Intellectual Property Office

BL O/402/20
19th August 2020

PATENTS ACT 1977

APPLICANT	F-Secure Corporation
ISSUE	Whether patent application GB1708043.3 is excluded under section 1(2)
HEARING OFFICER	H Jones

DECISION

Introduction

1 Application GB1708043.3 was filed on 19 May 2017 in the name of F-Secure Corporation and was published on 21 November 2018 as GB2562535.

2 The examiner has consistently maintained that the application relates to a program for a computer, and as such is excluded from patentability. The applicant has been unable to persuade the examiner otherwise and has requested that the matter be resolved at a hearing. The hearing took place on 6 July 2020 via Skype® conference at which the applicant was represented by Dr Robert Lind of Marks & Clerk LLP.

The invention

3 The behaviour of a user of a website may be tracked by collecting information, e.g. a cookie, from the user's device. There is much concern about user privacy, and one solution to this is simply to prevent the collection of such data. However, this can have the effect that the website does not work properly, or even at all. In simple terms, the invention is a method that provides information which satisfies tracking services, thus enabling websites to load correctly on the user's device but which protects the user's privacy.

4 In more detail, the method makes use of a proxy server which intercepts network traffic from client devices belonging to website users. The proxy server identifies any requests that the clients are sending which relate to tracking services. A small number of these requests are initially sent to the tracking service; these include real data from real users, e.g. credit card data, or the web browsing behaviour of a user. The responses to these initial requests are then stored and analysed to generate a recipe. Subsequent requests from clients are not sent to the tracking service, but rather a 'fake' response is generated based on the recipe, one which will be acceptable to the tracking services but which will not disclose real information about the users.

5 The application has two independent claims, filed on 31 January 2020. They read as follows:

1. A method for privacy protection for clients of a computer network utilizing a virtual private network, the method comprising, at a proxy server of the virtual private network:

intercepting network traffic from the clients;

identifying within the intercepted traffic, API (application programming interface) requests sent by clients and being related to a web-based tracking service;

sending a predetermined number of initial API requests to the tracking service when processing API requests to the tracking service;

storing the initial API requests and respective responses from the tracking service API in a database;

analysing body objects of the stored initial API requests and respective responses and generating a dynamic response recipe on the basis of the analysis; and

for each further API request, generating an API response comprising a response body acceptable by the tracking process on the basis of the generated dynamic response recipe and returning the API response to the associated client.

13. A proxy server for privacy protection for clients of a computer network utilizing a virtual private network, the proxy server comprising: a processor arranged to intercept network traffic from clients; a processor arranged to identify within the intercepted traffic, API (application programming interface) requests sent by clients and being related to a web-based tracking service; a processor arranged to send a predetermined number of initial API requests to the tracking service when processing API requests to the tracking service; a processor arranged to store the initial API requests and the respective responses from the tracking service API in a database; a processor arranged to analyse body objects of the stored initial API requests and the respective responses and generate a dynamic response recipe on the basis of the analysis; a processor arranged to, for each further API request, generate an API response comprising a response body acceptable by the tracking process on the basis of the generated dynamic response recipe; and a processor arranged to return the API response to the associated client.

The law

6 Section 1(2) of the Act lists certain categories of subject-matter which are not considered to be patentable inventions:

> *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 The Court of Appeal in *Symbian*[1] stated that the question of whether a computer implemented invention is patentable has to be resolved by asking whether it reveals a technical contribution to the state of the art. It proceeded to answer the question with the aid of the four-step test for excluded subject-matter set out in its earlier judgment in *Aerotel*[2], the steps of the test are as follows:

(i) properly construe the claim;
(ii) identify the actual contribution;
(iii) ask whether it falls solely within the excluded subject-matter;
(iv) check whether the actual or alleged contribution is actually technical in nature.

8 Paragraph 43 in *Aerotel* provides some guidance regarding the second step:

"43. The second step – identify the contribution - is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable – 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."

9 According to paragraph 46 of *Aerotel*, applying the fourth step may not be necessary because the third step should have covered the question. This is because a contribution which consists solely of excluded matter will not count as being a "technical contribution" and thus will not, as the fourth step puts it, be "technical in nature".

10 Lewison LJ has provided five helpful signposts in *AT&T/CVON*[3] and *HTC v Apple*[4] which summarise where the Courts have identified a technical contribution in computer-implemented inventions. These so-called "AT&T 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 make the computer a better computer in the sense of running more efficiently and effectively as a computer; and
v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

[1] Symbian Ltd v Comptroller-General of Patents [2008] EWCA Civ 1066
[2] Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application [2006] EWCA Civ 1371
[3] AT&T Knowledge Ventures LP, Re [2009] EWHC 343 (Pat)
[4] HTC v Apple [2013] EWCA Civ 451

Arguments and analysis

Construing the claim

11 Neither the examiner nor the applicant have identified any issues with construing the claims, and Dr Lind did not address this point at the hearing. I agree - the main claims clearly explain what the invention is and how it works.

Identifying the contribution

12 Where the applicant disagrees with the examiner is in the identification of the contribution. The examiner, for his part, has identified the contribution as:

> A method of privacy protection comprising identifying an API request as being related to a tracking service, sending initial API requests to the tracking service, storing the initial API requests and respective responses so their body objects can be analysed to generate a dynamic response recipe which is used to generate a response that has a response body that is acceptable by the tracking process.

13 Dr Lind's assessment of the contribution is:

> A method for privacy protection which reduces the risk of tracking servers gaining user specific information, in a way that allows websites to load without disruption.

Dr Lind also points out the following advantages:

> The method also improves the efficiency and reliability of client devices, and reduces overall network traffic and the load on the network servers.

14 In explaining how he had reached this assessment of the contribution, Dr Lind referred me to the prior art discussed in the application – the FREEDOME® privacy service. This is the applicant's own prior art, which uses a proxy server to simply block requests if it is determined that they relate to a tracking service. The applicant acknowledges that it has three drawbacks. First, a tracking data may by queued on a client device and inadvertently leaked to the tracking server at a later point in time, perhaps when a user disables the FREEDOME VPN connection. Secondly, the client may try to repeatedly upload data, which consumes power, increases network traffic and increases load on servers. Thirdly, it can cause crashes in applications on the client when the tracking uploads fail because they are blocked. It is in the context of this that Dr Lind framed his assessments of the contribution.

15 I agree entirely with Dr Lind that knowledge of the prior art has a role to play in assessing the contribution. Determining what the inventor has added to the stock of human knowledge and determining the advantages of the invention must surely involve some notion of the state of the art. However, I consider there is a danger in viewing the invention through the prism of one piece of prior art when identifying the contribution. The invention may well solve the problems of FREEDOME and provide the advantages that Dr Lind points out, but the stock of human knowledge (or the state of the art) is not merely FREEDOME. It also includes, for instance, the background prior art identified by the examiner during the search, which I need not discuss here. More pertinently the application refers to previous attempts to block

tracking by sending random cookie data to tracking servers rather than simply blocking the sending of cookies. This seems to me to be much closer to the invention than FREEDOME. Dr Lind elaborated on these previous attempts at the hearing, explaining that the tracking services are one step ahead of such a simplistic approach, and that what the applicant is doing in this application is adopting a more sophisticated approach to tailor a fake response which the tracking service will believe to be accurate. This is, I think, an important point to bear in mind.

16 Dr Lind's criticism is that the examiner has merely focussed on the steps in the claim that happen at the proxy server without standing back to look at the invention as a whole in the light of the state of the art. Dr Lind has taken that step back, but it would appear to me that FREEDOME has filled his field of view and has improperly influenced his identification of the contribution. His assessment is too broad in that that it does not reflect the crucial steps which the invention uses to generate the fake responses. At the same time, it is also too narrow in that the advantages he identifies are advantages over FREEDOME and not advantages over the prior art as a whole.

17 Taking a more rounded view of the state of the art, I would identify the contribution to be an improved method of providing convincing fake tracking responses to a tracking service for the purpose of increasing the prospect of websites loading without disruption on client devices while preserving the privacy of the users of the client devices, the method comprising using a proxy server (i) to send some initial genuine requests from client devices to the tracking service, (ii) to analyse the responses to the initial requests, and (iii) to use that analysis to generate the subsequent fake convincing responses.

Is the contribution technical

18 I will consider the third and fourth steps of the *Aerotel* test together (per *Symbian*).

19 Dr Lind's argument is that the invention falls within the first of the *AT&T/CVON* signposts, i.e. that there is a technical effect carried on outside a computer. There are two related strands to the argument. The first relates to privacy of users and the second relates to an improvement in the reliability and efficiency of the client devices. I will expand on these two points in the following paragraphs.

20 Dr Lind argued that the examiner was incorrect to identify the contribution narrowly as only those processes that happen at the proxy server. Rather, he argued, the contribution includes an effect on something outside the proxy server, i.e. on the client devices. I do not disagree with Dr Lind here, and the contribution I have identified above does indeed make reference to the client devices and the users. The question to be answered is not merely whether there is an effect outside of a computer, but whether there is a technical effect on a process carried on outside a computer.

21 The first effect Dr Lind identified is the prevention of data passing from the clients to the tracking server, as a result of the steps carried out at the proxy server. Dr Lind characterised the data in question as "real world" – user specific data such as the user's credit card data, or the web browsing behaviour of a user, the transmission of such to third parties may have real world implications for user privacy.

22 Dr Lind referred me to a recent decision of the Office concerning an application by *Google*[5], quoting from paragraph 59 of that decision as follows:

> *"In my view, the issue of security and privacy for users when using computing devices is a technical problem which has an effect outside of the computer/computer system."*

23 The invention in *Google* allows a merchant to identify individuals at a location without the individuals ever having to provide documentary evidence or biometric information such as fingerprints to the merchant. It does this using a payment processing system, which is in communication with both the individuals' devices and the merchant point of sale device, by comparing facial images of individuals obtained with a camera at the merchant's location with facial templates of individuals known to be at the location.

24 Dr Lind suggested that there is a direct analogy between the current application and *Google* in that both prevent the leakage of personal user data to a third party. There is no doubt that the area of privacy and security when using computing devices is one in which technical contributions may be made, but I consider it would be wrong to interpret the hearing officer in *Google* to have said that any invention that relates to privacy and security will necessarily avoid the exclusions of section 1(2). The above quotation cannot be stripped of its context, and that context is significantly different to this application, at least for the reason that it is a method of identifying individuals at a physical location based on the retrieval and processing of real-world images of individuals. Given the clear differences between *Google* and the application, I do not see how *Google* assists the applicant here other than in the very general sense that inventions relating to privacy and security may well be capable of patent protection.

25 I must also address the judgment of the Patents Court in *Really Virtual Company Limited*[6]*,* raised by the examiner during examination as being of particular relevance. This was an appeal from the decision[7] of a hearing officer in which the application had been refused as relating to no more than a computer program as such.

26 *Really Virtual* relates to a method of allowing a user access to tailored services and data on the web whilst maintaining their anonymity. On the facts, at first glance at least, *Really Virtual* is much closer to the current application than *Google* because both are about maintaining a user's anonymity when accessing data from a provider via the internet, and both methods utilise software running on a proxy server to ensure the privacy of the user.

27 Dr Lind readily accepted this but nevertheless argued that in his view the two applications were clearly distinguished. Referring to paragraph 37 of the judgment, Dr Lind made the point that what was said to be new was the provision of tailored services and not the use of a proxy server to provide anonymised web access. In other words, Dr Lind's view was that, unlike the current invention, there was no privacy aspect in the novelty of the *Really Virtual* claim and, as such, the invention here is in line with that in *Google* and in contrast to that in *Really Virtual*. If I may simplify Dr Lind's argument it is this: *Really Virtual* is not technical because its key

[5] O/611/19
[6] [2012] EWHC 1086 (Pat), [2013] RPC 3
[7] BL O/423/11

point is provision of tailored services (a business method) and the privacy aspect is unimportant, but *Google* is technical because its key point is about privacy.

28 I do not find Dr Lind's argument here to be persuasive. His characterisation of R*eally Virtual* is, in my view, an oversimplification because the court did not exclude the privacy aspect from their assessment of the contribution. When read in its correct context, the portion of the judgment that Dr Lind referred me to makes that clear:

> *"37. As was made clear as long ago as Vicom, decisive is what technical contribution the invention as defined in the claim when considered as a whole makes to the known art. Here, anonymous web access using a proxy server or anonymiser service is acknowledged in the specification to be known and what is said to be new is the provision of tailored services to the anonymised user. Those services are provided by the intervention of the trusted server (see page 6 of the specification) which uses clustering (to group and therefore anonymise the users) in order to present an anonymised request for tailored services to a service provider.*
>
> 38. *In my judgment there is nothing technical in that contribution. It is no more than a method of A doing business with C using B as an intermediary or agent for the purpose of keeping A's identity secret from C. The fact that B uses a clustering technique as its anonymiser does not in my judgment make the contribution technical, as that word has been used in the various authorities to which resort must be paid for guidance. Indeed the problem solved by the invention is not a technical problem, as was noted by the hearing officer in his decision."*

29 So it is clear that the court considered the privacy aspect of the claim in *Really Virtual* to form part of the contribution, as did the hearing officer in his decision[8]. In fact the precise nature of the anonymiser did contribute to the novelty of the claim, as was made clear at paragraph 27 of the judgment:

> *"It [the method] differs from the prior art method of using a proxy server by reason of the introduction of the broker node which maintains anonymity by clustering."*

30 I cannot disagree with Dr Lind that the business method aspect of *Really Virtual* contributed significantly to the court's thinking, but it seems to me that there was more to it than that. The court considered not only the business method exclusion but also the computer program exclusion, and considered (and broadly approved of) the hearing officer's application of the five signposts. With reference to the first signpost, which Dr Lind asserts is pertinent here, the court, having regard to the identified contribution, agreed with the hearing officer that there was no technical effect of the broker node upon the user's computer.

31 So, to summarise, I am neither convinced that *Google* is particularly relevant to the facts of the current application nor am I persuaded that I should dismiss *Really Virtual* as irrelevant. In fact, my view is that *Really Virtual* is highly relevant.

32 The question Dr Lind invites me to answer here is whether the effect of preventing user data from the client device from being passed to the tracking service constitutes a technical effect. There can be no doubt that it enables the user to keep certain information from the tracking service, but is that technical? If maintaining user privacy is a technical problem then I might possibly accept that preventing the user's data from being passed from the client to the tracking service could be a technical effect. But in this instance, at least, maintaining user privacy is not a technical problem. The problem, such as it is, only exists because some internet users do not want tracking

[8] Paragraph 21 of O/432/11, quoted at paragraph 23 of [2012] EWHC 1086 (Pat), [2013] RPC 3

services to be able to gather data related to them, but they still want a smooth online experience. Other users may be perfectly content to trade the tracking of their online behaviour for a smooth online experience, whilst still others may be indifferent, and for these users and their devices there is no problem at all. The invention may satisfy the desires of the first group of users, but this does not mean that there is a technical effect on their client devices. It does not solve a technical problem on the client device, or on the proxy server. This is exactly the line of reasoning[9] the hearing officer employed in *Really Virtual*, and the court upheld his decision.

33 I must comment on the second strand of Dr Lind's argument, namely that there is a technical effect outside the proxy server in that there is an improvement in the reliability and efficiency of the client devices. I can be brief here. It may well be the case that, in comparison to the FREEDOME product discussed earlier that there are such improvements, but as I have set out above I do not consider these improvements to form part of the contribution when the contribution is assessed, as it must be, with respect to the state of the art (or the stock of human knowledge) and not just a particular isolated example from amongst the prior art. Since an improvement in reliability and efficiency of the client devices is not part of the contribution, as I have identified it, it cannot point to a technical effect on a process outside the computer (proxy server).

34 Though Dr Lind did not address me explicitly on the second, third and fourth signposts at the hearing I have, for the sake of completeness, considered them but I do not see how they assist the applicant's case here. As for the fifth signpost, Dr Lind suggested to me that the invention overcomes the problem, rather than circumventing it, by what it done at the proxy server; that may or may not be so, but as I have decided above there is no technical problem to be solved then I do not regard the fifth signpost as pointing towards a technical contribution.

Conclusion

35 I have found that invention does not reveal a technical contribution to the state of the art. The claimed invention is excluded from patentability under section 1(2) of the Patents Act as it relates to a computer program as such. I have carefully considered the specification and I do not see anything which could form the basis of a valid claim. Accordingly, I refuse the application under section 18(3).

Appeal

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

HUW JONES
Deputy Director, acting for the Comptroller

[9] Paragraph 27 of O/432/11