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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* FERNANDO SALAZAR

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Appeal 2018-008881  
Application 11/612,988  
Technology Center 3600

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Before ANTON W. FETTING, NINA L. MEDLOCK, and  
TARA L. HUTCHINGS, *Administrative Patent Judges*.

HUTCHINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1–4, 7–9, 12–15, and 18–20. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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<sup>1</sup> We use the term “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Our decision references Appellant's Appeal Brief (“Appeal Br.,” filed April 9, 2018) and Reply Brief (“Reply Br.,” filed Sept. 13, 2018), and the Examiner's Answer (“Ans.,” mailed July 13, 2018) and Final Office Action (“Final Act.,” mailed Oct. 12, 2017). Appellant identifies International Business Machines Corporation as the real party in interest. Appeal Br. 2.

## CLAIMED INVENTION

Appellant describes that the claimed invention “relates to the field of component based distributed computing and more particularly to component based distributed computing in a service oriented architecture (SOA) environment.” Spec. ¶ 1.

Claims 1 and 12 are the independent claims on appeal. Claim 1, reproduced below with bracketed notations added, is illustrative of the claimed subject matter:

1. A method for service endpoint visualization and dynamic dependency management, the method comprising:

[(a)] receiving a query for a service type from a communicatively coupled querying client;

[(b)] consulting a registry through a registry interface utilizing the service type in order to identify in the registry a corresponding service endpoint address for the service type;

[(c)] issuing by a virtualization server executing in memory of a computer and binding service consumers to virtual endpoints, a ticket to the querying client instead of returning to the querying client the located corresponding service endpoint address;

[(d)] subsequently receiving in the virtualization server, the ticket issued to the querying client and in response, storing a callback address provided with the ticket in association with the querying client and providing to the querying client the corresponding service endpoint address for use by the querying client to bind in the querying client the service type to a service accessible at the corresponding service endpoint address; and,

[(e)] upon detecting a change for the corresponding service endpoint address, using the callback address to notify the querying client of the change, the querying client in response re-redeeming the ticket at a later time to receive a different service endpoint address for the service type.

## REJECTIONS

Claims 1–4, 7–9, 12–15, and 18–20 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

Claims 1–4, 7–9, 12–15, and 18–20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Ijidakinro (US 2008/0056233 A1, pub. Mar. 6, 2008) and Franco (US 2004/0044585 A1, pub. Mar. 4, 2004).

## ANALYSIS

### *Patent-Ineligible Subject Matter*

Under 35 U.S.C. § 101, an invention is patent eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted § 101 to include an implicit exception: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

The Supreme Court, in *Alice*, reiterated the two-step framework set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice Corp.*, 573 U.S. at 217. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are not directed to a patent-ineligible concept, e.g., an abstract idea, the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 566 U.S.

at 79, 78). This is “a search for an ‘inventive concept’ — *i.e.*, 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.* at 217–18 (alteration in original).

In rejecting the pending claims under 35 U.S.C. § 101, the Examiner determined that the independent claims 1 and 12

are directed to the abstract idea of collecting information regarding a querying client, a service, service endpoints, and a ticket, organizing the collected information by issuing tickets for the service to the querying client, storing a portion of the collected information, associating tickets and the querying client with the service endpoint address, and then analyzing a portion of the collected information to notify the querying client so that a the [sic] querying client may redeem the ticket and associate with another service endpoint address.

Final Act. 12. The Examiner concluded that this concept is similar to other concepts that the courts have found abstract. *Id.* at 13 (citing *Elec. Power Grp. LLC v. Alstom, S.A.*, 830 F.3d 1350 (Fed. Cir. 2016); *Cyberfone Sys., LLC v. CNN Interactive Grp., Inc.*, 558 F. App’x 988 (Fed. Cir. 2014)). And the Examiner determined that the additional elements in the claims do not amount to significantly more than the abstract idea because they

provide no more than mere instructions to implement the idea on generic computer components and simply append the abstract idea to a generic arrangement of generic computer structure that perform generic computer functions that are well-understood, routine, and conventional activities previously known in the field.

*Id.* The Examiner determined that the additional elements recited in dependent claims, considered alone and as an ordered combination, do not amount to significantly more than the recited abstract idea. *Id.* at 13–14.

After Appellant’s briefs were filed, and the Examiner’s Answer mailed, the U.S. Patent and Trademark Office (the “USPTO”) published revised guidance on January 7, 2019 for use by USPTO personnel in evaluating subject matter eligibility under 35 U.S.C. § 101. 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE, 84 Fed. Reg. 50, 57 (Jan. 7, 2019) (the “Revised Guidance”). That guidance revised the USPTO’s examination procedure with respect to the first step of the *Mayo/Alice* framework by (1) “[p]roviding groupings of subject matter that [are] considered an abstract idea; and (2) clarifying that a claim is not ‘directed to’ a judicial exception if the judicial exception is integrated into a practical application of that exception.” *Id.* at 50. The Revised Guidance, by its terms, “applies to all applications, and to all patents resulting from applications, filed before, on, or after January 7, 2019.” *Id.*; *see also* the USPTO’s “October 2019 Update: Subject Matter Eligibility,” *available at* [https://www.uspto.gov/sites/default/files/documents/peg\\_oct\\_2019\\_update.pdf](https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf) (clarifying the Revised Guidance in response to comments solicited from the public) (hereinafter “October 2019 Update”).

The first step in the *Mayo/Alice* framework, as mentioned above, is to determine whether the claims at issue are “directed to” a patent-ineligible concept, e.g., an abstract idea. *Alice Corp.*, 573 U.S. at 217. This first step, as set forth in the Revised Guidance (i.e., Step 2A), is a two-prong test; in Step 2A, Prong One, we look to whether the claim recites a judicial exception, e.g., one of the following three groupings of abstract ideas: (1) mathematical concepts; (2) certain methods of organizing human activity, e.g., fundamental economic principles or practices, commercial or legal interactions; and (3) mental processes. Revised Guidance, 84 Fed.

Reg. at 52. If so, we next consider whether the claim includes additional elements, beyond the judicial exception, “that integrate the [judicial] exception into a practical application,” i.e., that apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception (“Step 2A, Prong Two”). *Id.* at 54–55. Only if the claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application do we conclude that the claim is “directed to” the judicial exception, e.g., an abstract idea. *Id.*

The Federal Circuit has explained that “the ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether ‘their character as a whole is directed to excluded subject matter.’” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015)). It asks whether the focus of the claims is on a specific improvement in relevant technology or on a process that itself qualifies as an “abstract idea” for which computers are invoked merely as a tool. *See id.* at 1335–36.

Here, the Specification is entitled “SERVICE ENDPOINT VISUALIZATION AND DYNAMIC DEPENDENCY MANAGEMENT.” The Background section describes an open service oriented architecture (SOA) as “a system where all exposed business and technical functions are in the form of reusable services.” Spec. ¶ 2. These services can be accessed by a variety of clients and the services can engage with each other to exchange data or coordinate an activity among two or more services. *Id.*

An exemplary commerce application of an SOA includes services such as catalog management, shopping cart management, credit card transaction process, and sales tax computation. *Id.* ¶ 3. Because access to a service is based on standards and interfaces, rather than proprietary dependencies, services can be added or changed without displacing other services. *Id.* SOAs are based on loose coupling between service providers and service consumers, preferably using a late binding approach, wherein a needed service provider endpoint address is resolved at runtime with the aid of a registry, such as the Universal Description, Discovery and Integration (UDDI) registry. *Id.* ¶ 4.

Service virtualization can be realized with an SOA. *Id.* In service virtualization, a service consumer binds to a virtual endpoint, and the virtual endpoint resolves a connection to a desired, concrete endpoint. *Id.* Because services are defined logically, service virtualization allows clients to bind to a single, unchanging entity, while the service implementation can be redirected or changed at any time. *Id.* However, each link between endpoints represents a dependency that potentially requires management. *Id.* ¶ 5. With a large number of providers and consumers, links quickly grow to an overwhelming number, compromising the overall system. *Id.*

To solve this problem, the present invention describes providing time limited binding to virtualized endpoints for a service by issuing and redeeming a ticket. *See Spec.* ¶¶ 6, 7, 15. Specifically, instead of binding a client to a virtualized endpoint for a service in response to a service query from the client, a virtualization server issues a ticket for the service to a client. *Id.* ¶¶ 7, 18, 22. The client stores the ticket in memory and when the client requires binding to the service, the client forwards a combined

ticket/callback (i.e., the stored ticket and a callback address for the querying client) to the virtualization server. *Id.* ¶ 18. Then, the virtualization server stores the callback address in association with the client, and returns a valid endpoint address to the client. *Id.* ¶ 19. The client, in turn, binds to the service using the endpoint address. *Id.* When a change to the binding is required, the virtualization server forwards a change event to the client, the client reissues the combined ticket/callback, and the client receives a new endpoint address for a different service to which to bind. *Id.*

Consistent with this disclosure, claim 1 recites a method for service endpoint visualization and dynamic dependency management. The steps of the method include: (1) “receiving a query for a service type from a communicatively coupled querying client” (step (a)); (2) “consulting a registry through a registry interface utilizing the service type in order to identify in the registry a corresponding service endpoint address for the service type” (step (b)); (3) “issuing . . . and binding service consumers to virtual endpoints, a ticket to the querying client instead of returning to the querying client the located corresponding service endpoint address” (step (c)); (4)

subsequently receiving . . . , the ticket issued to the querying client and in response, storing a callback address provided with the ticket in association with the querying client and providing to the querying client the corresponding service endpoint address for use by the querying client to bind in the querying client the service type to a service accessible at the corresponding service endpoint address; and (step (d)); and (5) “upon detecting a change for the corresponding service endpoint address, using the callback address to notify the querying client of the change, the querying client in response re-redeeming the ticket at a later

time to receive a different service endpoint address for the service type” (step (e)). Independent claim 12 recites similar subject matter.

As described above, the Examiner found these limitations similar to the concept of “collecting information, analyzing it, and displaying certain results of the collection and analysis,” which the Federal Circuit held to be abstract. *Elec. Power Grp.*, 830 F.3d at 1353. Viewed through the lens of the Revised Guidance, we understand the Examiner’s characterization of the abstract idea to be a mental process, i.e., “concepts performed in the human mind (including an observation, evaluation, judgment, opinion).” Revised Guidance, 84 Fed. Reg. at 52 (footnotes omitted); *see also* October 2019 Update 7 (identifying exemplary mental processes as including the concept of the claims at issue in *Electric Power Group*).

As an initial matter, we disagree that steps (a) through (e), as recited in claim 1, and similarly recited in claim 12, are analogous to data analysis steps that can practically be performed in the human mind, such as those at issue in *Electric Power Group*. *See* October 2019 Update 7 (explaining claim limitations do not recite a mental process when the limitations cannot practically be performed in the human mind).

However, even if claims 1 and 12 recite an abstract idea, the Examiner has not addressed whether the claimed method entails a technological improvement in existing techniques for service endpoint visualization and dynamic dependency management. The Specification details, as described above, the shortcomings associated with then existing service endpoint visualization, including difficulty in managing a large number of dynamic dependencies. Spec. ¶ 5. The claimed invention addresses these shortcomings by providing a method that includes issuing by a virtualization

server a ticket to the querying client instead of returning a service endpoint address; subsequently receiving in the virtualization server, the ticket; storing a callback address provided with the ticket in association with the querying client; and providing to the querying client the corresponding service endpoint address, as well as using the callback address to notify the querying client of a detected change for the corresponding service endpoint address, and the querying client re-redeeming the ticket at a later time to receive a different service endpoint address for the service type. Rather than merely reciting a functional result of calling a service, the claims therefore recite a machine controlled implementation for doing so.

Accordingly, even if the claims recite an abstract idea, the Examiner has not established that claims fail to integrate the asserted abstract idea into a practical application. Therefore, we do not sustain the Examiner's rejection of independent claims 1 and 12 under 35 U.S.C. § 101. For the same reasons, we also do not sustain the Examiner's rejection of dependent claims 2-4, 7-11, 13-15, and 18-20.

#### *Obviousness*

We are persuaded that the Examiner erred in rejecting claims 1 and 12 under 35 U.S.C. § 103, at least because Ijidakinro does not teach or suggest

subsequently receiving in the virtualization server, the ticket issued to the querying client and in response, storing a callback address provided with the ticket in association with the querying client and providing to the querying client the corresponding service endpoint address for use by the querying client to bind in the querying client the service type to a service accessible at the corresponding service endpoint address[,]

as recited in limitation (d) of claim 1. Appeal Br. 13-17.

Ijidakinro relates to call-in customer support service. *See* Ijidakinro ¶ 1. In particular, Ijidakinro describes routing customer support calls among customer support agents who are remotely located and geographically distributed via the Internet. *Id.* ¶ 15. Ijidakinro's method for customer support incident routing includes a user contacting communications server 104 via communication network 106. *Id.* ¶ 17, Fig. 1. Communication network 106 is typically a telephone network. *Id.* Communications server 104 forwards data to incident management and routing service 110 via data network 112. *Id.* ¶ 18. Incident management and routing service 110 routes the call to integrated voice response (IVR) system 116. *Id.* ¶ 19. IVR system 116 gathers data from the user, such as the user's call-back number in case the call is inadvertently dropped, that can be used to generate a customer support incident ticket. *Id.* ¶ 19. Ticket creation module 316 receives data gathered from the user via IVR system 116 and generates a customer support incident ticket describing the nature of the customer support call. *Id.* ¶ 27. The ticket is stored in ticketing store 318, which maintains data associated with customer support calls. *Id.* ¶¶ 27–28, 46.

Multiple customer support agents 118, located anywhere in the world, log into incident management and routing service 110 via the Internet to provide customer support. *Id.* ¶ 20. A customer support ticket is assigned based on an agent's availability, language, and area of expertise. *Id.* Once the customer support ticket is assigned to a customer support agent, the customer support call is routed between the user communication device and the customer support agent's PC. *Id.* ¶ 21. In one embodiment, the customer opts to have a customer support agent call back, rather than wait

on hold. *Id.* ¶¶ 45, 69. In that implementation, the call is disconnected after data is gathered from the customer. *Id.* ¶ 45. And the user is called when a customer support agent is assigned to the customer support ticket. *Id.* ¶ 69.

In rejecting independent claim 1, the Examiner “interprets the recited ‘callback address’ to include the ‘call-back number’ that is obtained from the customer by the IVR 116 in case the call is disconnected and is stored in the ticketing data store 318 along with the ticket, as disclosed in Ijidakinro ([0019], [0027]-[0028]).” Ans. 9; *see also* Final Act. 17 (citing Ijidakinro ¶¶ 19, 28). The Examiner supports this interpretation by referring to a dictionary definition from Merriam-Webster for the term “address” as “a place where a person or organization may be communicated with.” Ans. 9–10 (citing [www.merriam-webster.com/address](http://www.merriam-webster.com/address)).

Yet, Appellant’s Specification describes the invention in the context of service virtualization in a service oriented architecture environment. *See, e.g.*, Spec. ¶¶ 1–4. For example, the Specification provides that “[i]n virtualization, service customers bind to virtual endpoints; then some logic or mechanism in the virtual endpoint ultimately resolves a connection to a desired concrete endpoint.” *Id.* ¶ 4. The invention provides a method, system, and computer program product “for service endpoint virtualization and dynamic dependency management.” *Id.* ¶ 6. Instead of providing a service endpoint to a querying client, the invention issues a ticket for an identified service and the querying client redeems the ticket, which the querying client subsequently redeems for a service endpoint for the querying client. *Id.* ¶ 7. Redeeming the ticket from the querying client includes receiving the ticket from the querying client, locating a service endpoint to an instance of the identified service, extracting a callback for the querying

client from the ticket, storing the extracted callback for later retrieval, and returning the service endpoint to the querying client. *Id.* ¶ 8. When a change in the instance of the identified service is detected, the querying client is notified through the callback address that a new ticket redemption for a new service endpoint for a different identified service is required. *Id.*

Therefore, we agree with Appellant (Appeal Br. 15–17) that one of ordinary skill in the art would understand in light of the Specification that the claimed “callback address” would not include a telephone number gathered by IVR from a client, as disclosed by Ijidakinro. Accordingly, we do not sustain the rejection of independent claims 1 and 12 and their dependent claims under 35 U.S.C. § 103 as unpatentable over Ijidakinro and Franco.

### CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/ Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–4, 7–9, 12–15, 18–20	101	Eligibility		1–4, 7–9, 12–15, 18–20
1–4, 7–9, 12–15, 18–20	103	Ijidakinro, Franco		1–4, 7–9, 12–15, 18–20
<b>Overall Outcome</b>				1–4, 7–9, 12–15, 18–20

REVERSED