

selection, because only those which are relevant are used at any time. In a network printing environment, this means less meta data is transmitted and so network traffic is reduced.

The Claims

- 5 The most recent set of claims was filed on 8 June 2012 and includes four independent claims: A print system (claims 1 and 18); a method of determining the parameters of a print job (claim 19); and a computer program product (claim 27).

Claims 1, 18, 19 and 27 read as follows:

1. A print system comprising:
 - a print job commanding device,
 - an interface in which a user selects an accounting tag,
 - an information store of possible accounting tags,
 - wherein the system further comprises:
 - an accounting tag querying device arranged to return to the interface, from the information store, a set of accounting tags for each of a plurality of ordered levels and the information store is arranged to store each accounting tag on a particular one of said levels, the interface being arranged to allow the user an opportunity to choose an accounting tag from each of at least a plurality of those levels, the system being arranged to associate with a print job commanded by the print job commanding device the chosen accounting tag or tags chosen for it using said interface.
18. A print system comprising:
 - a print job commanding device,
 - an interface in which a user selects a cost centre,
 - a database of possible cost centres arranged to store each cost centre on a particular one of a set of ordered levels, the database comprising both cost centres linked to each other in a tree, the child or children nodes of each node of the tree having that or those being in the next level to the level of that node, and at least one cost centre that is not linked to another,
 - wherein the system further comprises:
 - a cost centre querying device arranged to return to the interface, from the database, a set of cost centres for each of said levels, the interface being arranged to allow the user an opportunity to choose a cost centre from each of at least a plurality of those levels, and a print log in which details of jobs printed are stored and wherein the system is arranged to store in the print log the said chosen cost centre or centres for a print job in association with details of that print job.
19. A method of determining the parameters of a print job to be printed by a print system comprising:
 - providing a information store of accounting tags and the information store is arranged to store each accounting tag on a particular one of said levels,
 - querying the information store of accounting tags for a set of accounting tags for each of a plurality of ordered levels,
 - displaying each said set to a user,

inputting the user's choice from each set for at least a plurality of those sets,
associating with the print job the accounting tag or tags chosen for it by the user.

27. A computer program product that when executed on one or more computers performs the steps of:
providing an information store of accounting tags and the information store is arranged to store each accounting tag on a particular one of said levels,
querying an information store of accounting tags for a set of accounting tags for each of a plurality of ordered levels,
displaying each said set to a user,
inputting the user's choice from each set for at least a plurality of those sets,
associating with a print job the chosen accounting tag or tags so chosen for it by the user.

The Law

6 The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates to a program for a computer as such. The provisions of this section of the Act are shown below:

Section 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) a discovery, scientific theory or mathematical method;*
- (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;*
- (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 provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.

7 As explained in the notice published by the UK Intellectual Property Office on 8 December 2008¹, 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] RPC 7

- 8 The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian*³. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel/Macrossan*, 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/Macrossan* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel/Macrossan* 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. But the *Symbian* judgment does make it clear, that in deciding whether an invention is excluded, one must ask does it make a technical contribution? If it does then it is not excluded.
- 9 Subject to the clarification provided by *Symbian*, it is therefore appropriate to proceed on the basis of the four-step approach explained at paragraphs 40-48 of *Aerotel/Macrossan* namely:
- 1) Properly construe the claim.
 - 2) Identify the actual contribution (although at the application stage this might have to be the alleged contribution).
 - 3) Ask whether it falls solely within the excluded matter.
 - 4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.
- 10 The operation of this test is explained at paragraphs 40-48 of the decision. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 46 explains that the fourth step of checking whether the contribution is technical may not be necessary because the third step should have covered the point.
- 11 Dr. Reinders acknowledged that the Examiner was correct in following this approach and he applied it in response and at the hearing.

Construing the claims

- 12 The first task is to construe the claims. Mr. Richardson and Dr. Reinders agreed that they may be readily construed in their current form. I concur in respect of claims 1 and 18. However, in claims 19 and 27 the step of “providing a information store of accounting tags and the information store is arranged to store each accounting tag on a particular one of said levels” does not read clearly. It is not immediately apparent to which levels “said levels” are referring.

³ *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1

⁴ *Merrill Lynch's Application* [1989] RPC 561

- 13 The current authority on claim construction is found in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9⁵, where Lord Hoffman held that “When applying a ‘purposive construction’, the question is always what the person skilled in the art would have understood the patentee to be using the language of the claim to mean”.
- 14 This is helpful in respect of claims 19 and 27. With recourse to the description and the original claims, it is clear that the “said levels” are the “plurality of ordered levels” subsequently referred to. Consequently I construe the step of providing the information store to mean:

providing an information store of accounting tags, the information store being arranged to store each accounting tag on a particular one of a plurality of ordered levels

This is consistent with the other claims, and also with the inventive concept discussed at the hearing.

- 15 There is a question over what type of parameters are determined by the method defined in claim 19. The only parameters disclosed are the accounting tags (which may represent cost centres), so I construe the claim accordingly.
- 16 Again this is consistent with the inventive concept, which Dr. Reinders described as communicating meta data (in this case accounting tags) more efficiently within a finite bandwidth network, which enables more print data to be communicated at the same time; and enabling a user to select accounting tags (or cost centres) and associating the selected accounting tags with a print job.

Identify the actual contribution

- 17 For the second step of *Aerotel/Macrossan*, it is necessary to identify the contribution made by the invention. At this stage, the actual contribution is that alleged by the applicant. At the hearing Mr. Hitching defined the contribution as follows:

Storing meta data (in this case accounting tags) on a plurality of ordered levels, to enable their selection by a user and association with a print job, within a networked print system, such that only relevant accounting tags are communicated across the network which means that communication of the meta data uses less network bandwidth and improves the speed and reliability of the print system.

- 18 Mr. Richardson acknowledged this was fair. He did note that within the scope of the claims existed an embodiment with only two ordered levels, having only one tag on each level. This, he observed, would not seem to result in the actual contribution, because two tags would be selected and communicated in accordance with the claimed invention, as they would if they were both selected from a conventional unordered simple list of two. Whilst I accept this scenario, Mr. Hitching pointed out that the application had not been searched, and the

⁵ *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9

scope of the claims was thus open to amendment. He argued that if the actual contribution should be found to render the invention non-excluded, a patentable claim would be necessarily limited to define it.

- 19 On this basis I am content to consider the actual contribution set out above, which both Mr. Richardson, and Dr. Reinders and Mr. Hitching agree on, with the proviso that if it is found to be a technical contribution, a patentable claim would need to essentially define the invention which provides that technical contribution.
- 20 At this point I should also point out that claim 18 defines, in addition to linked cost centres within a plurality of levels, at least one cost centre that is not linked to another. Because, as the description confirms, an unlinked cost centre will be stored at some level, this is consistent with the actual contribution identified.

Does the contribution fall solely within excluded subject matter? Is the contribution technical in nature?

- 21 In his Examination Opinion of 4 January 2011, the Examiner argued that the contribution was not technical, and relates solely to a method of doing business, the presentation of information and a computer program.
- 22 At the hearing, discussion focused on the latter of these categories. Dr. Reinders and Mr. Hitching argued that the invention provides a contribution which, in reducing network traffic, is technical. For completeness, I shall briefly discuss the first two categories under which the Examiner considers the claimed invention to fall before concentrating on the arguments put before me.

Method of doing business

- 23 Analysis, logging and accounting, or budgeting, of print jobs is the stated purpose behind assigning accounting tags to print jobs. The application, at lines 13-30 of the description explains how the present invention provides for analysis of these data at each of the ordered levels of accounting tags. The system therefore enables better analysis by virtue of the arrangement of accounting tags on different levels. I consider the better analysis of print costs and consumption to fall squarely within the business method exclusion.

Presentation of information

- 24 By storing accounting tags on ordered levels, the print system is able to present accounting tags in a way which is advantageous to the user. A user may be forced to choose accounting tags on certain levels to comply with mandatory selection requirements and may be presented with a more compact representation of accounting tags (e.g. a level at a time, rather than a full list). The application also outlines advantages in terms of the flexibility of accounting tag organisations, for example comprising both linked and unlinked accounting tags, in order to simplify the presentation of options available to a user and permit appropriate selection. I consider all of these facets to fall within the scope of the presentation of information.

Program for a computer

- 25 There is no doubt in my mind that the contribution requires a computer program for its implementation. As well as permitting interaction with a user on a graphical user interface (GUI), the program-implemented storage of accounting tags on ordered levels facilitates the centralised maintenance and administration of accounting tags which may be used by different devices in a network. Updating of the accounting tags on ordered levels can be done centrally so that all devices on the network access up to date information. This would also be true for a conventional simple list of accounting tags, and so I do not think it is an advantage of the invention per se. Indeed it is not emphasised in the actual contribution put forward by the applicant. Rather, the actual contribution enables this centralised storage and communication to network devices while reducing the burden of network traffic.
- 26 During the hearing, Dr. Reinders set out the argument, as he had in correspondence, that the storage of accounting tags on ordered levels reduces network traffic and increases the speed and reliability of the print system. I asked whether, although the size of each message would decrease (as only a subset of accounting tags are communicated at a time) the number of messages transmitted across the network would in fact increase as the user repeatedly makes their selection and is then presented with the next ordered level of accounting tags to be selected. Dr. Reinders acknowledged this was the case, but stated that the amount of meta data communicated within the network was still reduced at any time and that it is easier to recover from a communications failure if the message size is small, as the system is less likely to fail “halfway through” the actual transmission of a message. I take this argument at face value (as I have no way of testing it), and agree that it points towards increased resilience of the system.
- 27 At this point, Dr. Reinders offered some statistics, previously set out in his letters of 8 June 2012 and 20 August 2012, which use examples from the application to prove that the print system can reduce network traffic by up to 78%, by virtue of reducing the number of items sent by that amount. Dr. Reinders argued that by freeing up bandwidth from meta data, print data can be communicated more quickly. These are impressive savings, but it should be noted that they are entirely dependent upon the structure of the accounting tags on ordered levels, and the particular user selection. They are not representative of a general increase in the bandwidth of the network itself.
- 28 The question to be answered then, is whether a print system which comprises accounting tags on ordered levels, and therefore enables less meta data to be transmitted across a network, provides a contribution beyond a program for a computer. In other words, is reducing network traffic in this way a technical contribution?
- 29 In support of their argument that the contribution is technical, Dr. Reinders and Mr. Hitching turned to the *five signposts* which Lewison J set out in *AT&T*⁶.

⁶ *AT&T Knowledge Ventures' Application and CVON Innovations Ltd's Application* [2009] FSR 19 para. 40

Following *AT&T*, in *Really Virtual*⁷, John Baldwin QC (sitting as a Deputy Judge) noted that the *AT&T signposts*, although useful, are no more than signposts. With this mind, their argument focused on the first signpost, which I shall consider initially:

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

- 30 Mr. Hitching referred to *AT&T* at paragraph 18 and stated that in his opinion, consistent with Lewison J's view of the Board in *Vicom*⁸, the relevant point was not that the process was carried out by a computer program, but that the process was a technical process. He repeated that where print data and meta data are competing for finite bandwidth, reducing meta data would enable an increase in print data. Mr. Hitching argued that this is a technical effect. It means that print jobs are downloaded to network devices and are available more quickly. The print system and the network communications process are improved.
- 31 I don't doubt that the actual contribution gives rise to these advantages, which are apparent to a user of the print system. However the signpost asks whether the effect is *technical*, and I am not sure that is the same thing. The characteristics of the network itself are unchanged. The effect arises through the structure of the stored accounting tag data, the amount of data therefore communicated and its programmatic implementation. Mr. Hitching argued that storing and transmitting data is part of "managing" the communication process in a network. To qualify that statement, the invention does not change the transmission process itself, but changes the way data is selected for transmission. It strikes me that this part of "managing" the communication process is the part which takes effect inside the computer.
- 32 Mr. Hitching pointed out that he was uncomfortable with the phrase "outside the computer"; in a program-implemented embodiment, processing will be effected *inside* a computer. I think this is at the heart of the issue. Can a programmatic change have a technical effect on a process outside the computer? In the present application, does the claimed way of storing and selecting accounting tag data for communication provide anything more than a better computer program as such? A user may perceive better performance, but I am not persuaded this is due to an effect outside the computer, which for example improves the technical characteristics of the network itself. Therefore on balance I do not regard the effect arising by virtue of the data stored, and selected for communication, as a technical effect.
- 33 Signpost (ii) was not discussed extensively at the hearing, but is helpful in assessing the relevance of the advantages the applicant claims the print system provides:

⁷ *Really Virtual Co Ltd v UK Intellectual Property Office* [2012] EWHC 1086 (Ch).

⁸ *Vicom/Computer-related invention* [1987] 1 OJEP 14 (T208/84)

(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;*

34 Mr. Hitching and Dr. Reinders, quite correctly in my view, did not try to argue that the actual contribution operated at an architectural level. On the contrary, they openly acknowledged that the hardware in the system is standard. As I have noted above, and in fact as Dr. Reinders' statistics evidencing the possible bandwidth savings (up to 78%) testify, the bandwidth savings – the effect produced – is entirely dependent on the data being processed. Its being structured on ordered levels contributes to this, but the savings vary dependent upon the particular structure (e.g. the number of accounting tags on each level; the number of levels; any hierarchical relationship) and the user's selection. This points away from the effect being produced irrespective of the data being processed, and does not signify a technical effect at an architectural level.

35 Signpost (iv) was discussed, Dr. Reinders and Mr. Hitching querying what was meant by *computer*.

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

36 They acknowledged that the increase in speed and reliability discussed above, has effect in the networked print system rather than any single computer per se. If the "computer" is taken to be the networked system, then, they argued, this signpost is satisfied. As discussed in paragraph 26, the system itself may more easily recover from a communications failure due to shorter messages being less likely to be interrupted halfway through, but that seems to me to be no different to being less likely to be cut off during a short telephone call. Whilst I accept at face value the argument that shorter messages are more resilient in the event of a communications failure, this is not the same thing as a more reliable network per se. I do not regard it as indicative of an increase in the reliability of "the computer".

37 Dr. Reinders gave the example of a print system comprising fifteen accounting tags, but where the present invention would enable only five or ten of those to be transmitted, thus the speed of print data transmission was increased because more bandwidth is available. Again, this is a result of the data structure and is not representative of an increase in the speed or reliability of the system per se; it is merely a consequence of communicating less meta data enabling more print data, within a finite capacity overall. The technical characteristic of the network is unchanged and there is no technical effect.

38 Finally, I turn to signpost (v):

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

39 This signpost was touched on because discussion had taken place throughout the hearing in respect of the problem to be solved, and whether the solution was in fact circumvention.

- 40 During the hearing, Mr. Hitching stated that whether you circumvent or solve a problem depends on what the problem is. He argued that if the problem is enabling a user to select the right accounting tags, the problem has been “tackled head-on”. The benefit of reduced network traffic is a technical side-effect.
- 41 To my mind, the identification of reduced network traffic as a benefit, and its specification in the actual contribution, implies that a related problem is perceived and addressed, and hence an advantage gained. At paragraph 43 of *Aerotel/Macrossan*, the Court seeks to assist the identification of the contribution by considering the problem to be solved, as well as how the invention works and its advantages. These considerations collectively help to identify the contribution. Just as the contribution may be multi-faceted, so may the problem. I think it is fair, therefore, in considering signpost (v), to regard finite bandwidth as a component of the perceived problem.
- 42 The question is whether the perceived problem which the contribution addresses is circumvented or solved. Structuring accounting tag data on ordered levels, so that less data may be sent, avoids the problem of finite bandwidth, rather than solving it, for example by improving the technical constraint. I regard this as circumvention. Furthermore, the extent to which the problem is avoided is dependent upon the data structure and the user selection of accounting tags. These both affect the data which is stored, selected and transmitted, but not the operation of the network itself. If the network, and its technical characteristics impose the constraint addressed (the “problem”) I do not see how leaving these characteristics unchanged can be said to overcome the problem and provide a technical effect.

Technical contribution

- 43 I have found that the actual contribution falls solely within excluded subject matter, and does not provide a relevant technical effect. The contribution is not technical in nature because it does not provide a contribution in a non-excluded field, or overcome a technical problem. I have found that the invention does not provide the required technical contribution to satisfy section 1(2).

Previous Office decisions

- 44 In the course of correspondence between the Examiner and the applicant, and briefly at the hearing, a number of previous Office decisions on the issue of addressing network constraints were considered. I am not bound by these, but I have taken account of them, and I consider my finding to be consistent with them. In concluding that the step of structuring meta data so that less data is sent across the network does not provide a relevant technical effect, my reasoning is consistent with that of the previous Office decisions referred to. It is worth specifically mentioning *NTT*⁹ briefly because a number of the other decisions refer to it, and Mr. Hitching mentioned it at the hearing. In *NTT* the hearing officer concluded that not transmitting non-musical data to a computer

⁹ NTT Communications Corporation BL O/195/05

which is to generate a playlist does not amount to a technical contribution. In other words, not transmitting irrelevant data is not technical.

- 45 Mr Hitching argued that the present invention differs because all accounting tags remain available. That is true in that they are available in the system, but they are not all available at each level, or to the user at a time. In *NTT* the hearing officer considered the non-transmission of data to avoid rather than solve the problem of limited bandwidth, which is consistent with my finding above.

Conclusion

- 46 In the light of my findings above, I conclude that the invention as claimed is excluded under section 1(2) because it relates solely to excluded matter; namely a method for doing business, the presentation of information and a program for a computer as such.
- 47 Having read the application I do not think that any saving amendment is possible. I therefore refuse the application under section 18(3).

Appeal

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

Ben Buchanan

Deputy Director, acting for the Comptroller