Trials@uspto.gov
571-272-7822

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAP AMERICA, INC.,
Petitioner,

v.

LAKSHMI ARUNACHALAM,
Patent Owner.

Case CBM2014-00018
Patent 8,037,158 B2

Before, KARL D. EASTHOM, WILLIAM V. SAINDON, and BRIAN J. McNAMARA, *Administrative Patent Judges.*

McNAMARA, *Administrative Patent Judge*.

FINAL WRITTEN DECISION

35 U.S.C. § 318(a) and
37C.F.R. § 42.73

BACKGROUND

On March 7, 2014, we entered a Decision to Institute ("Dec. to Inst.") a trial in this proceeding on the ground that claims 9 and 10 are unpatentable under 35 U.S.C. § 101. In addition, we instituted a trial on the following grounds asserted under 35 U.S.C. § 103: claims 4–6 as unpatentable over Lawlor,[1] Computerworld,[2] and CORBA 1;[3] claims 4–6 as unpatentable over Lawlor, Computerworld, and CORBA 2;[4] claims 5 and 6 as unpatentable over Lawlor, Computerworld, CORBA1, and SNMP;[5] claims 5 and 6 as unpatentable over Lawlor, Computerworld, CORBA 2, and SNMP; claims 4–6 as unpatentable over EB,[6] SFCU,[7] and CORBA 1; claims 4–6 as unpatentable over EB, SFCU, and CORBA 2; claims 5 and 6 as unpatentable over EB, SFCU, CORBA 1, and SNMP; claims 5 and 6 as unpatentable over EB, SFCU, CORBA 2, and SNMP.

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[1] Lawlor et al., U.S. Patent No. 5,220,501, issued June 15, 1993 ("Lawlor"). Ex. 1006.
[2] The Cyberbanks, Computerworld, 80 (June 26, 1995) ProQuest Telecommunications ("Computerworld"). Ex. 1007.
[3] Thomas J. Mowbray And Ron Zahavi, The Essential Corba: Systems Integration Using Distributed Objects (Robert Elliott ed., 1995)("CORBA 1"). Ex. 1009
[4] The Common Object Request Broker: Architecture And Specification, Rev. 2.0, 1–463 (1995) ("CORBA 2"). Ex.1012.
[5] Jeffrey D. Case et al., *Protocol Operations For Version 2 Of The Simple Network Management Protocol*, 1–37 (1993) ("SNMP"). Ex. 1011.
[6] Allen H. Lipis et al., Electronic Banking, The Stock Market, 4th Edition, 1–220, (1985) John Wiley & Sons, New York ("EB"). Ex. 1004.
[7] www.thefreelibrary.com/_/print/PrintArticle.aspx?id=17104850, (last visited Mar. 15, 2013) Stanford Federal Credit Union Pioneers Online Financial Services, ("SFCU"). Ex. 1005.

In this Final Written Decision, we conclude that claims 9 and 10 do not recite patent-eligible subject matter under 35 U.S.C. § 101. We further conclude that claims 4–6 are unpatentable under 35 U.S.C. § 103.

THE '158 PATENT

The '158 Patent purports to provide "a method and apparatus for providing real-time, two-way transactional capabilities on the Web." Ex. 1001, Abstract. The '158 Patent Specification states that "[a] 'transaction' for purposes of the present invention includes any type of commercial or other type of interaction that a user may want to perform." *Id.* at col. 5, ll. 22–25. The '158 Patent also states that Figure 4A illustrates conceptually the user value chain, depicting the types of transactions and the channels through which the transactions are performed "today," i.e., at least as early as the priority date of the application that led to the '158 Patent. *Id.* at col. 5, ll. 19–25. Thus, Figure 4A represents a prior art value chain, rather than the invention.

Figure 4B illustrates an embodiment of the invention in which a Web merchant provides real-time transactional capabilities to users who access a merchant's services through switching sites on Web servers or on non-Web network computer sites and cellular provider sites. *Id.* at col. 5, ll. 45–55. The '158 Patent Specification states that the embodiment shown in Figure 4B includes a service network running on top of a facilities network, namely the Internet, the Web, or e-mail networks. *Id.* at col. 5, ll. 49–51. The Specification further states that the following five components interact to provide the service network functionality: an exchange, an operator agent, a management agent, a management manager, and a graphical user interface. *Id.* at col. 5, ll. 58–61.

The difference between the prior art subject matter of Figure 4A and embodiment of the invention in Figure 4B lies solely in the number of items listed in the "Service Channels." That is, in addition to the service channels in Figure 4A, Figure 4B also includes a TransWeb[8] Exchange (hereinafter "Exchange") that includes a Web page and point-of-service (POSvc) applications. The '158 Patent states that "[a] POSvc application is an application that can execute the type of transaction that the user may be interested in performing." *Id.* at col. 6, ll. 32–34. The type of services offered by a POSvc application is determined by each Web merchant. *Id.* at col. 7, ll. 1–2, 15–16.

The Exchange can reside on a web server or on a separate computer system on the Internet with an Internet address. *Id.* at col. 6, ll. 16–20, ll. 49–55. The Exchange conceptually includes a switching component and an object routing component, *id.* at col. 6, ll. 11–12, and may also include an operator agent that interacts with a management manager, *id.* at col. 6, ll. 19–21. As previously noted, the switching site need not be a Web server but may include non-Web network computer sites and cellular provider sites. *Id.* at col. 5, ll. 54–58.

When the Exchange receives a consumer's request for a transactional application, a graphical user interface displays on a Web page a list of POSvc applications from which the user may select. *Id.* at col. 6, ll. 30–49. The '158 Patent discloses that the embodiment of the invention supports

[8] The '158 Patent refers to a TransWeb Exchange in Figure 4 and at column 7, lines 55–56, describes the TransWeb™ Exchange as having a proprietary protocol (TransWeb™ Management Protocol (TMP)). Elsewhere, the '158 Patent uses the term "Exchange."

hypertext markup language (HTML), Virtual Reality Markup Language, Java™, and other graphical user interface standards. *Id.* at col. 6, ll. 36–42.

By selecting a POSvc to activate, the user can access services and perform transactions offered by that POSvc application, which can access back-office data repositories. *Id.* at col. 6, l. 56 – col. 7, l. 42.

The ’158 Patent states that the connection between the user and the services is managed by the Exchange, through an operator agent on a Web server that ensures the availability of distributed functions and capabilities. *Id.*at col. 6, ll. 62–67. However, as noted above, the ’158 Patent emphasizes that the Exchange may reside on a Web server or on a separate computer system with an Internet address. *Id.* at col. 6, ll. 16–19, 49–55. The ’158 Patent also states that a management manager, which may be on the Exchange or on a separate computer system on the Internet, interacts with the operator agent on the Exchange. *Id.* at col. 7, ll. 47–52.

The Exchange and a management agent may act in various roles, including client-server, peer-to-peer, or master-slave roles and constitute a value-added network (VAN) switch. *Id.* at col. 7, ll. 43–47. The VAN switch provides multiprotocol object routing, depending on the VAN services chosen, using a proprietary protocol, the TransWeb™ Management Protocol (TMP). *Id.* at col. 7, ll. 53–56. However, the ’158 Patent does not describe TMP, except to state that it incorporates the same security features as the traditional Simple Network Management Protocol (SNMP). *Id.* at col. 7, ll. 56–60. In addition, according to the ’158 Patent, TMP can incorporate s-HTTP, Java™, the WinSock API, or ORB with distributed on-line service information bases (DOLSIBs) to perform object routing. *Id.* at col. 7, ll. 61–66. Thus, object routing in the ’158 Patent is not limited to a specific

implementation. The '158 Patent, however, does not provide a description of the proprietary TMP or how TMP incorporates these alternative technologies.

In describing the DOLSIB, the '158 Patent states that networked object identities, each of which is assigned an Internet address based on the IP address of the node at which the networked object resides, identify information entries and attributes in the DOLSIB. *Id.* at col. 7, l. 65–col. 8, l. 6. The Internet address assigned to a networked object identifies branches in a hierarchical tree structure from a node, such as a Web server, and establishes the object as IP reachable. *Id.* at col. 8, ll. 7–14. The proprietary TMP utilizes this Internet address to uniquely identify and access the object from the DOLSIB, although the mechanism TMP uses to accomplish this task is not described. *Id.* at col. 8, ll. 16–18. Each object has a name, a syntax that defines the abstract data structure corresponding to that object and encoding that defines how the object is represented by the object type syntax while being transmitted over the network. *Id.* at col. 8, ll. 19–30. The '158 Patent does not describe the syntax or encoding of objects.

The '158 Patent also discusses a conceptually layered architecture of the VAN switch in the context of "services." *Id.* at col. 8, ll. 33–40. It is not clear if the "services" in this conceptually layered architecture constitute the "service network" previously discussed. However, the '158 Patent provides no physical description of such a network.

A "boundary service" interfaces the VAN switch, the Internet and the Web and end user media devices, e.g., PCs, television, telephones, as well as interfacing to an on-line service provider. *Id.* at col. 8, ll. 35–40. As an open systems interconnection (OSI) application layer switch, the "switching

service" represents the core of the VAN switch and facilitates connectivity with the Internet (a public switched network) and private networks, including back office networks. *Id.*at col. 8, ll. 44–52. The switching service routes user connections to remote VAN switches, multiplexes, and prioritizes requests and provides flow control. *Id.* at col. 8, ll. 45–50. Users use "management services" to manage network resources and perform administrative and maintenance functions. *Id*. at col 8, l. 56–67.

The "application service" contains application programs that deliver customer services, such as POSvc applications. *Id.* at col. 9, ll. 1–4. We note that the terms "application service" and "VAN service" are referenced in the '158 Patent using reference designator 704. As mentioned above, the '158 Patent describes "services" of the layered architecture of a VAN switch. The description of the "VAN service" as providing functions including communication services for both management and end users of the network (*id.* at col. 9, ll. 12–15), indicates that the functions carried out by the VAN switch may be carried out in a POSvc application. However, the type of customer services offered by a POSvc application is determined by each Web merchant. *Id.* at col. 7, ll. 1–2, 15–16. Thus, as opposed to the VAN service, we understand the "application service" is the service being provided by the application, e.g., desired banking functions, rather than a switching or communications functions.

RELATED PROCEEDINGS

This proceeding is related closely to *SAP America, Inc. v. Pi-Net Int'l.*, Case CBM2013-00013, which also concerns the '158 Patent.[9] In CBM2013-00013, Petitioner challenged claims 1–6 and 11 as unpatentable under 35 U.S.C. § 101, unpatentable under 35 U.S.C. § 112(b) and unpatentable under 35 U.S.C. § 103 as unpatentable over the combination of (1) Lawlor and Computerworld, (2) EB and Applicant's Admitted Prior Art, (3) SFCU and EB. *SAP America, Inc. v. Pi-Net Int'l.*, CBM2013-00013 Petition at 10. We instituted a trial of claims 1–6 and 11 under 35 U.S.C. § 112, and on claims 1–3 and 11 as unpatentable over the combination of Lawlor and Computerworld and EB and SFCU. *SAP America, Inc. v. Pi-Net Int'l.*, Case CBM2013-00013, slip op. at 36–37 (PTAB Sep. 19, 2013) (Paper 15, Dec. to Inst.). We declined to institute on Petitioner's challenges to claims 4–6 under 35 U.S.C. § 101 and 35 U.S.C. § 103 because these claims are limited to methods using "object routing." *Id.* at 21, 27–28, and 32. On Sep. 18, 2014, we entered a Final Written Decision in CBM2013-00013 in which we ordered that claims 1–3 and 11 are unpatentable under 35 U.S.C. § 101, and are unpatentable under 35 U.S.C. § 103 over the combination of SFCU and EB and, separately, over the combination of

[9] The following proceedings in which Final Written Decisions have been rendered are also related: *SAP America, Inc. v. Pi-Net International, Inc.*, Case IPR2013-00194, which concerns U.S. Patent No. 8,108,492 B2 ("the '492 Patent") and *SAP America, Inc. v. Pi-Net International, Inc.*, Case IPR2013-00195, which concerns U.S. Patent No. 5,987,500 ("the '500 Patent"). The Specification of the '492 Patent and the '500 Patent is substantially the same as that of the '158 Patent and claim constructions in those proceedings and in CBM2013-00013 have been applied in this proceeding.

Lawlor and Computerworld. *SAP America, Inc. v. Pi-Net Int'l.*, Case CBM2013-00013, slip op. at 15–18, 22–27 (PTAB Sep. 18, 2014) (Paper 61, Final Written Decision). We further ordered that claims 1–6 and 11, which include claims 4–6 that are the subject of this proceeding, are unpatentable under 35 U.S.C. § 112(b) because the term "a routed transactional data structure" in claim 1 is indefinite. *Id.* at 18–20. This decision, however, concerns only those challenges raised in the Petition in the current proceeding, i.e., that claims 9–10 do not recite patentable subject matter under 35 U.S.C. § 101 and that claims 4–6 are unpatentable under 35 U.S.C. § 103.[10]

ILLUSTRATIVE CLAIM

Claim 4, which depends from claim 1, is illustrative. Claim 4 recites the added limitation on claim 1 that object routing is used to complete the transfer of funds in a Web application. For convenience, claim 4 is written below with the limitations from claim 1 shown in italics.

> 4. The method of claim **1**, [*for performing a real time Web transaction from a Web application over a digital network atop the Web, the method comprising:*
> *providing a Web page for display on a computer system coupled to an input device;*
> *providing a point-of-service application as a selection within the Web page, wherein the point-of-service application provides access to both a checking and savings*

[10] Although claims 4–6 were the subject of a final written decision in CBM2013-00013, all briefing was complete in this proceeding prior to entry of our final written decision in CBM2013-00013, neither party requested an oral hearing in this proceeding, and neither party made any motions concerning our resolution of claims 4–6 under 35 U.S.C. §103. Therefore, we exercise our discretion to address the patentability of claims 4–6 under 35 U.S.C. § 103.

account, the point-of-service application operating in a service network atop the World Wide Web;

accepting a first signal from the Web user input device to select the point-of-service application;

accepting subsequent signals from the Web user input device; and

transferring funds from the checking account to the savings account in real-time utilizing a routed transactional data structure that is both complete and non-deferred, in addition to being specific to the point-of-service application, the routing occurring in response to the subsequent signals,]

wherein object routing is used to complete the transfer of funds in a Web application.

CLAIM CONSTRUCTION

We review the claim constructions that are material to this Final Written Decision:

Web application

We addressed the construction of this term in our Final Written Decision in IPR2013-00194. *See SAP Am., Inc. v. Arunachalam*, Case IPR2013-00194, slip op. at 11–14 (PTAB Sep. 18, 2014) (Paper 67). We apply the same construction in this proceeding. For the reasons discussed in IPR2013-00194, we construe "Web application" to mean *a computer program to perform a certain type of work using the Web*.

Point-of-service (POSvc) application

We addressed the construction of this term in our Final Written Decision in related case IPR2013-00194. *See SAP Am., Inc. v. Arunachalam*, Case IPR2013-00194, slip op. at 14-16 (PTAB Sep. 18, 2014) (Paper 67). We apply the same construction in this proceeding. Thus, we construe POSvc application to mean *a software program that facilitates execution of transactions requested by a user*.

Service network running atop the World Wide Web

We addressed the construction of "service network (running on top of a facilities network)" in our Final Written Decision in related case IPR2013-00194. *See SAP Am., Inc. v. Arunachalam*, Case IPR2014-00194, slip op. at 16–18 (PTAB Sep. 18, 2014) (Paper 67). In that proceeding, we construed "service network" to mean a network on which services, other than underlying network communication services, are provided. We apply a similar construction to this similar term in this proceeding. We construe "service network running atop the World Wide Web" to mean *a network on which services other than underlying network communications services are provided over the Web.*

Utilizing a routed transactional data structure that is both complete and non-deferred

In our Decision to Institute, we construed this term to mean "using a data structure that facilitates switching a user who selects a transactional application to a service provider program that provides immediate processing." Dec. to Institute 11–12. In our Final Written Decision in CBM2013-00013, we reconsidered our construction of this term and concluded that "utilizing a routed transaction data structure" encompasses *using a data structure that facilitates switching the processing of information associated with a user selected transactional application that provides immediate processing*. We apply this broadest reasonable construction for purposes of our analysis under 35 U.S.C. §§ 101 and 103 in this proceeding.[11]

[11] In CBM2013-00013, we also concluded that this term is indefinite under 35 U.S.C. § 112, second paragraph. That challenge is not before us in this proceeding, although we determined that claims 4–6 are unpatentable over

Object routing

In related proceeding CBM2013-00013, we construed "object routing" in claim 4 to mean *the use of individual network objects to route a user from a selected transactional application to the processing provided by the service provider*. We apply the same construction in this proceeding.

Virtual Information Store

In our Decision to Institute, we construed "virtual information store" to mean *an information store in which information entries and attributes are associated with a networked object identity.* We apply that construction in this final written decision.

TECHNICAL INVENTION

A covered business method patent is "a patent that claims a method or corresponding apparatus for performing data processing" or other operations used in the practice, administration, or management of a financial product or service. 37 C.F.R. § 42.301(a). A covered business method patent "does not include patents for technological inventions." *Id.* A technological invention is determined by considering whether the subject matter of a particular claim as a whole recites a technical feature that is novel and unobvious over the prior art, and solves a technical problem using a technical solution. 37 C.F.R. § 42.301(b).

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35 U.S.C. § 112, second paragraph in our final written decision in that proceeding. *SAP America, Inc. v. Pi-Net Int'l.*, Case CBM2013-00013, slip op. at 18–20, 29 (PTAB Sep. 18, 2014) (Paper 61, Final Written Decision).

In our Decision to Institute, we cited to our construction of claim 1 in our Decision to Institute CBM2013-00013, where we noted that because claim 1 recites using a data structure that facilitates switching so that a financial transaction can occur, we were not persuaded that claim 1 recites a technical invention. Dec. to Inst. 20–21. As discussed above, in our Final Written Decision in CBM2013-00013 we reconsidered our construction of claim 1 and determined that the claim is drawn to using a data structure that facilitates switching the processing of information associated with a user selected transactional application. We also reconsidered whether claim 1 is drawn to a technological invention and determined that it is not. *SAP America, Inc. v. Pi-Net Int'l.*, CBM2013-00013, slip op. at 13–15 (PTAB Sep. 18, 2014) (Paper 61, Final Written Decision).

Patent Owner contends that claim limitations such as a Web application, a point-of-service ("POSvc") application operating in a service network atop the World WideWeb, and a routed transactional data structure, indicate that the claim is directed to a technological invention. PO Resp. 22–30. Patent Owner contends that performing a Web transaction not in general, but specifically from a Web application in an OSI application layer running on top of a facilities network and that provides VAN services is a technological feature or solution. *Id.* at 25. Patent Owner also contends that this approach solves a technological problem, because at the time of the invention, there was no mechanism for performing a robust, real-time transaction with a bank, such that the bank could not be a true 'Web merchant' capable of providing a complete transactional service on the Web. *Id.*

The fact that claim 1 recites a transaction is performed from a Web application or over a particular network does not mean that the claim is drawn to a technological invention. Claim 1 is directed to performing a real-time Web *transaction*. Claim 1 is not drawn to the Web application or the network. It is drawn to a method of performing the transaction. We do not find that the recited limitations include technical features that result in claim 1 being drawn to a technological invention.

The steps of the method recited in claim 1 include providing a webpage for display, providing at least one application the user can select to access checking and savings accounts, accepting signals from an input device, and transferring funds. There is no technological invention in these steps. Patent Owner argues, however, that certain elements of these steps transform the claim into a technological invention. For example, citing the prosecution history, Patent Owner contends that, because claim 1 recites a "Web application" and a "POSvc application" operating over "a service network atop the web" utilizing "routing of a transactional data structure," claim 1 was distinguished over the prior art based on technical features. PO Resp. 23–24. Patent Owner further argues that claim 1 solves a technological problem because the '158 Patent describes limitations in the prior art as lacking a mechanism for performing a robust, real-time transaction with a bank. *Id.* at 25–26. Patent Owner argues that using a data structure routed in the application layer of the OSI model as a complete data structure within information entries and attributes specific to the POSvc application is a technical feature of the claim that is not drawn to Web transactions generally, but to a specific implementation of Web transactions, and solves technological problems identified in the Specification. *Id.* at 27–

28. Patent Owner's citations to the Specification describe purported shortcomings in performing transactions, e.g., disadvantages of CGI scripts. The discussion of such shortcomings in the prior art does not change the nature of claim 1 as being drawn to a method of performing a transaction by carrying out certain non-technical steps. As we have construed the claim, the recited POSvc application is a software program that facilitates execution of transactions requested by a user and the recited service network is a network on which services other than underlying network communications services are provided over the Web. Utilizing a routed transactional data structure that is both complete and non-deferred means using a data structure that facilitates switching the processing of information associated with a user selected transactional application that provides immediate processing. A user's selection of a transactional application operates to transfer processing to a service provider program, which, in turn, provides immediate processing. None of these features changes the non-technological nature of claim 1. Thus, the subject matter of claim 1 is directed to a non-technical invention, i.e., simply transferring funds using known technologies.

CHALLENGES UNDER 35 U.S.C. § 101

Claims 9 further limits claim 1 by reciting that the transaction is a loan requested from a lender across the Web from a Web application. Claim 10 further limits claim 1, reciting that the Web transaction is vehicle purchased with bank financing across the Web from a Web application. Patent Owner asserts that claims 9 and 10 are patentable under 35 U.S.C. § 101 because claim 1 recites patentable subject matter. PO Resp. 30–35.

In CBM2013-00013, we analyzed the subject matter recited in claim 1 under 35 U.S.C. §101, applying the most recent guidance from the Supreme Court in *Alice Corp. Pty, Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014), which was decided after the Patent Owner Response was filed. To determine whether a claim recites patent-ineligible subject matter, the first step is to determine whether the subject claim is drawn to a law of nature, a natural phenomenon, or an abstract idea. *Id.* at 134 S. Ct. 2356 (citing Mayo Collaborative Services v. Prometheus Laboratories, Inc., 132 S. Ct. 1289, 1296–97 (2012)). If the claim is directed to patent-ineligible subject matter, the second step is to consider the elements of each claim both individually and "as an ordered combination" to determine whether the additional elements "transform the nature of the claim" into a patent-eligible application. Id. This second step of the analysis searches for an element or combination of elements that is "sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Id.* (internal quotations omitted).

Applying the broadest reasonable construction, claim 1 recites a method of carrying out a transaction from a Web application (a computer program to perform a certain type of work on the Web) in which a user selects a POSvc application (a software program that facilitates execution of transactions requested by a user). Thus, claim 1 recites an abstract method, i.e., performing a real-time Web transaction by displaying and providing at least one application a user selects to access checking and savings accounts, and transferring funds (i.e., debiting or crediting) in response to user signals from an input device. Patent Owner contends that our Decision to Institute ignores concrete limitations of claim 1, e.g., the routed transactional data

structures, the point of service application running on only a particular OSI model layer. PO Resp. 35.

According to Patent Owner, we misunderstand that:

> [c]laim 1 requires that the real-time Web transaction of transferring funds from a checking to savings account from a Web application be accomplished through OSI application layer routing of a transactional data structure as a whole, as a complete data structure with information entries and attributes specific to a POSvc application (unlike in CGI, where field by field is sent as standard I/O) ***from*** a point-of-service application as a selection within the Web page, and the complete data structure with information entries and attributes routed in the OSI application layer in a non-deferred manner and wherein the point-of-service application provides access to both a checking and savings account, the point-of-service application operating in a service network atop the World Wide Web.

PO Resp. 31.

These specific features are not recited in claim 1. Patent Owner's arguments are based on a claim construction of "routed transactional data structure" that we declined to adopt. Patent Owner argues that, even applying the construction in our Decision to Institute, we ignore the limitation in claim 1 that the "structure be routed." PO Resp. 32. However, the only mention of "data structure" in the Specification is a statement that "[t]he syntax of an object type defines the *abstract data structure* corresponding to that object type." Ex. 1001, col. 8, ll. 27–39 (emphasis added). Thus, the Specification states that, even if an object is considered to be physical, its data structure is abstract. In addition, although the syntax of an object type may impose a data structure on objects of a particular type, the Specification does not mention a transactional object type.

Patent Owner discusses the limitation "routed transactional data structure" extensively, arguing that the claim

> [r]equires routing of that data structure in OSI application layer as a whole (unlike in CGI, where field by field is sent as standard I/O) ***from*** a point-of-service application as a selection within the Web page, wherein the point-of-service application provides access to both a checking and savings account the point-of service network operating in a service network atop the Web.

PO Resp. 32–33. (emphasis in original).

These features are not recited in claim 1. Claim 1 makes no mention of routing a data structure as a whole, does not compare a routed data structure to standard I/O, and recites only that the point of service application provides access to the checking and savings account. Although claim 1 recites that transferring funds from checking to savings utilizes a routed transactional data structure that is specific to the POSvc application, claim 1 does not recite specifically what steps are taken to transfer funds in this manner. This recitation does not impose a meaningful limitation on the scope of claim1 because it does not play a significant part in permitting the claimed method to be performed.[12] *See SiRF Tech. Inc. v. Int'l Trade Comm.*, 601 F.3d 1319, 1333 (Fed. Cir. 2010). The Specification does not describe clearly how a data structure is transactional, as opposed to non-transactional, or routed, as opposed to non-routed. To the extent that "utilizing a routed transactional data structure that is both complete and non-deferred," can be construed, we have interpreted it to mean using a data structure that facilitates switching the processing of information associated

[12] Claim 1 does not recite what, if any, role is played by the claimed "routed transactional data structure."

with a user- selected transactional application that provides immediate processing. Switching the processing of information from one resource to another, such as from one data base or program, e.g., the claimed point-of service application, to another, is a well-known abstract concept that is not limited to any particular technical approach.

The remaining limitations in claim 1 do not contribute any patent-eligible subject matter. The service network atop the Web, which we have construed to mean a network on which services other than underlying network communications services are provided over the Web, is an abstract concept under which customers and service providers communicate over a network so that the service provider can service the customer, in this case to allow the user to transfer funds between checking and savings accounts. This does not impose a meaningful limitation on the scope of the claim. *See SiRF Tech*, 601 F.3d at 1333. Thus, we conclude that claim 1 does not recite patent-eligible subject matter.

Claims 9 and 10 do not add limitations that contribute to patent eligibility. Thus, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 9 and 10 do not recite patentable subject matter under 35 U.S.C. § 101.

ANALYSIS OF PRIOR ART CHALLENGES

Introduction

As previously noted, in CBM2013-00013, we concluded that Petitioner had demonstrated claim 1 is unpatentable under 35 U.S.C. § 103

over the combination of Lawlor and Computerworld and the combination of EB and SFCU. *SAP America, inc. v. Pi-Net Int'l.*, Case CBM2013-00013, slip op. (PTAB Sep. 18, 2014)(Paper 61, Final Written Decision). In this proceeding, Petitioner asserts that CORBA 1 and CORBA 2 each disclose the specific features recited in claims 4–6, which depend directly or indirectly from claim 1. Petitioner further asserts that, to the extent the features recited in claims 5 and 6 are not disclosed by the combinations of Lawlor and Computerworld with CORBA 1 or CORBA 2, or the combinations of EB and SFCU with CORBA 1 or CORBA 2, these features are disclosed in SNMP.

We extensively discussed the disclosures in Lawlor, Computerworld, EB, and SFCU in our analysis of claims 1–3 and 11 in CBM2013-00013. *See, SAP America, Inc. v. Pi-Net Int'l.*, Case CBM2013-00013, slip op. (PTAB Sep. 18, 2014) (Paper 61, Final Written Decision). As a preliminary matter, in this decision, we address Patent Owner's contentions concerning the combination of Lawlor and Computerworld and the combination of EB and SFCU relative to claim 1 and then address the further combination of these references with CORBA 1 and CORBA 2.

The Combination of Lawlor and Computerworld

Patent Owner contends that Lawlor pre-dates the Web and is missing a number of claim elements, such as a "Web page," a "Web application," "providing a point of service application as a selection within a page," and "a service network running atop the Web." PO Resp. 36–38. Patent Owner further contends that Computerworld discloses a Web page, but fails to disclose the other elements missing in Lawlor. *Id.* at 38. Patent Owner acknowledges that banks had Web sites in 1995. *Id.* at 39. Thus, Patent

Owner acknowledges that banks provided Web pages for display on an input device and accepted signals from the Web user input device, as recited in claim 1. Patent Owner argues, however, that in 1995, bank Web pages used Web forms, and e-mail, rather than Web applications and POSvc applications displayed on a Web page. *Id.* Patent Owner also argues that a Web browser is not a Web application. *Id.* at 39. Petitioner notes that Patent Owner's assertions are not supported by testimony and are based on improper claim constructions. Pet. Reply 9.

Lawlor discloses a system for remote delivery of banking services. Ex. 1006, Abstract. In Lawlor, contact is established between portable terminals and a central computer operated by a service provider over a telephone or packet data network. *Id.* Users are connected to their banks by linking the digital packet network, accessible through a dial-up gateway, to an ATM network. *Id.* at Abstract; col. 7, ll. 30–36, 40–48. The central computer acts as a Point of Sale (POS) or Automated Teller Machine (ATM). *Id.*, Abstract. The bank's data processing system communicates with other banks through specialized ATM networks and digital switches, so that a user of one bank's ATM can access an account in another bank. *Id.* at col. 4, ll. 12–23. Funds transfers can be accomplished in real time. *Id.* at col. 7, ll. 19–22.

Computerworld discloses that, in June 1995, Security First Network Bank was approved to provide services including the ability to make money transfers over the Internet. Ex. 1007, 80. Thus, Lawlor and Computerworld each disclose, or the combination suggests, a software program that facilitates execution of a transaction requested by the user, or a POSvc application, as we have construed that term. Lawlor and Computerworld

disclose, or suggest, a Web application, i.e., a computer program to perform a certain type of work using the Web.

Computerworld's discussion of accessing banking services over the Internet and using Netscape Navigator in such transactions, Ex. 1007, discloses a Web page displayed on a computer screen and a Web application, i.e., a computer program to perform a certain type of work using the Web. Lawlor discloses that, with an alpha keyboard, a terminal user can access not only banking services, but also e-mail and other "alpha-dominated" services via the PDN. Ex. 1006, col. 10, ll. 34–43; col. 7, l. 64– col. 8, l.5. Lawlor discloses displaying advertising to a consumer based on the consumer's past history, Ex. 1006, col. 32, ll. 15–65, and a menu from which a user selects a type of banking service, e.g., bill paying, account transfer, account information, or other services. *Id.*, col. 32, l. 65– col. 33, l.2, col. 41, ll. 35–40. The claimed access to both a savings and checking account is encompassed by Lawlor's disclosure of account transfer and account information options. *See, id.*, col. 10, ll. 34–43.

Lawlor discloses that, following the user's selection of the particular type of transaction, sub-options are displayed and the software is responsive to further inputs from the user. Ex. 1006, col. 41, ll. 57–60. Funds transfers, such as payments, can be accomplished immediately, in real time, and the transactions can be routed through the originating ATM network or another ATM network. *Id.* at col. 7, ll. 49–53, col. 22, ll. 28–52, col. 50, ll. 44–59. Lawlor further discloses a banking module 80H that conducts funds transfers between accounts (*id.* at col. 20, ll. 59–63) and a routing module that permits efficient routing of transactions to the appropriate module for servicing (*id.*

at col. 20, ll. 27–29). Thus, Lawlor discloses a routed transactional data structure, as we have construed that term.

We agree with Petitioner that a person of ordinary skill in the art would have considered it obvious to include accessing banking services over the Internet using a browser (as taught in Computerworld) in the system of Lawlor. Pet. 54–56. Lawlor discloses "a new central/communications system performing new functions" and an ATM network linking to a digital packet switched network, such as the Internet, of which the World Wide Web is a part. Ex. 1006, col. 7, ll. 40–50. Petitioner notes that the combination of Lawlor and Computerworld is nothing more than combining the remote banking services of Lawlor with the World Wide Web banking Web sites described in Computerworld without any significant modification and that, like the '158 Patent, both Lawlor and Computerworld address providing real-time transactional capabilities. Pet. 54. Petitioner points out that both references discuss home banking systems, i.e., the disclosed Computerworld systems operate on the World Wide Web, while Lawlor operates over standard phone networks. *Id.* at 55. Citing the Declaration of Dr. Sirbu (Ex. 1003) ("Sirbu 1 Decl."), Petitioner persuasively argues that one of ordinary skill in the art would have found it obvious to adapt the Lawlor system to the World Wide Web, as Computerworld discusses banks that were performing money transfers over the World Wide Web. *Id*.

In view of the above, we conclude that the combination of Lawlor and Computerworld discloses all of the limitations of claim 1, from which claims 4–6 directly or indirectly depend.

The Combination of EB and SFCU

Patent Owner contends that EB predates the Web by almost a decade and fails to teach any of the claimed terms or features. PO Resp. 44. Patent owner disputes Petitioner's contention that EB teaches a routed transactional data structure. *Id.* at 43. Patent Owner further contends that SFCU does not teach real-time, two-way transactional capabilities on the Web and that SFCU does not disclose such features as a "web application," "providing a point-of-service application selection within the Web page." *Id.* Petitioner contends that Patent Owner's contentions are based on flawed constructions. Pet. Reply. 15.

EB generally discloses retail and wholesale banking services and discusses future directions of the financial services industry and electronic funds transfer at the time of its publication in 1985. Ex. 1004, 10–11. Pages 123–146 of EB disclose home banking developments from a telephone bill payment system to a video home banking system. EB identifies four categories of service (information retrieval, transactions, electronic messaging and computation), *id.* at 124–25, four major processing functions, (customer information preparation, network control, session management and after-session transaction processing), *id.* at 128, and five major system elements (terminals, communications link, operating center, database and standards), *id.* at 124–25.

EB discloses that when a customer accesses the system, that customer is the network controller's customer and can access many different services the network controller offers, including a bank's services, by selecting from categories listed on an index menu. *Id.* at 129. When the customer selects banking, the network controller sets up a direct connection between the customer and the financial switch ("FS") bank, at which point the FS bank

takes over the session management function and prompts the customer through the transaction, thereby capturing the customer oriented transaction and providing the bank complete control over the customer's transaction. *Id.* When the customer signs off, the customer is returned to the network controller's main menu from which the customer may select another service, such as news or games. *Id.*

EB discloses that when a user selects electronic banking, the network controller sets up a direct connection between the financial switch (FS) bank and the customer, at which point the bank takes over the session management. Ex. 1004, 129. EB also discloses the need for a bank to possess software to extract home banking customer account information to set a cutoff time for updating accounts during (e.g., immediately) or after the session. *Id.* at 134. EB further discloses the Fed Wire network, which transfers credits and debits that immediately affect an institution's available funds. Thus, EB discloses a routed transactional data structure, as we have construed that term.

Stanford Federal Credit Union ("SFCU") discloses that, following a 100 member trial in 1994, in 1995 Stanford Federal Credit Union became the first bank to offer customers services beyond access to information over the Internet, by providing its customers the ability to withdraw or transfer funds from one account to another, and conduct day-to-day business online, using its home page and World Wide Web server. Ex. 1005, 1–2.

We have construed "Web application," to mean a computer program to perform a certain type of work using the Web. SFCU discloses using a home page and the Web to conduct everyday business, such as funds transfers, using a World Wide Web server. EB discloses a program that

offers four categories of banking services (transactions the bank can perform). Ex. 1004, 124–25. Thus, the combination of SFCU and EB suggests a computer program to perform a certain type of work using the Web.

We agree with Petitioner that one would be motivated to combine the teachings of EB and SFCU. Both references address the same problem as that addressed by the '158 Patent, i.e., providing real-time transactional capabilities. Both SFCU and Electronic Banking teach techniques for performing real-time, two-way transactions, with SFCU explicitly teaching these capabilities on the Web. Pet. 76 (citing Sirbu 1 Decl., Ex. 1003 ¶ 127). We credit Dr. Sirbu's testimony that, although Electronic Banking does not specifically mention banking systems on the Web, applying such systems to the Web was well-known, *id.* (citing Sirbu 1 Decl., Ex. 1003 ¶¶ 29–32), and that the elements perform the same functions in the combination that they had been known to perform individually, such that the results are expected, *id*. at 77 (citing Sirbu 1 Decl., Ex. 1003 ¶128).

In view of these disclosures, and as detailed in our Decision to Institute, we conclude that the features of claim 1, from which claims 4–6 directly or indirectly depend, are rendered obvious by the combination of EB and SFCU.

Further Combination with CORBA 1 and CORBA 2

Claim 4

In our Decision to Institute, we instituted a trial on Petitioner's separate challenges to claim 4 based on the further combinations of Lawlor

and Computerworld and EB and SFCU with CORBA 1 and CORBA 2. Dec. to Inst. 22–27. Claim 4, which depends from claim 1 recites that "object routing is used to complete the transfer of funds in a Web application." According to Petitioner, CORBA 1 discloses that the CORBA standard can be used to provide Internet services, i.e., services provided in environments distributed across multiple computers that are connected by the Internet. Pet. 31 (citing Ex. 1009, 100[13]). Petitioner also contends that implementation of CORBA in a distributed computing environment (DCE) is "nearly identical to the implementation shown in Fig. 6B of the '158" such that an object is reachable at an IP address. Pet. 31–32 (citing Sirbu 1 Decl., Ex. 1003 ¶¶ 133–135).

Patent Owner contends that

> a CORBA 1/2 object has data parameters and methods that are passed and is not the same as the object or networked object in claimed inventions in the '158 Patent that have both information entries AND attributes, and that are displayed on a Web page, and are routed from a POSvc application also displayed on a Web page, that a user transacts from, as illustrated in Fig. 5D.

PO Resp. 55.

Patent Owner advances similar argument on pages 75–76 of the Patent Owner Response, further arguing that a CORBA object is lines of code, rather than a networked object specific to a POSvc application displayed on a Web page. PO Resp. 75–76. However, the '158 Patent describes a networked object as being "encoded" and does not exclude using lines of code. In the '158 Patent, an object can be information about models of cars,

[13] Page numbers referenced are those printed in the CORBA 1 document, rather than the page numbers of Ex. 1009.

while an instance of an object provides information about a specific car model. Ex. 1001, col. 8, ll. 23–27. The encoding of objects defines how the object is represented by the object type syntax while being transmitted over the network. *Id.* at col. 8, ll. 27–31. Nothing in the '158 Patent excludes the use of lines of code to encode an object. Indeed, the '158 Patent's description of a network object as encoded suggests using lines of code.

We have construed "object routing" to mean *the use of individual network objects to route a user from a selected transactional application to the processing provided by the service provider*. Patent Owner contends that, in the '158 Patent, the Specification explicitly defines that the individual networked object is routed, PO Resp. 49, and extensively argues that the '158 Patent is distinguished from CORBA because "[t]his CORBA object containing code is not routed. The code is not routed." *Id.* at 48. Patent Owner's contentions are inconsistent with the Specification. The '158 Patent does not define "object routing" specifically. As noted by Petitioner's expert, Dr. Sirbu, the '158 Patent does not describe that objects are actually routed. Ex. 1023 ¶48. Instead, the '158 Patent describes a technique to access an IP-reachable networked object. *Id*. The '158 Patent states that a networked object resides at a node having an internet protocol (IP) address, Ex. 1001, col. 8, ll. 4–6, and that all networked objects associated with a Web server will be assigned an Internet address based on the Web server's IP address, *id.* at col. 8, ll. 7–11.

In order to access the networked object, the '158 Patent discloses using TMP, a proprietary protocol that is not described in the '158 Patent, with distributed on-line service information bases ("DOLSIBs") as "one embodiment" of the claimed "object routing." Ex. 1001, col. 7, ll. 54–65.

Object routing is not limited to this one embodiment because the Specification states very specifically that "[a]lternatively, TMP can incorporate s-HTTP, JAVA, the WinSock APJ, or ORB with DOLSIBs to perform object routing." *Id.* The '158 Patent states the following:

> VAN switch **520** provides multi-protocol object routing, upon the specific VAN services chosen. This multi-protocol object routing is provided via a proprietary protocol, TransWeb™ Management Protocol (TMP). …
>
> One embodiment of the present invention utilizes TMP and distributed on-line service information bases (DOLSIBs) to perform object routing. Alternatively, TMP can incorporate s-HTTP, Java™, the WinSockAPI or ORB with DOLSIBs to perform object routing. DOLSIBs are virtual information stores optimized for networking. All information entries and attributes in a DOLSIB virtual information store are associated with a networked object identity. The networked object identity identifies the information entries and attributes in the DOLSIB as individual networked objects, and each networked object is assigned an Internet address. The Internet address is assigned based on the IP address of the node at which the networked object resides.
>
> For example, in FIG. 5A, Web server **104** is a node on the Internet, with an IP address. All networked objects associated with Web server **104** will therefore be assigned an Internet address based on the Web server **104's** IP address. These networked objects thus "branch" from the node, creating a hierarchical tree structure. The Internet address for each networked object in the tree essentially establishes the individual object as an "IP-reachable" or accessible node on the Internet. TMP utilizes this Internet address to uniquely identify and access the object from the DOLSIB. FIG. 6B illustrates an example of this hierarchical addressing tree structure.

Ex. 1001, col. 7, l. 53–col. 8, l. 17 (emphases added).

According to Patent Owner, a CORBA client is lines of program code that passes information entries and methods over raw wire to a CORBA

server object, which is also lines of code, and did not interface to a Web browser in 1995. PO Resp. 76–77. Patent Owner does not provide independent evidence in support of its assertions concerning CORBA interfacing to a Web browser. Petitioner's expert, Dr. Sirbu, references publications in 1995 World-Wide Web discussing applications that can be linked to back-end object-oriented client/server systems in which WebObjects applications are executed on Web servers. Ex. 1023 ¶ 48.

As Petitioner points out, CORBA 1 discloses a higher-level facility for distributed computing and achieving interoperability in a distributed environment through well-defined interface specifications at the application level. Pet. 29 (citing Ex. 1009, 35). CORBA 1 discloses that Internet facilities can be partitioned into front-end tools (user facilities) that are front-end applications serving a user and back-end information resources (the application facilities) that can be shared by multiple servers. Ex. 1009, 100. Dr. Sirbu demonstrates that the CORBA architecture separates user facilities, which CORBA implements as client objects customized to a user, from back-end application facilities, which CORBA indicates should be implemented as server objects. Sirbu 1 Decl., Ex. 1003 ¶137. This architecture is similar to that described in '158 Patent in which a user accesses Bank Back Office processing using a POSvc application. *Id.* (citing Ex. 1001, col. 6, ll. 42–67, Fig. 5D).

Patent Owner's contention that it is technically impossible for a client object (the Web server) to invoke a method of a server object, PO Resp. 44 is not supported by evidence. In contrast, Petitioner has put forth evidence that CORBA 1 discloses that applications are objects that can alternate between client and server roles. Pet. Reply 10 (citing a second declaration

by Dr. Sirbu ("Sirbu 2 Decl.") Ex. 1023 ¶57, Ex. 1009, 53, 116). Dr. Sirbu persuasively testifies that a person of ordinary skill would understand that in CORBA a client object receives a request from a user and invokes a server object, passing arguments extracted from the user's request, to process the request. Pet. Reply 11 (citing Sirbu 2 Decl., Ex. 1023 ¶¶ 58–59). The client object accesses the server object using an identifier (the object reference), which an Object Request Broker (ORB) maps to an interoperable object reference (IOR) that resolves to an IP address where the object can be found, thus routing the user to the processing provided by the service provider. *Id.* *See also* Sirbu 1 Decl., Ex. 1003 ¶138 (providing a similar explanation.). Dr. Sirbu also demonstrates that a CORBA object is reachable at an IP address using a hierarchical implementation in a manner nearly identical to that described and shown in Fig. 6B of the '158 Patent for accessing a networked object. Sirbu 1 Decl., Ex. 1003 ¶135.

CORBA 2 (Ex. 1012) is the architecture and specification for the Common Object Request Broker discussed in CORBA 1. In the context of claim 4, Petitioner notes that CORBA 2 discloses (i) that the ORB is responsible for the mechanisms required to find an object implementation for a user's request and to communicate the data making up the request and (ii) that the interface to the user is completely independent of where the object is located. Sirbu 1 Decl., Ex. 1003, ¶154 (citing CORBA 2-2). Petitioner demonstrates that CORBA 2 discloses a CORBA client, i.e., the code or process that invokes an object. Sirbu 1 Decl., Ex. 1003 ¶157. Dr. Sirbu testifies that when a client receives a user request, the client invokes an operation, which is switched by the application layer ORB and its collective services (naming services, interface repository) to the correct

server object, passing arguments including data extracted for the user's request to the server object that performs the processing. *Id.* As discussed above, this process is implemented in a hierarchical manner almost identical to that disclosed in the '158 Patent. Sirbu 1 Decl., Ex. 1003 ¶ 157. Thus, the disclosures in CORBA 2 are very similar to those of CORBA 1.

We have determined previously that one of ordinary skill in the art would have found it obvious to adapt the Lawlor system to the World Wide Web, as Computerworld discusses banks, such as Security First Network Bank, that were performing money transfers over the World Wide Web. Dr. Sirbu notes that, because computer programmers had for many years been moving toward writing code using object-oriented approaches, it would have been obvious to a person of ordinary skill to use the teachings of CORBA 1 to implement such a system using an object-oriented approach in which a client object servicing the user invokes a method of an object corresponding to the Security First Network Bank's back end to process the transaction, as discussed in Computerworld. Sirbu 1 Decl., Ex. 1003 ¶ 139. Dr. Sirbu demonstrates persuasively that modifying the combination of Lawlor and Computerworld according to the CORBA standard would have entailed simply substituting remote procedure calls in Lawlor with more contemporary object invocations, as was well known from the C++ computer language, to obtain the same result. Sirbu 1 Decl., Ex. 1003 ¶¶ 159–161. Thus, Petitioner has demonstrated by a preponderance of the evidence that claim 4 is unpatentable over the combination of Lawlor, Computerworld, and CORBA 1, as well as the combination of Lawlor, Computerworld, and CORBA 2.

We reach the same conclusion concerning the combination of EB, SFCU, and CORBA 1 or CORBA 2, for similar reasons. As discussed above, we have determined that a person of ordinary skill would have been motivated to combine the teachings of EB and SFCU and that both address the same problem as that addressed by the '158 Patent, i.e., providing real-time transactional capabilities. Both SFCU and Electronic Banking teach techniques for performing real-time, two-way transactions, with SFCU explicitly teaching these capabilities on the Web. Pet. 76 (citing Sirbu 1 Decl., Ex. 1003 ¶ 127). Dr. Sirbu has demonstrated that implementing such a system using the object-oriented programming techniques taught by CORBA would have been obvious to one of ordinary skill. Sirbu 1Decl., Ex. 1003 ¶¶161–162. Thus, Petitioner has demonstrated by a preponderance of the evidence that claim 4 is unpatentable over the combination of EB, SFCU, and CORBA 1, as well as the combination of EB, SFCU, and CORBA 2.

Claims 5 and 6

Claim 5 depends from claim 4 and recites that the object routing recited in claim 4 includes the use of distributed on-line service information bases (DOLSIBs).[14] In our Decision to Institute, we noted that claim 5 does not recite specifically that information and entries in a DOLSIB are sent, but rather, further limits the object routing in claim 4 to the extent that a networked object, which has information entries and attributes, is accessible. Dec. to Inst. 26. As Petitioner points out, claim 5 does not require

[14] Arguments by Patent Owner that the object routing recited in claim 4 is distinguished by the use of DOLSIBs, e.g., PO Resp. 49–50, apply only to claim 5.

routing/transmission of information entries and attributes in the DOLSIB, as argued by Patent Owner. Pet. Reply 13. In claim 5, information entries and attributes in a DOLSIB are used to access an object. The '158 Patent states that "[a]ll information entries and attributes in a DOLSIB virtual information store are associated with a networked object identity," which "[i]dentifies the information entries and attributes as individualized networked objects," each networked object being assigned an Internet address. Ex. 1001, col. 7, l. 65–col. 8, l. 4. The Internet address for each networked object "[e]stablishes the individual object as an 'IP reachable' or accessible node on the Internet" and the proprietary "[T]MP utilizes this Internet address to uniquely identify and access the object from the DOLSIB." *Id* at col. 8, ll. 13–17. Thus, the function of the DOLSIBs in the '158 Patent is to identify the networked objects, so they can be accessed.

CORBA 1 and CORBA 2 disclose an Interface Repository (IR) that supports runtime discovery and invocation of operations. Ex. 1009, 85; Ex. 1012, 6-1–6-2. Patent Owner acknowledges that CORBA defines an IR that provides runtime information about interface definition language (IDL) interfaces and that, at run time, clients can use the IR to discover operations that can be performed by an object, and make invocations of the object using the dynamic invocation interface (DII). PO Resp. 50. Patent Owner also acknowledges that CORBA defines an Implementation Repository that contains information that allows an ORB to activate servers to process a request, along with other server-specific information, such as administrative control, resource allocation, security, and activations modes. *Id.* However, Patent Owner contends that neither of the Interface Repository nor the Implementation Repository satisfies the claimed limitation of a using a

DOLSIB (claim 5) or conducting the transaction using a virtual information store (claim 6). PO Resp. 49–40. According to Patent Owner, the CORBA IR stores only the method and information entries that would be passed by a CORBA client program code object, not the information entries and attributes in a networked object identity, specific to a POSvc application displayed on a Web page, as taught by the '158 patent. *Id* at 77.

CORBA 2 describes the structure of a client, noting that the ORB manages the control and data transfer to the object implementation and back to the client. Ex. 1012, 2-11. Invocation of an object involves specifying an object to be invoked, the operation to be performed, and the parameters to be given to the operation or returned from it. *Id.* CORBA 2 discloses that the Interface Repository provides for storage, distribution, and management of a collection of related objects and that interface definitions are maintained in the IR as a set of objects accessible through the IDL. Ex. 1012, 6-1–6-2. Dr. Sirbu states that the InterfaceDef object represents an interface definition. Sirbu 1 Decl., Ex. 1003 ¶167 (citing Ex. 1012, 6–7). Dr. Sirbu notes that in CORBA 2 an object can be located or accessed based on identifiers, i.e., the object reference, by exercising the **get_interface()** operation, and that the "object reference" is an identifier optimized for networking. Sirbu 1 Decl. ¶168 (citing Ex. 1012, 6–7). Dr. Sirbu further notes that in CORBA 2 the IR has information entries and attributes (e.g., the "defined_in" attribute) which are associated with the attribute identifier and the attribute RepositoryId of the InterfaceDef object and are therefore examples of a networked object identities as described in the '158 Patent. *Id.* ¶ 171. Dr. Sirbu further states that one of ordinary skill in the art would have understood that the IR is a virtual information store, as recited in claim

6, and DOLSIB that is optimized for as recited in claim 5. *Id.* ¶ 173. Petitioner has demonstrated that the function of the IR as disclosed in CORBA 2 is to store information and attributes that can be used to access an object, i.e., route a user from a transactional application to the processing provided by the service provider.

Citing specific sections of CORBA 1, Dr. Sirbu demonstrates persuasively that the similar disclosures in CORBA 1 show that a person of ordinary skill would understand that, as a result of the IR, the object routing in CORBA 1 uses a distributed DOLSIB (claim 5) and that a virtual information store is used for completing the transaction (claim 6). Sirbu 1 Decl., Ex. 1003 ¶¶140–147. Thus, Petitioner has demonstrated by a preponderance of the evidence that claims 5 and 6 are unpatentable under 35 U.S.C. § 103 over the same combinations of references as claim 4.

Thus, Petitioner has shown by a preponderance of the evidence that claims 4–6 are unpatentable over the combination of Lawlor, Computerworld, and CORBA 1; the combination of Lawlor, Computerworld, and CORBA 2; the combination of EB, SFCU, and CORBA 1; and the combination of EB, SFCU, and CORBA 2.

SNMP

Claims 5 and 6

Petitioner contends that, to the extent that the IR in CORBA 1/2 is not considered an information store optimized for networking (i.e., a DOLSIB), this feature is disclosed in SNMP. Pet. 40. Petitioner argues that SNMP is a Specification for managing devices over a network in which management information is viewed as a collection of managed objects residing in a virtual information store called the Management Information Base (MIB). *Id.* at 40

(citing Ex. 1011, 3[15].) Petitioner notes that SNMP discloses a "method of identifying individual instances of objects in the MIB" and accessing "related objects in the MIB as if they enjoyed a tabular organization." *Id.* at 41 (citing Ex. 1011, 16). Petitioner contends that the IR in CORBA 1 or CORBA 2, which could be implemented across multiple heterogeneous servers as multiple objects communicating using CORBA, could be substituted by the management information base (MIB) in SNMP because both use a hierarchical naming structure including an IP address to identify the location of stored objects. *Id.* at 40, 58. Petitioner further argues that SNMP discloses a virtual information store being used to complete the transfer of funds as recited in claim 6 of the '158 Patent. Pet. 42. Dr. Sirbu testifies that in such an application, the Web server would be implemented as a client object invoking a method corresponding to the bank's back end to process the transaction. The object would be accessed via CORBA's Interface Repository, which could be implemented as a virtual information store MIB in SNMP, thereby routing the user to the processing provided by the service processor. Pet. 42 (citing Sirbu 1Decl., Ex. 1003, ¶ 144). The client object "would pass arguments derived from the user's request to the server object." *Id.* at 43.

Patent Owner contends that SNMP relates to monitoring hardware diagnostics in a physical network and works on a completely different level from CORBA. PO Resp. 59. According to Patent Owner, an object in SNMP is the attribute of a hardware device being monitored for diagnostics on a physical network and the numerical name of the MIB variable or

[15] Page numbers referenced are those of the original document, rather than exhibit page numbers.

attribute of the device is not an information entry and not a networked object. *Id.* at 64–65. Instead, Patent Owner argues, the MIB is a list of attributes of a device, so the MIB has attributes, but no information entries, while the remote device has the information entry, but no attributes. *Id.* at 65–66.

Petitioner responds that, in SNMP, each managed element stores information entries corresponding to the attributes defined in the MIB. Pet. Reply 14 (citing Sirbu 2 Decl., Ex. 1023 ¶ 62). According to Petitioner, at a particular IP address, a hierarchical structure of attributes and information entries exists for that device. *Id.* While the MIB defines the logical structure of the information store, the actual information entries and attributes are located initially at each managed object. *Id.* Thus, Petitioner argues, SNMP explicitly teaches a virtual information store that could be used with CORBA1/2's IR. *Id.*

The '158 Patent explicitly states that SNMP features can be combined with the features of the proprietary TMP, which, although not described, has an embodiment that uses DOLSIBs. Ex. 1001, col. 9, ll. 54–65. An SNMP entity may act as a manager (e.g., when it initiates management operations by generating a message) or an agent (when it performs management operation in response to a message) or may act as a proxy. Ex. 1011, 3. The management protocol of SNMP provides for the exchange of messages, which convey management information between the agents and management stations. *Id.* at 1. SNMP specifically discloses that "management information is viewed as a collection of managed objects, residing in a virtual information store, termed the management information Base (MIB)." *Id.* Although claim 6 recites that a virtual information store is

used to carry out the transaction, claim 6 puts no further limitations on how the virtual information store is used. In the context of implementing a system in a distributed computing environment using object-oriented approaches, as discussed above with respect to the combination of Lawlor, Computerworld, and CORBA 1 and 2, and EB, SFCU, and CORBA 1 and CORBA 2, Petitioner has demonstrated that a person of ordinary skill would have considered it obvious to use a virtual information store, such as the MIB in SNMP, to invoke objects that perform the requisite processing. Pet. 42–43, 57–58 (citing Sirbu 1 Decl., Ex. 1003 ¶¶186, 189), *id.* at 71–72, 78–70 (citing Sirbu 1 Decl., Ex. 1001 ¶¶190, 192)

We reach the same conclusion with respect to claim 5. Claim 5 recites that the object routing includes the use of DOLSIBs, but does not further limit how DOLSIBs are used. In SNMP, a variable is an instance of a non-aggregate object type and is named by an Object Identifier. *Id.* Variable binding refers to pairing the name of a variable (its Object Identifier) and its associated value. *Id.* A variable list is list of variable bindings, i.e., a list of Object identifiers and their values. *Id.*

SNMP discloses that an important use of a GetNextRequest Protocol Data Unit (PDU) is the traversal of conceptual tables of information within an MIB. *Id.* at 16. The request semantics, together with the method of identifying individual instances of objects in the MIB, provides access to related objects in the MIB. *Id.* Thus, SNMP discloses a virtual information store (the MIB) in which objects having information entries and attributes, e.g., variable and variable bindings, are stored, and are associated with Object Identifiers (networked object identities in the ’158 Patent), as discussed by Dr. Sirbu. Sirbu Decl. 1, Ex. 1003 ¶184. As discussed above,

a person of ordinary skill would have considered it obvious to combine the teachings in SNMP with those of Lawlor, Computerworld, and CORBA 1 and CORBA 2, as well as with those of EB, SFCU, and CORBA 1 and CORBA 2, to access objects, as in the object routing recited in claim 5 of the '158 Patent.

In consideration of the above, Petitioner has demonstrated by a preponderance of the evidence that claims 5 and 6 are unpatentable over the combination of Lawlor, Computerworld, CORBA 1, and SNMP, the combination of Lawlor, Computerworld, CORBA 2, and SNMP, the combination of EB, SFCU, CORBA 1, and SNMP, and the combination of EB SFCU, CORBA 2, and SNMP.

SUMMARY

Having reviewed the arguments and the evidence of record, we hold that Petitioner has shown by a preponderance of the evidence that:

Claims 4–6 are unpatentable under 35 U.S.C. § 103 over the combination of Lawlor, Computerworld, and CORBA 1;

Claims 4–6 are unpatentable under 35 U.S.C. § 103 over the combination of Lawlor, Computerworld, and CORBA 2;

Claims 4–6 are unpatentable under 35 U.S.C. § 103 over the combination of EB, SFCU, and CORBA 1;

Claims 4–6 are unpatentable under 35 U.S.C. § 103 over the combination of EB, SFCU, and CORBA 2:

Claims 5–6 are unpatentable under 35 U.S.C. § 103 over the combination of unpatentable over the combination of Lawlor, Computerworld and CORBA 1, and SNMP;

Claims 5–6 are unpatentable under 35 U.S.C. § 103 over the combination of Lawlor, Computerworld and CORBA 2, and SNMP;

Claims 5–6 unpatentable under 35 U.S.C. § 103 over the combination of EB, SFCU and CORBA 1, and SNMP;

Claims 5–6 are unpatentable under 35 U.S.C. § 103 over the combination of EB, SFCU and CORBA 2, and SNMP; and

Claim 9–10 are unpatentable under 35 U.S.C. § 101 for failing to recite patent-eligible subject matter.

ORDER

In consideration of the above, it is

ORDERED that claims 4–6, 9, 10 are unpatentable.

FURTHER ORDERED, that because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

PETITIONER:

Lori A. Gordon
Michael Q. Lee
Sterne, Kessler, Goldstein & Fox P.L.L.C.
1100 New York Avenue, NW
Washington, DC 20005
Lgordon-ptab@skgf.com
Mlee-ptab@skgf.com

PATENT OWNER

Lakshmi Arunachalam (*pro se*)
laks22002@yahoo.com