Intellectual Property Office

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PATENTS ACT 1977

APPLICANT	Qando Services Inc
ISSUE	The Patents Act 1977: whether patent application GB1805305.8 complies with section 1(1)(b) of the Act
HEARING OFFICER	Dr L Cullen

DECISION

Introduction

1 This decision concerns patent application GB1805305.8 entitled "*Accessing a website*" in the name of Qando Services Inc. More specifically, it concerns whether the invention claimed in this application is inventive as defined in Section 1(1)(b) and Section 3 of the Patents Act 1977 (hereafter referred to as 'the Act').

Background

2 This application was filed on 29 March 2018, claiming divisional status from GB1014135.6 having a filing date of 24 August 2010. The application for divisional status was accepted. The application was published as GB2560449A on 12 September 2018.

3 The examiner dealing with this case initially raised objections under Novelty, section (1)(1)(a) of the Act, and Inventive Step, section (1)(1)(b) of the Act, in the official examination report dated 10 July 2018. The applicant filed amendments and arguments addressing these objections in their response dated 22 October 2018. In this response, the applicant also requested that further amendments to the description be deferred until the claims were considered acceptable. The examiner reconsidered the relevance of one of the pieces of cited prior art in the light of the applicant's arguments and, as a result, the novelty objection was waived. However, the examiner maintained that the invention, as set out in the amended claims, still lacked inventiveness over the cited prior art (see official examination report dated 9 November 2018).

4 In the Agent's response, dated 21 November 2018, the applicant requested an opportunity to present arguments supporting the inventiveness of the application at a hearing before a senior officer.

5 As set out in the pre-hearing report of 6 December 2018, the matter to be decided in this case is whether the claims as amended lack an inventive step over the cited prior art, US 2010/0094950 A1 (ZUCKERMAN et al.), referred to hereafter as US950, or WO 2006/033850 A2 (LIBBY), referred to hereafter as WO850. The examiner also noted that amendment to the description had been deferred until the claims had been agreed.

6 Following further correspondence in relation to the organisation of the hearing and the matters to be dealt with therein, the applicant indicated that they no longer wished to attend the hearing and would await a written decision based on the papers on file.

7 The matter came before me for the decision based on the papers on file. Senior patent examiner Eleanor Wade acted as assistant to the Hearing Officer in the preparation of this decision.

The Application

8 The application concerns a method, and related system, to improve the security and reliability of the data that makes up a website, for example, web pages. This prevents third parties from eavesdropping or intercepting data or determining what websites a user has been browsing. The website is formed from portions of website data, wherein the entire website is retrievable from a subset of the portions of website data. Hence some of the portions of website data are redundant.

9 When the website is accessed by a client, a web server provides the client with information regarding the locations at which a subset of the portions of website data, from which it is possible to retrieve the whole website, are stored. Thus, the website can be retrieved even if some subset of the portions of website data are unavailable or damaged, for example because of attacks or blocks on the website. The client is not provided with the location data of all the portions of website data and so is not provided with all the information needed to successfully mount a malicious attack on the website. After a certain number of requests or after an interval of time the information provided by the web server to the client changes to specify a different subset of portions of the website data from which it is possible to retrieve the whole website.

The Invention

10 The current claims on file are those filed on 22 October 2018 and comprise three independent claims, claim 1 relating to a method of providing a website, claim 16 relating to a method of retrieving a website and claim 17 relating to a system for providing a website. These independent claims read as follows:

Claim 1

A method of providing a website formed from portions of website data stored at a plurality of separate storage locations, wherein the website data is retrievable from a subset of the portions of website data, the method comprising the steps of:

receiving a request for website data; and

providing in response to the request, information specifying the separate storage locations storing each portion of the website data in the subset of portions,

wherein the information provided in response to the request changes at intervals or after a number of requests to specify a different subset of the portions of website data.

Claim 16

A method of retrieving a website formed from portions of website data stored at a plurality of separate storage locations, wherein the website is retrievable from a subset of the portions of website data, the method comprising the steps of:

sending a communication requesting the website;

receiving in response to the communication, information specifying the separate storage locations storing portions of website data in the subset of portions; and

combining the portions of website data, wherein the information provided in response to the communication changes at intervals or after a number of requests to specify a different subset of the portions of website data.

Claim 17

A system for providing a website formed from portions of website data stored at a plurality of remote separate storage locations, wherein the website is retrievable from a subset of the portions of website data, the system comprising:

a web server arranged to receive a request for website data, provide in response to the request, information specifying the separate storage locations storing each portion of the website data in the subset of portions, wherein the information provided in response to the request changes at intervals or after a number of requests to specify a different subset of the portions of website data.

11 These claims stand or fall together. If I find that claim 1 lacks an inventive step, then it follows that claims 16 and 17 do as well.

Compliance Period

12 The prescribed period under Section 20 of the Act for putting this application in order has been extended under Rule 108(2) and Rule 108(3) of the Patents Rules 2007, as amended, (hereafter referred to as 'the Rules') and this compliance period expired on 4 December 2018.

The Issue to be decided

13 The issue to be decided in this application is whether the claimed invention complies with Section 1(1)(b) of the Act and lacks inventiveness over the cited prior art.

14 As noted by the examiner in his pre-hearing report dated 6 December 2018, the matter of amendments to the description to bring it into agreement with the claims remains outstanding. Accordingly, if I find that the claims as amended comply with section 1(1)(b), I will consider what further steps, if any, are necessary.

The Relevant Law

15 Section 1(1)(b) and Section 3 of the Act are concerned with whether the invention involves an inventive step.

16 Section 1 of the Act reads as follows:

> *1(1). A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say:*
> *(a) …;*
> *(b) It involves an inventive step;*
> *(c) …;*
> *(d) ….*

17 Section 3 of the Act, entitled 'Inventive Step' reads:

> *An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of Section 2(2) above (and disregarding Section 2(3) above).*

18 Section 2(2) of the Act, which refers to the state of the art, reads:

> *The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.*

19 Sections 125(1) and 125(3) of the Act concern claim construction. They read:

"(1) For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly

….

(3) *The Protocol on the Interpretation of Article 69 of the European Patent Convention (which Article contains a provision corresponding to subsection (1) above) shall, as for the time being in force, apply for the purposes of subsection (1) above as it applies for the purposes of that Article."*

The Relevant Case Law

20 The approach to assessing inventive step is the structured approach found in *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*[1] ("*Windsurfing*") as modified by Jacobs LJ in *Pozzoli SPA v BDMO SA*[2] ("*Pozzoli*"). This approach involves the following steps:

(1) (a) Identify the notional "person skilled in the art"

(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

Analysis

21 To determine whether (or not) the present application has an inventive step over the cited prior art, I will follow the approach set out in *Windsurfing/Pozzoli* as mentioned above.

Step (1)(a): Identify the notional "person skilled in the art"

22 I am unclear to what extent the examiner and the applicant are in agreement with respect to the nature of the person skilled in the art.

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[1] *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*, [1985] RPC 59

[2] *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588

23 I note that the examiner defines the person skilled in the art as *"a team of people [including] a systems architect to design and oversee the whole; someone with communications experience to design packet formats and select appropriate protocols; and software engineers to implement the applications, server communications, and front-end systems"*. The applicant has not provided any comment on the examiner's assessment, or any other proposal as to the nature of the skilled person.

24 Having considered all the material before me, I find myself in agreement with the examiner's assessment of the person skilled in the art.

Step (1)(b): Identify the relevant common general knowledge of that person

25 The examiner asserts that the common general knowledge (CGK) of the skilled team includes network architecture and communication (including distributed processing), knowledge of the workings of personal computers as terminals remote from a mainframe computer, data transmission, modems and how to use them to interact with online service providers.

26 On the basis of all the information available to me, I agree with the examiner's summary. More particularly, I consider the CGK in this case to include knowledge of how website data may be accessed and the limitations of internet connected devices used to access websites.

Step (2): Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

27 The examiner identifies the inventive concept of claim 1 as:

> "*A system for retrieving a website formed from portions of website data, each portion stored at a respective storage location from a plurality of storage locations, wherein the entire website is retrievable from a subset of the portions of website data, the system comprising a web server which receives a request for the website data from a client and in response provides, to the client, information specifying the storage locations of each portion in a subset of the portions of website data and the client then accesses the storage locations to retrieve the website portions and combines them to form the website; wherein after a number of requests or an interval of time the information provided by the web server to the client changes to specify a different subset of portions of the website."*
>
> *[See official report dated 06 December 2018]*

28 I do not find anything in the correspondence from the applicant to suggest that they disagree with this characterisation of the inventive concept proposed by the examiner.

29 However, I do think it is worth considering what is meant by some of the terminology used in claim 1 of the application.

30 The first term to consider is "*a website*". Lines 20-25 of page 10 of the description refer to dividing "original data" into portions, the "original data" comprising "*e.g.*

website, web page, script, audio, video, purchase information, financial data, etc.". Furthermore, the sentence bridging pages 15 and 16 of the description as filed refers to a browser issuing a request to a "*URL for the website or other resource associated with the URL*". It also strikes me that it would be unusual to request the downloading of an entire website; generally, only a single web page is requested at a time. I have therefore construed "a website" as "web content from a website".

31 A second term in need of consideration is "*retrievable from a subset of the portions*". I think a person skilled in the art would understand claim 1 to relate to retrieving web content from a subset of a set of redundant portions of web content. The term "*redundant portions*" is intended to be broad enough to cover derivation using a parity mechanism, more general erasure coding mechanism, or simple replication. This must be the case for the invention to function as described. I note in support of this construction; page 2, line 27 and 28, "*missing portions of the website data may be recovered from the available portions*"; and page 3, lines 7 to 14, "*Other alternative subsets of portions of website data may remain available to other users who may then receive alternative subsets in response to their own requests for the website. Furthermore, retrieving the website may not require all portions in the subset to be successfully retrieved (i.e. by providing additional redundancy). Therefore, the different subsets may, for example contain common members*." A person skilled in the art will appreciate that the term "redundant portions" is equivalent to the term "redundant fragments" conventionally used in the art.

32 Thirdly, I have given some consideration to the question of whether "*plurality of separate storage locations*" should be construed as "*plurality of <u>physically</u> separate storage locations*"? However, lines 12-17 of page 5 state that logically separate storage locations are encompassed, e.g., locations on the same disk drive. Although storage on the same drive would not provide resilience against outages and attacks affecting a physical location, it would provide resilience against attack aimed at the logical location of a portion, such as the portion itself being corrupted or access to it blocked. Therefore, I construe "plurality of separate storage locations" as meaning "*a plurality of physically or logically separate storage locations*".

33 Finally, I have considered what is meant by the term "*changes at intervals*". The sentence at lines 31 and 32 of page 6 reads: "*The change may also or alternatively be timed (e.g. changing every second, minute, hour, day etc.)".* However, the use of the word "may" in this sentence suggests this is not essential to the invention. I do not think I can go beyond the literal meaning of the words in the claims to construe the claims as requiring the changes to be controlled by a timer. The claims require the changes to be made at intervals; but they are not limited to requiring the changes to be triggered by expiry of a predetermined time interval, and would encompass changes triggered by other change in circumstance.

34 In the section of the description entitled '*Detailed description of the preferred embodiments*', the application refers to re-allocating the mapping of redundant portions to storage locations at the upload stage but is silent with respect to changing

the subset of portions submitted to a client device in response to a request for web content (see Fig 2 and description p 1), which is what is claimed. I do not think the former (upload change) feature is implicit from the latter (download change) feature: the download change feature could be performed even if the upload change feature was not performed. Changing where data is uploaded to and stored would seem to have security advantages as it would confuse a potential eavesdropper, but this advantage does not appear to exist in the case of merely changing the location from where redundant data is to be downloaded if there is no change in data storage. My construction of the final 3 lines of claim 1 is unaffected by the upload change disclosure in the preferred embodiment.

35 Accordingly, I construe the inventive concept to be as follows:

A method (and related system) for retrieving web content from a website formed from portions of website data, the portions incorporating redundancy, wherein each portion of the website data is stored at a respective storage location from a plurality of separate storage locations, wherein the entire website is retrievable from a subset of the portions of website data, the system comprising a web server which:

(i) receives a request for the website data from a client

(ii) in response provides, to the client, information specifying the storage locations of each portion in a subset of the portions of website data, and

(iii) the client then accesses the storage locations to retrieve website portions and combines them to form the website;

wherein after a number of requests, or an interval of time has passed, the information provided by the web server to the client changes to specify a different subset of portions of the website data.

Step (3): Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed

36 The examiner considers that US950 and WO850 each separately represent the state of the art for the purposes of establishing whether or not the present application has an inventive step. I will consider each of these citations in turn.

US 2010/0094950 A1 (US950)

37 US950 relates to the control of fragment load on shared links for content delivery. It enables preferential selection of servers for transmission of fragments for reconstruction of a segment based on load; a server with greater capacity at a given time is preferred over one with less.

38 US950 discloses a method in which a subset of servers is selected based on load, and an assembling device contacts the selected subset of servers to obtain portions of the website data and then assembles these portions to form the website.

39 It is common ground that US950 does not disclose a set-up in which the assembling device is sent information identifying the storage locations of the subset of fragments.

40 The applicant has argued in the Agent's letter dated 22 October 2018 that a further difference between the disclosure of US950 and the claims of the application in question is that, in US950, the subset of fragments used does not change at intervals. The examiner has disputed this.

41 I have considered what is disclosed in US950 in this regard. As set out in paragraph [0051], the subset of servers selected in US950 is determined by the load on each of the individual servers, those with a smaller load, i.e. greater capacity, are selected. The level of internet traffic changes with time, for example, servers experience higher traffic at different times in different time zones. Thus, loads on individual servers change at intervals and so the subset selected based on load will also change at intervals.

42 As discussed above, the invention is not limited to changes in the subset provided at timed or predetermined intervals, but encompasses changes triggered by other changes in circumstance. It is my view that the changes in subsets selected based on load in US950 equate to changes at intervals as in the claimed invention.

43 Therefore, the difference between what is claimed in the application and what is known from US950 is only that the assembling device is sent information identifying the storage locations of the subset of fragments. Step 7403 of the method set out at paragraph [0065] of US950 specifies only that the assembly device is '*caused to obtain'* the required fragments from the selected servers.

WO 2006/033850 A2 (US850)

44 WO850 deals with partial web page caching, providing capability to receive and display individual portions of a web page. When a web page is requested, a skeleton page is downloaded from a server with address information for portions of the web page within the skeleton. The address includes version information which is changed when the portion is updated. Where address information, including version code, matches address information in the cache, the portion is retrieved from there; however, where the address, including version code does not match any address in the cache, the portion is requested from the server.

45 WO850 discloses providing a web page from a combination of cached portions and portions requested by a client from a server. When a web page is requested, a skeleton page is downloaded from a server with address information for portions of the web page within the skeleton. The address includes version coding which is changed when the portion is updated. Where address information, including version coding, matches address information attached to a portion in the cache, the portion is retrieved from there, in preference to retrieval from the storage location. Where the address, including version code does not match any address in the cache, the portion is requested from the server. The server then retrieves the portion and sends it to the client.

46 A change in version code for a portion triggers retrieval of a different individual portion, and hence a different subset of portions, from their respective locations, at intervals of

time. As discussed above, in the invention as claimed such intervals need not be timed or predetermined, although such arrangements are envisaged in WO850.

47 The disclosure of WO850 differs from the inventive concept in claim 1 of the application in question in that the server always sends retrieved portions of the website rather than the storage locations of these portions of the website to the client.

Step (4): Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

48 The examiner considers that combining the disclosure of US950 and that of WO850 is not obvious. Having considered the material before me, I agree with this view. Therefore, I will consider the question of inventive step in relation to the disclosure in each piece of cited prior art separately.

US 2010/0094950 A1 (US950)

49 US950 is clear in paragraph [0079] that the assembling device can be any Internet connected device (capable of combining fragments). As discussed above, the skilled person would know that some such devices have limited processing capability. Step 7403 of the method set out in paragraph [0065] states that the assembly device is "*caused to obtain"* the required fragments from the selected servers. Thus, the skilled team, seeking to work the invention of US950, must determine how the assembly device is "*caused to obtain"* the relevant subset of portions from the respective subset of locations.

50 In his pre-hearing report, the examiner suggests that it would be obvious to adapt the invention of US950 to include an intermediary server which would be *caused to obtain* the fragments by performing part ii) of the inventive concept, The examiner argues that there are two factors which would motivate a skilled person to make such an adaption: a) to allow the invention to be worked with client assembly devices with limited processing capability and b) to avoid having to send load data to the client assembly devices. I note that the central server of paragraph [0181] would address the second of the factors identified by the examiner.

51 The skilled team (whether or not they were motivated in the ways the examiner suggests) are likely, when attempting to determine how to implement the vaguely described central server embodiment of paragraph 181, to be influenced by the general teaching of US950. This citation generally teaches towards the client assembly devices requesting individual fragments from a subset of the storage servers. It therefore seems reasonable to me that the skilled person would decide that the central server step of determining "*for the assembling devices from which server to retrieve the erasure-code fragments*" should be implemented by providing information specifying the storage servers from which the assembling devices can retrieve the erasure-coded fragments.

52 I consider that the provision of information specifying the storage servers from which the assembling devices can retrieve the erasure-coded fragments as a way of determining where to retrieve the fragments from, would be an obvious selection for the skilled team. Thus, I consider claims 1, 16 and 17 are obvious in light of US950.

WO 2006/033850 A2 (WO850)

53 The applicant has argued that a technical advantage in security or resilience is achieved by a primary server sending information about the locations of the portions to the client (and the client then needing to access those locations) instead of the primary server which handles the request accessing those locations and sending the portions to the client. Sending the location rather than the data in this case would not seem to offer an advantage in security or resilience since in both cases the client needs to access the primary server (to get the information or the portions) and in the first case the client also needs to be able to access the other locations instead of the primary server accessing the other locations. In terms of blocking attacks then (as explained on page 3, lines 2-4 of the description in the application as filed) an attacker only knows of the other locations because they are sent information identifying them in response to the request. Thus, if the client were only sent the portions then the attacker would not know of the locations to be able to attack them.

54 The examiner has argued that since it is well known that websites can be retrieved by the client being pointed to a location and pulling the data from that location, rather than by being sent the data by the primary server, it is a routine workshop variation to modify the system in WO850 to send information identifying the storage locations of the portions instead of the portions themselves.

55 However, the purpose and function of WO850 is not to provide improved reliability, resilience or speed of access of a website through enabling its assembly from different subsets of website data portions stored at different subsets of locations. It is rather to assemble a website from different subsets of website data portions according to which data portions are required, to ensure that the correct and most up to date version of each portion is used. In my view, this is not providing redundancy in the sense meant in the application.

56 Therefore, while modifying WO850 to send location data rather than the portions themselves would appear on the face of it to be a straightforward modification, I do not believe that the skilled team would be motivated to modify WO850 in this way.

57 Consequently, I consider that claims 1, 16 and 17 do involve an inventive step over WO850.

Conclusion

58 Taking account of all the above, I find that the application, as claimed, lacks an inventive step according to section 1(1)(b) of the Act over the disclosure in US 2010/0094950 A1.

59 Further, I find that the application, as claimed, does not lack an inventive step according to section 1(1)(b) of the Act over the disclosure in WO 2006/033850 A2.

60 I note that the period, under Section 20 of the Act, for determining whether this application complies with all the requirements of the Act expired on 4 December 2018 and that the applicant did not seek a further extension of the period under Rule 108(3) of the Rules. As the application failed to comply with all the requirements of the Act at the expiry of the compliance period, I refuse this application under Section 18(3) of the Act.

Appeal

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

Dr L Cullen

Deputy Director, acting for the Comptroller