may be subject to one de-duplication methodology whereas all other data is subject to a second de-duplication methodology. In another embodiment referred to in the application, files from say the CEO of an organization may be stored without any de-duplication thus facilitating more speedy retrieval.

8. The invention employs a classification system to classify the data to be stored. A data de-duplication storage methodology determines which de-duplication method to apply to each of the classifications.

9. The claims on which this decision is based are those filed on 14th March 2011. Claims 1 and 14 relate respectively to a method and apparatus, and claim 13 relates to a computer readable medium carrying instructions for the method.

10. Claims 1 and 14 read as follows:

Claim 1

A method of storing data in a data storage system, said method comprising receiving classified date that has been classified into a deduplication classification in accordance with a data content aware data classification policy, wherein said data classification policy includes a plurality of deduplication classifications into which said data can be classified;

within said data storage system, processing said classified data for storage in accordance with a data deduplication storage methodology, of a plurality of predefined data deduplication storage methodologies, that is associated with said deduplication classification into which said classified data is classified, and;

storing, within said data storage system, processed information output from said processing, wherein duplicated portions of the classified data are replaced with pointers to existing copies of that data.

Claim 14

A system for data storage, said system comprising:

a classified data receiver configured for receiving classified data that has been classified externally to said data storage system into a deduplication classification in accordance with data content aware data classification policy, wherein said data classification policy includes a plurality of different deduplication classifications into which said data can be classified; and

a classification dependent storage processing block configured for processing said classified data according to any of a predefined plurality of possible data deduplication storage methodologies that is associated with said data classification of said classified data and storing processed information output from said processing, wherein duplicated portions of the classified data are replaced with pointers to existing copies of that data.

The Law

11. The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates inter-alia to one or more categories of excluded matter. The relevant provisions of this section of the Act are shown in bold below:

> ***1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the Act, that is to say, anything which consists of –***
>
> *(a) a discovery, scientific theory or mathematical method;*
> *(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) the presentation of information;*
>
> *but the foregoing provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.*

12. As explained in the notice published by the UK Intellectual Property Office on 8 December 2008[1], the starting point for determining whether an invention falls within the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*[2].

[1] http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm
[2] Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application [2006] EWCA Civ 1371; [2007]

13. The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian Ltd's Application*[3]. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel,* the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions, particularly *Merrill Lynch*[4] which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case.

14. Subject to the clarification provided by *Symbian*, it is therefore still appropriate for me to proceed on the basis of the four-step approach explained at paragraphs 40-48 of *Aerotel* namely:

    1) Properly construe the claim.

    2) Identify the actual contribution.

    3) Ask whether it falls solely within the excluded matter, which (see paragraph 45) is merely an expression of the "as such" qualification of section 1(2).

    4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.

15. The applicant has followed this approach in its various submissions.

Step 1 - Properly construe the claim

16. The examiner has indicated that it may be preferable for the claims to be more clearly restricted to a computer implemented system of data storage. Reading the application as a whole, in particular paragraph 14 of the description, I am satisfied that the claims as they currently stand would be construed as being limited to a computer implemented method of storing data.

17. The applicant argues that the de-duplication method of claim 1 classifies data into one of a plurality of de-duplication classifications. Whilst the existence of classified data is a necessary prerequisite for the claimed method, the actual step of classification itself does not form part of the method or of the corresponding system. Claim 1 is explicitly limited to a method which, '...receiv[es] classified date that has <u>been</u> classified...' (my emphasis).

[3] Symbian Ltd v Comptroller-General of Patents, [2009] RPC 1
[4] Merrill Lynch's Application [1989] RPC 561

18. Other than this point, which I will return to later, I do not believe there is any issue with how the claims would be construed.

Step 2 - Identify the actual contribution

19. The applicant argues that the contribution is a new way of utilising a data storage system, which can provide greater flexibility and therefore greater efficiency. More specifically the invention provides an improved de-duplication ratio (higher de-duplication), greater de-duplication speeds, greater retrieval speed and reduced processing requirements. Whilst these may be the results of applying the invention, it does not in my view really encapsulate the heart of the matter, or what the inventor has really added to human knowledge.

20. Rather I believe the contribution provided by the invention is a method of storing data that uses more than one de-duplicating methodology and whereby the de-duplicating methodology applied to the data varies dependent on some characteristic of that data.

Steps 3 & 4 - Does the contribution fall solely within excluded matter and is it actually technical in nature

21. It is not disputed that the invention is implemented on a computer however that in itself does not mean that it is excluded as a computer program. If the invention provides a technical contribution then it is not excluded.

22. There is a vast quantity of case law on the issue of what does and does not constitute a technical contribution. That case law teaches that the technical contribution might result from a variety of sources including the problem to be solved and how the solution is provided. In his decision in *AT&T*[5] Lewison J. (as he then was) distilled these considerations into a set of signposts to be used in assessing whether an invention makes a technical contribution. The signposts are:

    i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;

    ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;

    iii) whether the claimed technical effect results in the computer being made to operate in a new way;

    iv) whether there is an increase in the speed or reliability of the computer;

    v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

[5] AT&T and CVON [2009] EWHC 343 (Pat)

23. That they are signposts and not all applicable in every situation was though highlighted by Deputy Judge Baldwin QC in his judgment in Really Virtual[6] which I take as indicating that the context from which each of the signposts derives should be borne in mind in applying them. This is a point not lost on the applicant here. The applicant has nevertheless sought support from these signposts albeit in response to them being raised against it during the examination.

24. On the first signpost the applicant argues that in reducing the required amount of data that is stored, the invention can have an effect outside of the computer. For example if data is stored on an external storage device then the invention provides for more efficient use of that device and also provides efficiencies in terms of the transmission of data to and from that device.

25. I am not convinced that this sort of effect is really what the Judge had in mind when he referred to technical effects on processes carried outside of the computer. The storage of data is carried out within a computer system, and it appears to be of little import whether this is a monolithic computer or a distributed network-based device. It cannot be the case that the patentability of an invention such as the one here could vary depending on whether the storage device was located inside or outside of the case of the computer. In my view the first signpost is concerned with the sort of computer implemented invention where the external process controlled by the program is a technical process such as a numerically controlled machining operation or the operation of an internal combustion engine. The storage of data is not that sort of external process whether or not it involves a network rather than a single computer. Hence I do not believe that this signpost helps the applicant.

26. I turn now to the second signpost. The applicant argues that the contribution does not depend on the data being processed. Rather the invention provides that the selected de-duplication methodology depends on “characteristics of the data”. I am not entirely sure how this helps since the characteristics of the data are clearly linked to the data itself. Hence the contribution in my view clearly depends on the nature of the data. To illustrate this let us first assume that all the data that is to be saved is identical. It has the same characteristic for example the same format or creator. Providing a storage method that has a number of de-duplicating methodologies, one of which is appropriate to that data, would yield no benefits over a method that uses only that appropriate de-duplicating methodology. The claimed technical effect of the invention is therefore dependent on the data (or the characteristics of the data) to be processed.

27. Signposts 3 & 4 can I believe be answered together. A computer employing the storage method of the invention does not operate in a new way except in so far as any computer running a new program operates in a new way. When running the program the computer has new functionality. That new functionality is the facility to select, on the basis of a characteristic of the data to be saved, a particular de-duplication methodology from a number of known

[6] Really Virtual Company Limited’s application 2012 EWHC 1086 (Ch)

de-duplication methodologies and then to save the data using the selected methodology. That new functionality enables the computer to operate in a new way and indeed it may be a better computer. But it does not in my view operate in a new way or a better way in a technical sense of the sort referred in *AT&T*. Rather it is concerned with a set of rules for storing particular types of data on a conventional computer.

28. Furthermore there is nothing to suggest that the contribution improves the reliability of computer. It does, as noted, make better use of the available storage and can provide improvements in terms of speed of retrieval. It may also require less processing overhead than a conventional computer comprising a single de-duplicating methodology. But I do not believe that it achieves any of this by solving a technical problem within the computer. Rather it is achieves this merely by providing for the possible use of more than one known de-duplicating methodology. The speed of the computer when running any of these de-duplicating methodologies will be the same as a prior art computer that operates using just that methodology. The computer using the invention will be better than the prior art computers. But it will be better only in that it processes data better. It does not in my view make the computer itself quicker in the way that other allowable computer implemented inventions have done.

29. The fifth signpost is often it seems to me the most difficult to apply as it is often a point of conjecture whether an invention solves or circumvents a problem. In the present instance I do think the invention helps to solve the problems of the prior art systems but I still do not think that points to it being patentable. The solution is as I have already noted not in my view a technical solution in the way that, say an invention that improved the screen resolution would be.

30. Thus it seems to me that the *AT&T* signposts do not indicate any technical contribution made by the present invention.

31. The applicant has also made some more general observations on the question of whether the invention provides a technical contribution. I have I believe covered most of these in the discussion on the signposts. One point that was not covered was the claim by the applicant that the method of the invention can benefit other devices that include a computer using the invention. This picks up on what was said in S*ymbian* where it was noted in respect of the invention in issue there that “the beneficial consequences of those instructions will feed into the camera and other devices and products, which ...include such computer systems”. I accept that the benefits available from the invention here will also be available to other products that incorporate it however again I do not believe that this points to the invention here providing the necessary technical contribution. The reference in *Symbian* that I refer to was in the context of an invention that solved a technical problem within the computer itself. That is not however as I have already discussed the case here.

32. I should also mention the case of *Kapur*[7] since this was cited by the examiner, albeit late on, as being somewhat similar to the case here. The invention in *Kapur* related to a system that enables a user to retrieve versions of documents that have been subject to intentional or unintentional delete and overwrite operations. Thus when a document is deleted or overwritten it is not discarded, rather it is archived in a separate data store and data relating to the document such as its title, version, date of creation, original storage location and archive location are stored. The appropriate version of a document is then retrieved should a user wish to restore a deleted or earlier version of a document. to document management systems.

33. The invention was considered by the Comptroller and on appeal to be excluded as a program for a computer. Floyd J. noted that:

> "28 The storage and manipulation of data of all kinds is the essence of what computers are capable of. They perform these tasks under the control of the compilation of commands in a computer program. If a new computer program is written, for example to store a copy of a document at regular intervals in order to avoid losing the document, the computer will for some purposes perform in a better way: but the contribution in that case is the computer program as such. It has no existence independently of the fact that it is implemented on a computer. It would remain the case if the computer is programmed to distinguish between different types of document or data that it saves.
>
> 29 When a computer saves a document it must keep a record of the location at which it is stored, called its address, so that it can be retrieved. Computers by their very nature make it possible to write software which will allow different types of data to be stored in different ways, and to retain address data so as to retrieve it. Once one has decided on how the data is to be stored, handled and manipulated within the computer, a program can be written to give effect to it. It is likely that in the course of programming a computer in this way there may be improvements in the way data is handled compared with other ways of doing the same thing. But it is improbable that in so doing one would produce a relevant technical effect recognisable over and above the fact that the program is running on the computer.
>
> 30 Mr Bartlett's analysis of the invention here was
>
> > "It is a program for enabling the storage and retrieval of documents in a computer database in a particular way. Whilst it may result in the documents being handled differently, that is entirely a feature of the program. The contribution made by such an invention must to my mind reside in the program itself and must fall solely within the computer program exception."
>
> 31 I am wholly unable to fault that analysis. The claimed method is not an improved computer, but an entirely standard computer programmed to handle document storage in a particular way. The fact that different types of deleted documents are handled in different ways and stored separately is purely an aspect of the design of the computer program."

[7] Kapur's Patent Application [2008] EWHC 649 (Pat)

34. The applicant argues that in contrast with *Kapur*, the contribution here does produce a relevant technical effect recognisable over and above the fact that the program is running on the computer in terms of allowing more efficient use of storage capacity and/or reduced network resources. I accept that in *Kapur* what seemed to matter more was what data was stored and when whereas the invention here is much more about how that data is stored. Hence I do not think that the comments made by Floyd J can be considered to apply equally to the invention here. They do however provide a useful reference point on the spectrum of what is and is not allowable. And I would conclude that the invention here is to the more allowable side of that reference point though for the reasons given above it still does not provide the necessary technical contribution to put it on the right side of being allowable.

Conclusion

35. I conclude that the invention as claimed is excluded under section 1(2) because it relates to a computer program as such.

36. I have carefully read the specification and can find no saving amendment. In particular I would note that even if the step of classifying the data was added to the claim then I would still be of the opinion that the invention is excluded as a computer program.

37. I therefore refuse the application under Section 18(3).

Appeal

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

PTHORPE

Deputy Director, acting for the Comptroller