Intellectual Property Office

BL O/0993/23

24 October 2023

PATENTS ACT 1977

APPLICANT	Fujifilm Medical Systems Inc.
ISSUE	Whether application GB2114835.8 complies with Section 1(2) of the Patents Act 1977
HEARING OFFICER	Dr Stephen Brown

DECISION

Background

1 The application was filed on 28 February 2020 as part of the national phase filings of PCT Application PCT/US2020/020522. It was republished by the UK Office on 5 January 2022 as GB2596760 A. The unextended compliance period ended on 29 September 2023.

2 In his first examination report of 9 September 2022, the examiner objected to the application on the basis of Excluded Matter under Section 1(2)(c) and he noted at that time that the top-up search had been deferred.

3 The applicants filed amendments with their agent's letter dated 9 January 2023 and in his examination report of 9 March 2023, the examiner continued to object to the amended claims, finding the amendments and arguments unconvincing. The applicants filed further amendments with their agent's letter dated 9 May 2023 but again, the examiner found these amendments and arguments unconvincing in addressing the excluded matter point and issued his final examination report on 30 May 2023. This examination report was accompanied by an offer of a hearing, which the applicants accepted in their letter of 1 August 2023, where a decision on the papers was requested.

4 There is no formal pre-hearing report on the dossier, however I will consider the sum of the arguments from the three substantive examination reports. I also note that the search has still not been brought up to date at this time. Similarly, there were no skeleton arguments or further points made on behalf of the applicants, so I will consider the arguments set out in all their agents' letters.

5 The matter before me is whether the invention, as set out in the claims filed on 9 May 2023, is excluded under section 1(2) of the Act or not.

The Application

6 The claimed invention relates to a universal web service for accessing Digital Imaging and Communications in Medicine (DICOM) objects. The National Electrical Manufacturers Association (NEMA) has set out web standards for formatting and accessing DICOM objects (including various HTTP/HTTPS protocol requests). Vendors were expected to implement the standard on their respective Picture Archiving and Communications System (PACS). While this has occurred, some vendors only support DICOM protocols in their proprietary formats, as such, a particular format of download request is required to access a particular vendor's PACS, this is set out in paragraphs [0005] & [0006] of the description of the present application as follows:

> *"When NEMA published the standard for Web Services for DICOM, the expectation was for each PACS vendor to build their own implementation of the standard specified web services to provide Internet access to their PACS. The standard has been very successful, but for a DICOM client (Service Class User or SCU) that wants to use WADO-RS/QIDO-RS as its sole communication interface, there will be some PACS that cannot be accessed due to lack of vendor support, or non-standard WADO-RS/QIDO-RS implementation, or custom web authentication requirements.*
>
> *Vendors that support these web services provide access only their own vendor specific PACS. For example, the AGFA® WADO-RS must be used to download from an AGFA® PACS and the FUJIFILM WADO-RS must be used to download from the Synapse® PACS. There are no vendors with a WADO-RS/QIDO-RS that can access any DICOM PACS."*

7 The claimed invention thus provides a universal web service which intercepts a request for a DICOM object from a first communications interface (first vendor client) going to a DICOM server which does not have the first communications interface (second vendor PACS) and based on the request format creating a DICOM client within the web service to generate a DICOM Message Service Element (DIMSE) which is universally compliant so will be accepted at the server (second vendor PACS). The response to the DIMSE from the server is then also run through the web service to reformat it to be compliant with the first vendor client's first communications interface.

8 The advantage of the claimed invention is that it allows retrieval of DICOM objects regardless of which vendor client is used and which vendor PACS the objects are stored on.

The Claims

9 There are four independent claims. They read as follows:

Claim 1:

A method comprising:

intercepting, at a web service engine, by one or more processors, a web services request from a remote web client for one or more Digital Imaging and Communications in Medicine (DICOM) objects to a server, wherein the web services request comprises a modified base URL;

determining, by the one or more processors, based on parsing the web services request, a type of the request, wherein the type of request includes the communication interface targeted by the web service request, wherein the server does not comprise the communication interface, wherein the communication interface targeted by the web service request is proprietary and the web services request is compliant with the communication interface, and wherein the communication interface comprises a web-based service for accessing and presenting DICOM objects;

based on the determining, generating, by the one or more processors, a DICOM client internal to the web services engine, wherein the generating comprises:

based on the type of request, identifying one or more libraries comprising software to utilize to build the DICOM client; and automatically accessing the identified one or more libraries and utilizing the software to build the DICOM client;

controlling, by the one or more processors, the DICOM client, to generate, from the web services request, a DICOM Message Service Element (DIMSE) service request, wherein the DIMSE request is universally compliant, wherein generating the DIMSE service request includes parsing the modified base URL to extract information for the DIMSE service request;

sending the DIMSE service request to the server;

receiving a response to the DIMSE service request from the server;

reformatting the response to be compliant with the communication interface; and

returning the reformatted response to the remote web client, wherein the response comprises the one or more DICOM objects.

Claim 7:

A medical image management system comprising:

a network communication interface to intercept a web services request from a remote web client to a server for one or more DICOM objects;

a memory coupled to the network communication interface to store received healthcare studies;

a display screen coupled to the memory to display the received healthcare studies; and

one or more processors coupled to the network connection interface, the memory and the display screen and configured to:

determine, based on parsing the web services request, a type of the request, wherein the type of request includes the communication interface targeted by the web service request,

wherein the server does not comprise the communication interface, wherein the communication interface targeted by the web service request is proprietary and the web services request is compliant with the communication interface, and wherein the communication interface comprises a web-based service for accessing and presenting DICOM objects;

generate a DICOM client internal to the web services engine, comprising:

based on the type of request, identify one or more libraries comprising software to utilize to build the DICOM client; and

automatically access the identified one or more libraries and utilize the software to build the DICOM client;

utilize the DICOM client, to generate, from the web services request a DICOM Message Service Element (DIMSE) service request, wherein the DIMSE request is universally compliant, wherein generating the DIMSE service request includes parsing the modified base URL to extract information for the DIMSE service request;

send the DIMSE service request to the server;

receive a response to the DIMSE service request from the server via the network communication interface;

reformat the response to the DIMSE service request received from the server; and

return the reformatted response to the remote web client via the network communication interface, the response being compliant with the standard that specifies the web-based service for accessing and presenting DICOM objects, wherein the response comprises the one or more DICOM objects.

Claim 13:

A non-transitory computer readable storage media having instructions stored thereupon which, when executed by a system having one or more processors, a memory and a display screen therein, cause the system to perform a method comprising:

intercepting, at a web service engine, by one or more processors, a web services request from a remote web client for one or more Digital Imaging and

Communications in Medicine (DICOM) objects to a server, wherein the web services request comprises a modified base URL;

determining, by the one or more processors, based on parsing the web services request, a type of the request, wherein the type of request includes the communication interface targeted by the web service request, wherein the server does not comprise the communication interface, wherein the communication interface targeted by the web service request is proprietary and the web services request is compliant with the communication interface, and wherein the communication interface comprises a web-based service for accessing and presenting DICOM objects;

based on the determining, generating, by the one or more processors, a DICOM client internal to the web services engine, wherein the generating comprises:

based on the type of request, identifying one or more libraries comprising software to utilize to build the DICOM client; and

automatically accessing the identified one or more libraries and utilizing the software to build the DICOM client;

utilizing, by the one or more processors, the DICOM client, to generate, from the web services request, a DICOM Message Service Element (DIMSE) service request, wherein the DIMSE request is universally compliant, wherein generating the DIMSE service request includes parsing the modified base URL to extract information for the DIMSE service request;

sending the DIMSE service request to the server;

receiving a response to the DIMSE service request from the server;

reformatting the response to be compliant with the communication interface; and

returning the reformatted response to the remote web client, wherein the response comprises the one or more DICOM objects.

Claim 18:

A medical image management system comprising:

a network interface to communicate with one or more clients and one or more remote servers; and

an access engine, having circuitry comprising one or more processors, to receive a first set of requests from the one or more clients that are directed to the one or more remote servers, to issue a second set of requests to the remote servers in response to the first set of requests, the second set of requests being either a DICOM web service request or a DICOM Message Service Element (DIMSE) request, to obtain responses from the second set of requests, to convert the responses to a format

compliant with the first set of requests, and to transmit the converted response to the one or more clients, wherein issuing the second set of requests comprises:

intercepting, at the access engine service, by the one or more processors, a web services request from a remote web client for one or more Digital Imaging and Communications in Medicine (DICOM) objects to a server, wherein the web services request comprises a modified base URL;

determining, by the one or more processors, based on parsing the web services request, a type of the request, wherein the type of request includes the communication interface targeted by the web service request, wherein the server does not comprise the communication interface, wherein the communication interface targeted by the web service request is proprietary and the web services request is compliant with the communication interface, and wherein the communication interface comprises a web-based service for accessing and presenting DICOM objects;

based on the determining, generating, by the one or more processors, a DICOM client internal to the web services engine, wherein the generating comprises:

based on the type of request, identifying one or more libraries comprising software to utilize to build the DICOM client; and

automatically accessing the identified one or more libraries and utilizing the software to build the DICOM client;

utilizing, by the one or more processors, the DICOM client, to generate, from the web services request, a DIMSE service request, wherein the DIMSE request is universally compliant, wherein generating the DIMSE service request includes parsing the modified base URL to extract information for the DIMSE service request;

sending the DIMSE service request to the server;

receiving a response to the DIMSE service request from the server;

reformatting the response to be compliant with the communication interface; and

returning the reformatted response to the remote web client, wherein the response comprises the one or more DICOM objects.

10 In summary, claims 7 & 18 define systems which appear to contain otherwise standard equipment configured to perform the method set out in claim 1. Claim 13 merely defines data storage media containing instructions for a system to perform the method of claim 1. As such, the key features to consider are those contained within any one of the independent claims. Given this, I believe that all four claims will stand or fall on the same reasoning. For conciseness, I will therefore primarily discuss claim 1 in this decision.

The law

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

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

12 The assessment of patentability under section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel*[1], as further interpreted by the Court of Appeal in *Symbian*[2]. In *Aerotel* the court reviewed the case law on the interpretation of section 1(2) and set out a four-step test to decide whether a claimed invention is patentable:

> *(1) Properly construe the claim;*
>
> *(2) identify the actual contribution;*
>
> *(3) ask whether it falls solely within the excluded subject matter;*
>
> *(4) check whether the actual or alleged contribution is actually technical in nature.*

13 The Court of Appeal in *Symbian* made it clear that the four-step test in *Aerotel* was not intended to be a new departure in domestic law; it was confirmed that the test is consistent with the previous requirement set out in case law that the invention must provide a "technical contribution". Paragraph 46 of *Aerotel* states that applying the fourth step of the test may not be necessary because the third step should have covered the question of whether the contribution is technical in nature. It was further confirmed in *Symbian* that the question of whether the invention makes a technical contribution can take place at step 3 or 4.

14 Lewison J (as he then was) in *AT&T/CVON*[3] set out five signposts that he considered to be helpful when considering whether a computer program makes a

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[1] *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7
[2] *Symbian Ltd v Comptroller General of Patents* [2009] RPC 1
[3] *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

technical contribution. In *HTC/Apple*[4] the signposts were reformulated slightly in light of the decision in *Gemstar*[5]. 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 the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer*
>
> *v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*

15 In their letter of 9 May 2023, the attorneys agreed that both the *Aerotel* assessment and the use of the AT&T signposts were the correct approach for determining patentability.

16 Both the examiner in their examination reports and the agent in their letters, also relied on further case law while making their respective arguments. I will discuss these as they become relevant below.

Application of the *Aerotel* approach

Step (1): Properly construe the claim

17 The claims being considered here are those filed on 9 May 2023 as set out above. I don't believe there to be any particular difficulty in construing the claim. Taking into account the above meanings as considered in light of the description, the claims may simply be construed as read.

Step (2): Identify the actual or alleged contribution

18 Both the examiner and the agent are agreed that the approach to how the contribution is identified is set out in paragraph 43 of *Aerotel*:

> *"it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form – which is surely what the legislator intended".*

[4] *HTC v Apple* [2013] EWCA Civ 451
[5] *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

19 There has been some disagreement over the examiner's identified contribution in the correspondence. The examiner began with a relatively short contribution based on the claims as filed, which took into account US 2019/0065763 A1 as an example of existing hardware in this field and thus, that the hardware itself was not part of the contribution. The examiner identified the contribution as:

> *A method of automatically reformatting messages when necessary. This ensure that requests can be processed effectively and the right information provided.*

20 The agent provided amendments to the claims in the letter of 9 January 2023 but did not comment directly on the contribution or suggest an alternative. The examiner in turn did not update his contribution in response to this. In their letter of 9 May 2023, the agent provided yet more amendments and a full discussion of the *Aerotel* test. The agent did not actually provide a formalised contribution at this time but referred to the contribution throughout the submission. The agent set out the entirety of claim 1 in the letter and followed it with a statement that the actual contribution "includes this universal system" so I can only assume that the agent intended the contribution to be the subject matter of claim 1 in its entirety.

21 While I agree with the examiner that the hardware is standard, and therefore, not part of the contribution, I find that his identified contribution is maybe a little too broad. Additionally, lacking an explicit statement of the alleged contribution from the agent, simply relying on claim 1 lacks necessary aspects of what Birss LJ set out in *Aerotel* with regards to identifying the contribution. In paragraph 43 of *Aerotel*, Birss LJ discusses three questions which, when answered, should help in the formulation of the actual contribution. I will avail myself of the assistance provided by Birss LJ in considering the contribution for myself:

i) Problem(s) to be solved: the accessing of DICOM objects stored on any PACS server by a web client, regardless of whether the server and client are compatible.

ii) How the invention works: using a web service engine to intercept a DICOM request from a web client using a first communication interface to a PACS server using a second communication interface, determining that the first and second communication interfaces are incompatible, building a DICOM client which turns the DICOM request into a universally compliant DIMSE request and sending that to the PACS server, receiving the response from the PACS server, reformatting the response to be compliant with the first communication interface and sending the reformatted response to the web client.

iii) What the advantages are: allowing any web client to access any PACS server.

22 In light of this, I find that the actual contribution of the invention is:

> *A method of accessing DICOM objects stored on any PACS server by a web client, regardless of whether the server and client are compatible, by using a web service engine to intercept a DICOM request from a web client using a*

first communication interface to a PACS server using a second communication interface, determining that the first and second communication interfaces are incompatible, building a DICOM client which turns the DICOM request into a universally compliant DIMSE request and sending that to the PACS server, receiving the response from the PACS server, reformatting the response to be compliant with the first communication interface and sending the reformatted response to the web client.

Step (3): Does the actual contribution fall solely within the excluded subject matter?

23 I note that in his examination report of 9 March 2023, the examiner referred to a number of previous IPO hearing decisions. The agent discussed each of these in turn in their letter of 9 May 2023. As such decisions are not binding on me I will, for the sake of brevity, not consider them before coming to my own conclusion.

24 As the claimed invention is clearly enacted as a computer program running on known hardware, I will begin with the AT&T signposts:

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

25 The agent argued that the contribution satisfies the first signpost in that medical professionals are able to obtain images. However, it is not clear what technical process they are relying on in this argument. The mere act of displaying an image to a professional is not a technical process occurring 'outside' the computer. For clarity, I will state that I consider the 'computer' here to be the computer *system* comprising the user's computer, the PACS server and the connecting internet. I therefore conclude that the first signpost is not satisfied.

26 The examiner in his report of 30 May 2023 considers the second to fourth signposts together and the agent in his letter of 9 May 2023 considers the second and third together before considering the fourth. I agree that such a combined approach is more useful, so I will consider all three signposts together here.

Signpost (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

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

Signpost (iv) – whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer

27 There has been no suggestion that the actual contribution runs at a level of architecture of the computer. It is clear that the invention runs only on the web-based client software on a remote computer and on the application level on the server, so therefore only operates on the very specific data processed by those applications.

28 The agent argues that the computers operate in a new way, in that, it is generating a new form of client which sends the actual server request and reformats the

response. However, this is not the true meaning of this signpost, the computer *itself* is not acting in a new way just because an application causes it to perform a new task. The computer is acting how it always has, following the basic instructions required of it by the applications. If the signpost was so easily satisfied as to simply say that the computer runs in a new way every time an application gets it to do something new, the signpost would be meaningless.

29 The agent then argues that in enabling the computer to do something it was unable to do before, it is functioning better. This follows on from the same logic as above. The contribution may allow easier access of the data but that is all occurring at the application level of the computer. The computer *itself* is not better, it is not running more efficiently or effectively, it is running as it always has. Therefore, I find that the contribution does not satisfy signposts (ii), (iii) or (iv).

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

30 The agent argues the problem of accessing DICOM data from a server when using an incompatible client is resolved. For the fifth signpost, it is necessary to determine whether the problem being solved is actually technical, as any contribution solving a technical problem must necessarily be technical, if it is truly solving the problem, not merely circumventing it.

31 The problem is as set out in paragraph [0005] of the application:

> *"For example, the AGFA® WADO-RS must be used to download from an AGFA® PACS and the FUJIFILM WADO-RS must be used to download from the Synapse® PACS. There are no vendors with a WADO-RS/QIDO-RS that can access any DICOM PACS."*

32 Contrary to the agent's assertions in their letter of 9 May 2023, it would appear that the problem is the formatting of the various requests/systems. The DICOM standard was produced to allow standardised, universal access of medical images, the issues being faced are due to proprietary restrictions imposed by the vendors. The problem is administrative rather than technical, if all vendors decided to make their software universally compliant, then the problem would be solved. The claimed invention circumvents the problem of incompatibility by adding an extra layer of processing between the client and the server to adjust the formats to make the request and response compliant to the respective parties. I thus conclude that the fifth signpost is also not satisfied.

33 I will now take a moment to comment on the hearing decisions listed by the examiner and commented on by the agent. Having briefly consulted each of the decisions, it is clear that the examiner included the majority of them purely as a broad basis for decisions involving data transfer between different clients/databases. However, BL O/592/21[6], was highlighted by the examiner and is very similar as it was related to the transfer of DICOM objects between PACS databases but related to incompatible metadata categories between the different databases. The agent argues that this is not relevant as the DICOM object itself is still readable, there is no restriction in the

[6] BL O/592/21 – *Kofax International Switzerland Sàrl*

sending of the file, only that the metadata (patient information, notes, etc.) may be lost or corrupted. However, I note an interesting point made by the hearing officer in paragraph 39 with regards to signpost (v):

> *"The problem is simply that whoever settled upon a particular metadata format in one PACS did not choose to make sure that the format matched that of another PACS. In other words the problem stems from an unfortunate design choice, not from something inherently technical."*

34 The key point I see here is "whoever settled upon a particular metadata format" seems to me to be not dissimilar to "whoever settled upon a particular WADO-RS format". The problem is not technical because the problem is caused by a design choice of vendors choosing not to make their formats compliant.

35 Ultimately, past hearing decisions are not binding upon me here, however I am reassured in my decision seeing that I have come to a similar conclusion in a similar situation.

36 In summary, none of the *AT&T* signposts suggest that the contribution provides the required technical effect and I thus find that it is no more than a program for a computer as such.

Step (4): Is the contribution technical in nature?

37 Since I have decided that the contribution does not have a technical effect beyond that of a program running on a computer, it also fails this step of the test. I thus decide that the invention, as defined in the independent claims, is excluded under section 1(2).

Conclusion

38 I decide that the invention as set out in the independent claims is excluded under Section 1(2)(c) as a program for a computer, as such.

39 Having reviewed the application, I do not consider that any saving amendments are possible. I therefore refuse the application under Section 18(3).

Appeal

40 Any appeal must be lodged within 28 days after the date of this decision.

Dr Stephen Brown

Deputy Director, acting for the Comptroller