INTELLECTUAL PROPERTY OFFICE

BL O/033/09

06 February 2009

PATENTS ACT 1977

APPLICANT	Rajesh Kapur
ISSUE	Whether patent application numbers GB0515579.1, GB0516374.6, GB0516995.8, GB0516997.4, GB0518016.1, GB0519238.0, GB0519365.1 and GB0519463.4 comply with section 1
HEARING OFFICER	J Elbro

DECISION

Introduction

1 This decision concerns a number of related patent applications filed by Mr Rajesh Kapur, who is also the inventor, relating to Document Management Systems (DMS) and whether they relate to subject matter that is excluded by Section 1(2) of the Patents Act 1977.

2 As I set out in greater detail below, these cases have already been the subject of a decision refusing them by a different hearing officer acting for the Comptroller which Mr Kapur appealed to the Patents Court. The decision was partly overturned by Floyd J and the applications sent back to the Intellectual Property Office for further examination.

3 This further examination, conducted by a different examiner to the previous examination, resulted in an examination report indicating that as the main claims of the applications had not been amended, the applications as presently formulated were not allowable because Floyd J had upheld the hearing officer's finding that those claims were excluded as being to a computer program as such. Further correspondence and discussion between Mr Kapur and the examiner failed to resolve this issue and as a result the matter came before me at a hearing on 8 September 2008.

4 Mr Kapur represented himself at the hearing, accompanied by Dr Birbal Kapur as an observer. The examiner for the latter examination of the applications, Mr

Nigel Hanley, also attended.

The patent applications

5 The 8 applications can be broken down into three distinct groups:

A) The “Delete/Overwrite” applications which comprises those ending ‘365,’374,’995 and ‘238.

B) The Disaster Recovery applications and comprise those ending ‘016,’ 463 and ‘579.

C) The Testbed application ending in the number ‘997.

6 In each case the underlying concept is similar in that each application is invoked when a change is made to a primary database within a Document management system. Such a change may be that a document is deleted or overwritten by a user. In these applications the deleted or overwritten document is stored in another area of storage and a table is used to record the storage location. This table is accessible by the user or the system and allows a user to retrieve an earlier version of a document or recover a document that has been erroneously deleted or overwritten.

7 In the Disaster recovery applications, the same approach is used to propagate changes made to a primary system to a backup system. Using this approach the primary and backup databases are considered to be self synchronising.

8 The Testbed application uses a similar approach to that of the disaster recovery applications. When an action such as an insert/overwrite or delete occurs on the primary system it is propagated to the testbed system thus allowing the user to test applications on a fully synchronised replica system.

9 In all the applications it is worth noting that particular reference is made to the Documentum™ document management system. Reference is also made to the use of Oracle™ as the underlying relational database management system. On a reading of the specifications it is also clear that extensive use is made of Oracle™ Triggers. These are software components that are “triggered” when a specific type of command is issued against the database. It is these software components that move the documents to the other storage, backup or replica systems and insert the references in the table.

10 A selection of the independent claims from each application, along with proposed additional (dependent) claims for ‘365 that I refer to below, is included as an Annex to this decision.

The previous history of the applications

11 In the original examination of the applications, a combined search and examination report was issued on each in which the examiner reported that the applications did not meet the requirements of the Act for a number of reasons including lack of clarity and support for the claims and the presence of numerous

trade marks in the specifications. The examiner also warned of the potential for conflict between the claims of the various applications although he deferred raising a formal objection on that point pending resolution of the remaining issues. Most significantly, the examiner reported that each of the applications related to excluded subject matter. Given the fundamental nature of the excluded matter objection, further correspondence between Mr Kapur and the examiner focused on this issue.

12 Despite several rounds of correspondence, the examiner and Mr Kapur were not able to resolve this issue. The issue therefore came before a hearing officer, Mr A Bartlett, at a hearing on 4 April 2006.

13 In his subsequently issued decision[1], the hearing officer found that the claims of all the applications were excluded as being to computer programs as such. He also found that a manual implementation of the system disclosed – i.e. one not involving a computer – would be excluded as relating to a mental act as such.

14 Mr Kapur appealed, and judgment on the appeal was given by Floyd J[2] on 10 April 2008. In it, he upheld the hearing officer's decision regarding the claims being excluded as a computer program as such, noting (paragraph 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.

15 Further, he noted (paragraph 23) regarding the proposition that the claims were broad enough to encompass a manual implementation :

> Of course the mere fact, on this assumption, that the claim is wide enough to encompass a manual implementation as well as a computer implementation does not mean that the claimed invention is not a computer program as such. The subject matter of the invention may be capable of being implemented in two ways, but the computer program exclusion will still bite to the extent that excluded subject matter is claimed.

16 However, he overturned the hearing officer's decision regarding the mental act exclusion (paragraph 36-39):

> 36. Mr Bartlett then said:
>
> > "[31] Furthermore, I do not consider the mental act exclusion avoided merely because the invention results in what Mr Kapur saw as the practical, physical process of separation, storage and retrieval of documents. To explain why, I think it would be helpful to refer to a scenario discussed at the hearing in which a librarian decides that rather than file the books on the basis of the first letter of the author's surname, the last letter is used instead. To implement such a system, all the indexing records would need to be updated and all the books would need to be refiled. In my view the contribution made by such a system would be in the indexing scheme rather than in any new arrangement of the books and shelves. That in my view is a mental act and such a system would not be patentable. In my view the contribution made by the present invention similarly falls solely within

[1] BL O/246/07, issued 12 September 2007, available from http://www.ipo.gov.uk
[2] [2008] EWHC 649 (Pat), available from http://www.bailii.org/ew/cases/EWHC/Patents/2008/649.html

> excluded matter as a mental act insofar as it encompasses implementing the invention manually. That it might result in deleted and overwritten versions of documents being separated and stored in different places and enables their retrieval from those places does not make it patentable."
>
> 37. I think that here Mr Bartlett fell into error. Firstly, in excluding the physical aspects of the method claimed he gave the mental act exclusion too broad a scope: see the discussion of the law above. A book management system in a library which implemented Mr Kapur's invention would involve the creation of physical records, and the physical separation of documents. I cannot accept that this system is nothing more than a method of performing a mental act as such. Secondly, taking the library implementation, I am not convinced that the indexing scheme is a mental act at all. Certainly what underlies the scheme is a novel concept: but that is true of all inventions, and is another matter. The physical handling of documents is not a mental act.
>
> 38. I confess to a feeling of some unreality in dealing with this aspect of the exclusions however. I entertain considerable doubts as to whether Mr Kapur is really concerned to obtain protection for implementations of his inventions which do not use a computer. I suspect that the reason these arguments were raised at all was because Mr Kapur argued before the Office that, because the invention did not necessarily rely on a computer for its implementation, it could not be a "computer program as such": see [28] of Mr Bartlett's decision. Before me, Mr Kapur did not make any attempt to explain how his invention might apply outside the context of a computer. It seems unlikely, although the matter is not before me, that any claim which excluded computer implementation could be properly based on the application.
>
> 39. Nevertheless I would allow Mr Kapur's appeal insofar as it relates to the mental act exclusion and remit the case to the Office to consider whether, after the exclusion of the computer implementation, the application could survive further examination under the other provisions of the Act. That further examination should include consideration of the impact of the business method exclusion on any amended claim, a matter which Mr Bartlett rightly left to one side as unnecessary when dealing with the claims before him.

17 Neither the Office nor Mr Kapur appealed the judgment. The applications were thus sent back to the Office in line with paragraph 39 of the judgment quoted above.

18 In the subsequent examination process, Mr Kapur declined to amend the applications except to add some dependent claims (37-43) relating to what was referred to at the hearing as a “special disk” to ‘365.

19 The examiner considered that Floyd J’s decision settled the question of whether the present claims of the applications are excluded as relating to computer programs as such in the affirmative, and that Mr Kapur, as a party to the previous litigation, was estopped from arguing otherwise. Mr Kapur disagreed, and it is this issue which the hearing before me was based on.

The law

Excluded matter

20 Not all innovations are patentable. Section 1(2) of the Patents Act 1977 sets out certain types of subject matter for which patent protection is not available. 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.

21 How these provisions should be interpreted has been considered in a number of judgments of the UK courts in recent times, particularly by the Court of Appeal in *Aerotel*[3] and *Symbian*[4]. The latter judgment was issued subsequent to the hearing in the present case, and I consequently gave Mr Kapur an opportunity to make submissions on its relevance, which I have taken into account. I do not intend to summarise the case law in this area to any great extent, for reasons which will become apparent, but note that the examiner and Mr Kapur were agreed that for the purposes of this case, exclusion as a "computer program as such" could be considered equivalent to the concept of lacking a "further technical effect" beyond the usual interactions within a computer when a program is run.

Estoppel

22 Estoppel is a general principle of law which is intended to ensure that litigation is generally final and cannot be subsequently fought all over again. It has a number of versions; the important one for present purposes is "estoppel by record" which is explained in the Office Hearings Manual as follows:

1.96 **Estoppel by record** (doctrine of **"res judicata"**) applies where a relevant judgment (and that includes a decision of a tribunal such as the comptroller) has already been given. The judgement stands forever, as between the parties unless it is modified by the normal course of appeal (in which case the modified judgement stands in its place). For example, in an infringement action (*Poulton v Adjustable Cover & Boiler Block co (1908) 25 RPC 529* the plaintiff was awarded damages which were ordered to be assessed and paid by the defendant in due course. However, before the damages had been paid, the defendant caused the patent to be revoked on the basis of new evidence. Accordingly, he argued that he need no longer pay the original damages since the patent must, at the time of the first action, have been invalid. He was however held to the terms of the first decision. This judgment although old remains good law – see *Coflexip SA v Stolt Offshore MS Ltd (No 2) [2004] EWCA Civ 213, [2004] FSR 34*, discussed below with regard to abuse of legal process.

1.97 There are two **types** of estoppel by record. The first is **cause of action estoppel** where the same cause of action lies in a final judgment (cf the example given above). The second is **issue estoppel** which, per Lord Denning in *Fidelitas Shipping Co Ltd's v vlo Exportchleb [1966] 1 QB 630* at p640, applies where, within one cause of action, there are several issues raised which are necessary for the determination of the whole case - once an issue has been raised and distinctly determined (even if the question was in fact not the subject of any dispute or argument) then as a general rule neither party can

[3] *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7
[4] *Symbian Limited's Application* [2009] RPC 1

be allowed to fight that issue all over again. But not always - cf, for example, *Rose Bro's (Gainsborough) Ltds Appln [1960] RPC 247* and *Hodgkinson & Corby Ltd & anr v Wards Mobility Services Ltd [1997] FSR 178*…

The examiner's and applicant's arguments

23 The examiner's position, as set out in the correspondence, is simply put: estoppel by record prevents Mr Kapur from re-litigating the claims already held excluded by Floyd J. If Mr Kapur wishes to progress the applications, he needs to put forward amended claims which exclude implementation of the invention by computer. As long as the claims cover a computer implementation, Floyd J's judgment states that they are excluded.

24 I should also record that the examiner was unable to see any way in which the claims could be amended in a way that would both exclude a computer implementation and comply with other provisions of the Act, such as support, echoing Floyd J's comments in paragraph 38 of his judgment quoted above. In addition, he expressed doubts that any notional claims could avoid exclusion as a business method.

25 At Mr Kapur's request, at the hearing applications '374 and '238 were considered separately from the others. He accepted that for these two applications, following Floyd J's judgment, he could not suggest any "further technical effect" which would take the applications outside the computer program exclusion. He further indicated that he was not willing to amend the claims to exclude computer implementation.

26 For the other applications, Mr Kapur focused his arguments on the provision of a "special disk" which was claimed in the additional claims (37-43) added to '365.

27 Mr Kapur argued that this provided a "further technical effect" which would take the claims outside the computer program exclusion. He considered the disk provided a new arrangement of hardware which took the claims outside the computer program exclusion. From page 13 of the transcript:

MR RAJESH KAPUR: Yes, sure. Basically what I wanted to actually say was, because of this special disk, you see, this product recycle bin disk where you have your deleted and overwritten documents stored separately, and you had the inserts stored as well - because I did point out to [the examiner] that there were inserts, and that needed to be done for the technical effect. So you see, basically what I have done is, created a new electronics component that, when it is inserted or actually manufactured in the computer itself by the first process, allows shared modification of these files and gives a second technical effect. And you will see in claim 36 I claim a further method comprising for searching, viewing, and providing shared access to users of versions of inserted, deleted and overwritten documents.

THE HEARING OFFICER: So if I can be clear, what is the further - to use the old language - what is the further technical effect that you are contending?

MR RAJESH KAPUR: Well, basically it not only allows deleted and overwritten documents to make the system more accurate, i.e. in an archive way, but it also allows shared modification of the actual documents. So basically two people, for example yourself and [the examiner], can work on the same document at the same time.

28 The examiner disputed that this was a “further technical contribution”. He indicated (and Mr Kapur accepted) that so-called “hybrid disks”, with both a cache memory on a chip and a long-term storage medium were well-known in the art. He did not consider any improvement was being made to this disk – the disk was only a storage medium used in implementing the system of the other claims.

29 I further put to Mr Kapur at the hearing that these claims still related to a computer implementation, and he agreed.

30 Mr Kapur went on to construct an ingenious argument relating to the other five applications (016,’ 463 and ‘579, ‘995, and ‘997). Essentially, he argued that because the physical implementation (he argued) was not excluded, a program which operated this implementation (as he characterised the other applications) was not excluded. In this, he relied on the judgment in *Astron Clinica*[5], which held that a claim to a computer program was not excluded if the program, when run, gave rise to a non-excluded invention.

31 I should also mention that Mr Kapur sent a number of emails subsequent to the hearing, which did not impact on the substance of his position. One of them caused me to wonder if he was withdrawing his applications, but he subsequently clarified this was not the case.

Analysis

32 It appears to me that Mr Kapur has fundamentally misunderstood the effect of Floyd J’s judgment and the resulting estoppel it creates. His arguments at the hearing, in relation to those applications he wished to maintain, went directly to the question of whether the claims were excluded as computer programs as such, using different arguments to those he used in the previous litigation. It therefore appears that he considered Floyd J’s judgment only to be final regarding the arguments put forward at the time.

33 In my view, the estoppel is broader than this. Floyd J’s judgment determines the issue of whether the claims as presently consitituted are excluded as computer programs as such. He also found (paragraph 23) that although the claims might cover a manual implementation as well as a computer one this would not be by itself sufficient to overcome the computer program exclusion. (In the same way, if a claim covers both novel embodiments and non-novel embodiments, the claim is bad for lack of novelty).

34 Further, he found that hypothetical claims which excluded a computer implementation would not be so excluded, nor would they be excluded as a mental act. (He explicitly left open questions as to whether they would be excluded as business methods, or whether they would comply with other sections of the Act).

35 As it was not appealed, that judgment is final and binding on the parties. There appears to be no reason in this case for finding that estoppel by record does not operate to prevent Mr Kapur from re-arguing the issue of the claims being

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[5] *Astron Clinica and other's Applications* [2008] EWHC 85 (Pat)

excluded as computer programs using different arguments.

36 This clearly directly applies to the seven unamended applications (and was conceded by Mr Kapur for ‘328 and ‘374). ‘365 is different in that Mr Kapur has proposed amendments, in the form of the additional dependent claims 37-43.

37 It is possible in principle to conceive of a situation where dependent claims are not excluded, despite the exclusion of the claims they are dependent on. So I am faced with the question of whether these dependent claims, which were not proposed at the time of the previous litigation, are caught by the estoppel.

38 In my view, they are. Mr Bartlett found all the claims of the applications to be excluded and held this was also true of any conceivable amendments. His decision was only overturned by Floyd J insofar as it concerned potential claims which related purely to non-computer-implemented systems. The new claims, as Mr Kapur conceded, clearly cover computer implementation and so are not covered by the part of the decision that was overturned. Floyd J’s judgment therefore rules them excluded.

39 This view appears to me to be reinforced by the way Mr Kapur attempted to leverage the use of the special disk to argue that the claims of the other applications (already found excluded by Floyd J) were not excluded, via *Astron Clinica*. Although I have doubts that all the claims of all the applications are restricted to the exact same system as claimed in the amended claims, this argument can be run in reverse by considering the amended claims to be, in essence, directly simply to the use of a (admittedly sophisticated) conventional storage medium – a “hybrid disk” – to operate the program defined in the other claims of ‘365. As, following Floyd J’s judgment, the latter claims are excluded as computer programs as such, it follows from *Astron Clinica* that claims to operating the system on a storage medium are likewise excluded.

40 Finally, I respectfully agree with Floyd J’s scepticism in paragraph 38, quoted above, that any amendments could be made to any of the applications which excluded computer implementation. The whole point of the system is that it is a computer-based one – it is difficult to see how it would work in any meaningful sense in a manual implementation. From the descriptions in the applications, it seems to me unlikely that there was ever any intention of manual implementation. In any event, the point is somewhat academic as Mr Kapur has made clear that he is not willing to amend his applications to exclude computer implementations.

Conclusions

41 Mr Kapur is prevented by estoppel by record from asserting that the claims of his patent applications as they currently stand fall outside the exclusion from patentability of computer programs as such, this issue having already been decided by Floyd J. I therefore find that the current claims are excluded from patentability under Section 1(2) of the Act as computer programs as such.

42 Further, Mr Kapur has not proposed any amendments to the claims which would exclude computer implementation and thus avoid this exclusion. This is despite repeated invitation to do so. I myself can conceive of no such amendments

which would comply with other requirements of the Act.

43 I therefore refuse the patent applications under section 18(3) of the Act.

Appeal

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

J ELBRO
Deputy Director acting for the Comptroller

Annex

Claims of the applications as referred to in paragraph 10 of the decision, ordered as set out in paragraph 5.

Preserving access:-

0519365.1

1. A method for recycling intentionally, and or unintentionally deleted or overwritten deleted document data within a system, wherein copies or versions of said document data exist and wherein said document data is stored in a system filestore associated with a system database containing reference data pointing to the document data in the filestore, the method comprising the steps of:
(a) determining that a delete or overwrite command has been issued and recording the deleted or overwritten deleted reference data wherein the reference data comprises object, parent and version identification of the document data prior to and or after the deleting or updating of the reference document data; and
(b) inserting and physically separating the recorded, deleted reference data from the overwritten reference data into a set of access-preservation tables with a date timestamp; and
(c) inserting all other salient information connected with the before delete or overwritten delete reference data contained within system tables including parent and object reference data into a second set of access preservation tables; and
(d) providing a set of combination tables to combine data in the first and the second set of access preservation tables thereby pointing to the deleted/overwritten document data within the filestore before a clean task runs;
and
(e) identifying and storing the document data deleted and, or the document data overwritten deleted to a separate empty filestore the new location of the document data deleted and, or the document data overwritten deleted stored in the set of combination tables;
and
(f) automatically recycling the deleted document data required by the user back to the system database and filestore, and , or to a secondary archive system database and filestore as necessary depending on user requirements manipulating the data, to provide the document in the required way and version requested by the user;
(g) automatically recycling the overwritten deleted document data required by the user back to the system database and the filestore, and ,or to a secondary archive system database and archive filestore as necessary depending on said user requesting a copy of the overwritten document data as a new copy or as a replacement of the current version of the document data.

36. A document management system, the document management system containing a document recovery and archival system comprising a replica filestore and or storage media to store the deleted and or overwritten documents, the document recovery system also comprising at least one database table added to the system database to preserve, combine and , point to the filestore and reference metadata captured from the system tables upon a delete and or update command issued in response to a document deleted or overwritten, the document recovery system whereby in the event a user wishes to recover the document also comprises at least one procedure to reverse the delete and or overwrite command by manipulating and returning information as necessary depending on user requirement and the connected document concerned to both system database and filestore respectively.

37. A product recycle bin system as claimed in claim 33 and claim 32 further comprising a system for searching, retrieving, preserving access to and recycling inserted, deleted or overwritten documents associated with reference information from at least one system, the at least one system containing a system database associated with a system filestore comprising:

(a) a product recycle bin database for storing the reference data and supplementary document data information stored on at least one purpose

built disk;

(b) a means to determine that an insert, a delete or overwrite command has been stored, to physically separate and record the reference data due to deletion, update/overwrite and due to the insertion of the reference data together with a date-timestamp;
(c) at least one access preservation table but preferably a set of first access preservation tables within the product recycle bin database to store the recorded physically separated inserted, deleted, updated and overwritten reference data from the at least one system;
(d) at least one secondary access preservation table but preferably a set of secondary access preservation tables in the product recycle bin database for storing the supplementary document information associated with the reference information physically separated inserted, deleted and or updated, overwritten from the at least one system;
(e) the at least one product recycle bin system purpose built disk to store the inserted document data, all versions and copies of;
(f) the at least one product system recycle bin purpose built disk to store the deleted and or overwritten document data and archived inserted document data all versions and the copies of;
(g) a means to recycle the inserted, deleted and overwritten reference data from the product recycle bin back to the system database and the document data connected back from the product recycle bin consisting of the at least one purpose built disk back to the system filestore of the at least one system.

38. A product recycle bin system as claimed in claim 37 further comprising storage identification means for indicating position of storage of the inserted, deleted, overwritten documents, within the at least one purpose built disk.

39. A product recycle bin system as claimed in claim 37 and claim 38 further comprising at least one combination table but preferably a set of combination tables to store all transaction, timing, and positional information to be referenced in both the at least one system and the product system recycle bin.

40. A product recycle bin system as claimed in claim 38 and claim 39 further comprising at least one combination means in the product recycle bin database upon at least one purpose built disk that combines the reference information and supplementary document information in the at least one access preservation table and the at least one secondary access preservation table into the at least one combination table operable to point to the documents within the at least one purpose built disk and copy the inserted, deleted and or overwritten documents and recycle back to the at least one system.

41. A product recycle bin system as claimed in any one of the claims 38 to 40 wherein the at least one means to recycle is used to recycle said deleted documents back to the system database and system filestore based on the date timestamp and positional information from the at least one combination table manipulating and re-inserting the reference data information, the supplementary document information into the system database to copy the document back to the system filestore from the at least one product recycle bin purpose built disk as a replacement or required version as requested by a user.

42. A product recycle bin system as claimed in any one of the claims 38 to 40 wherein the at least one means to recycle said overwritten documents based on the date timestamp manipulating the document back to the filestore from the product recycle system purpose built disk based on the user requesting the overwritten document as a new copy of the document or requesting a replacement of a currently available version of a document.

43. A product recycle bin system as claimed in claim 37, wherein said data combination means comprises storing copies of the inserted reference data as new reference data of the same document name in the system database and storing a copy of the document data on the system filestore allowing the user to display all the copies, overwrites, overwritten copies and deletes on request within versions of the document data.

0516374.6

1. A method for preserving access to versions of deleted and or overwritten document data from a system, in order to allow the identification of delete command or an overwritten delete being issued, and the capture, of the document data based on document version and time. and date information allowing physical separation of the document data and retrieval of a document in case the document or the document data was deleted or overwritten in error wherein said document is stored in a system filestore associated with a system database or store that contains said document data which consists of reference data to point to documents within the system filestore, and supplementary data regarding the document the method comprising steps of :

a) determining that the delete or overwrite command has been issued;
b) recording the reference data with identification information after the command is issued but at the time and date prior to or after the deleting or updating of the reference data;
c) inserting the recorded reference data into newly added set of access preservation records or tables; and
d) combining and separating document data using the identification information including date and time information stored in the said reference data within the access preservation tables together with the supplementary data consisting of any remaining reference data and document data still residing within the system before it is cleaned from the system, using at least one procedure to do the combining and separating in regards to the deleted and or overwritten document; and
e) providing at least one but preferably two access preservation or combination tables or records , the first to point to the deleted documents, the second to point to the overwritten documents within the system filestore; and
f) retrieving the deleted and or overwritten document version or versions on user request by using time and date information from the combination tables.

7. A system for preserving access to versions of deleted or overwritten document information comprising:

a) a database for storing document information consisting of reference information to point to a document in a filestore and document information;

b) at least one trigger containing at least one procedure for catching and recording, identifying deleted and overwritten reference information from at least one system table containing reference information that has been deleted and/or updated from the database;

c) at least one access preservation table for storing the deleted and overwritten reference information, the access preservation data being operable to point to the data that has been deleted and/or updated; and

d) at least one database procedure to combine and separate reference information from the at least one access preservation table and supplementary document information comprising the reference and the document information still within the database before it is cleaned into the at least one access preservation or combination table.

0516995.8

1. A method for preserving access to deleted final documents within a system, to allow their identification, separation and manual migration to other document management systems or to conventional systems and or manual archival in case the document is deleted for said purpose , wherein said document is stored in a system filestore associated with a system database or

store that contains reference data to point to the document data within the system filestore, the method comprising the steps of:

determining that a delete command has been issued;
recording the reference data prior to or after the deleting or updating of the reference data;
inserting the recorded reference data into a newly added access preservation store or table; and
combining and separating final deleted documents from any overwritten documents by means of manual run procedure(s)
to combine all other salient reference data connected with the reference data before system reference and documents are cleaned ; and
providing at least one access preservation or combination table to hold the metadata pointing to the deleted documents awaiting storage or transfer.

0519238.0

1. A Method for preserving access to versions of deleted and or overwritten document data from a system, in order to allow the identification, of delete command or an overwritten delete being issued and the capture, of the document data based on document version and time and date information allowing physical separation of the document data in case the document data was deleted or overwritten in error or for the purpose of archiving or migration wherein said document is stored in a system filestore associated with a system database or store that contains said document data which consists of reference data to point to documents within the system filestore, and supplementary data regarding the document the method comprising steps of :

a. determining that a delete or overwrite command has been issued;

b. recording and the reference data with identification information after the command is issued and separating the reference data at the time just prior to or after the deleting or updating of the reference data;

c. inserting the recorded and separated data into a newly added set of access preservation records or tables or combination tables by means of procedures; and

d. providing at least one but preferably two access preservation or combination tables or records , the first to point to the deleted documents, the second to point to the overwritten documents within the system file store;

e. recovering the deleted and or overwritten document versions or version on user request by retrieving and using reference data including time and date information from the combination tables.

8. A system for preserving access to versions of deleted or overwritten document data comprising:

a) a database for storing document information consisting of reference information to point to a document in a filestore and document information;

b) at least one trigger for catching, identifying and recording and separating deleted and overwritten reference information from at least one system table containing reference information that has been deleted and/or updated from the database into at least one access preservation table or combination table for storing access preservation data, the access preservation data being operable to point to the data that has been deleted and/or updated.

Disaster recovery:-

0518016.1

1. A method for preserving access of a system in case of disaster having a primary filestore associated with a primary system database, the method comprising the steps of:

creating a replica system having a replica filestore and a replica system database;

periodically copying data from the primary filestore to the replica filestore;

in response to a change to the data in primary filestore copying the said data and continuously storing it to a second initially empty replica filestore.

in response to a change to the primary system database, continuously making a corresponding change to the replica system database based on the time of earliest recorded data; and

in the event of complete failure of the primary system, using the changes and transaction information stored to the replica system database and data stored in the second replica filestore to update the earlier copy of the replica filestore.

0519463.4

1. A method for preserving access to document data entered by the user community within a primary system located on a primary server to a separate location, wherein said document data is stored in a system filestore associated with a system database, the system database containing reference data to point to the document data within the system filestore, by use of a replicated server containing a secondary system as a disaster recovery system the method comprising steps of:

a) creating said replicated server containing the secondary system in which the reference data is configured to point to document data in a secondary system filestore the document data periodically being updated by copying data from the primary filestore and containing system database tables that mirror the primary system database tables save those tables containing reference data that uniquely identify the secondary sytem from the primary on a network;

b) determining that an insert, an update, or an delete command has been issued within the primary production system database upon its system tables excepting those containing reference information that uniquely identifies the primary system from the secondary system on the network fabric;

c) transferring and recording the said issued commands upon the primary system database tables to the database system tables of the secondary system based on time of earliest recorded data;

d) in the event of failure of the primary system or of the network between the primary and replica server, changing the secondary system's database and or the secondary filestore so that the secondary system database corresponds with either the secondary or primary filestore.

12. A document management recovery system, the document management recovery system comprising:
a replica system having a replica filestore and a replica system database for connection to a primary system having a primary filestore and a primary system database;
the system being arranged to periodically copy data from the primary filestore to the replica filestore and being arranged such that in response to a change to the primary system database, a corresponding change is made to the replica system database whereby in the event of failure of the primary system the system is controlled to change the replica system database to the replica filestore so that the replica system database corresponds with the replica filestore.

0515579.1

1. A method for preserving access to document data within a system in a separate location, wherein said document data is stored in a system filestore associated with a system database, the system database containing reference data to point to the document data within the system filestore, in case of disaster to the primary system such as, earthquake, the secondary system can be used, the method comprising steps of:

creating a replicated server containing the system database and filestore;

determining that a insert, update, delete command has been issued within the primary production system database upon its system tables excepting those containing reference information that uniquely identifies the production system database from its replica on the network fabric;

transferring and recording the commands above to the database system tables of the replica based on time of earliest recorded data;

transferring recorded document data to secondary filestore using incremental primary filestore backup restores; and

the Invention can be used as a "Standby" backup system and;

the Invention can be embodied in a multi-operating system embodiment; and

the invention can be embodied in a multi-document management system embodiment; and

the invention can be implemented in a multi-database embodiment.

Testbed:-

0516997.4

1. An apparatus for aiding real-time validation of system changes, comprising: a primary system based on a first server; and a secondary system based on a second server, wherein the primary and secondary system are operable to be connected to a network fabric and attached to each other; and

   wherein business information loaded onto the primary system initially is replicated onto the secondary system whilst the primary and secondary systems are unattached; and

   further business information entered, altered, deleted and overwritten by the user base at real-time is continuously transferred from the primary system to the attached secondary system such that the secondary system is operable to achieve continuous synchronization and at real-time replicate the primary system; and

   wherein the secondary system can be resynchronized to changes to business information upon the primary system after any breakage of the link for any reason using at least one transaction table and at least one database procedure once the secondary system is reattached such that the secondary system continues to be continuously synchronized; and

   wherein the secondary system on successful upgrade validation is re-

attached and interchanged to become the primary system.