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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes details for application 11/232,744 filed 09/22/2005 by Kulvir S. Bhogal, attorney AUS920050441US1, examiner RASHID, HARUNUR, art unit 2493, notification date 03/01/2013, and delivery mode ELECTRONIC.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KULVIR S. BHOGAL and ALEXANDRE POLOZOFF

Appeal 2010-009865
Application 11/232,744
Technology Center 2400

Before CAROLYN D. THOMAS, BRUCE R. WINSOR, and
DANIEL N. FISHMAN, *Administrative Patent Judges*.

Opinion filed for the Board by FISHMAN, *Administrative Patent Judge*.

Opinion concurring filed by THOMAS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-14 and 17-20, which constitute all the claims pending in this application. App. Br. 1-2.¹ Claims 15 and 16 are cancelled. *Id.* We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

¹ Throughout this opinion, we refer to: (1) the Appeal Brief ("App. Br.") filed December 30, 2009; (2) the Examiner's Answer ("Ans.") mailed April 7, 2010; (3) the Reply Brief ("Reply Br.") filed June 7, 2010; and (4) the Specification ("Spec.") filed September 22, 2005, as amended April 3, 2009.

STATEMENT OF THE CASE

The Invention

Appellants' invention relates to splitting an application into subcomponents based on resource utilization data gathered from a network and moving at least one subcomponent from a first system of the network to another system of the network based on a threshold for utilization data. *See generally* Abstract.

Claim 1 is reproduced below and is illustrative of the claims at issue on this appeal:

1. A computer-implemented method for application splitting for network edge computing, the method comprising:
 - gathering network resource utilization data for an enterprise network, wherein network resource utilization data is data describing the state of the consumption or availability of network resources;
 - determining whether the network resource utilization data meets an application split threshold, wherein an application split threshold is a value of network resource utilization at which splitting one or more applications is predetermined to be advantageous;
 - identifying an application on the enterprise network to split if the network resource utilization data meets an application split threshold;
 - splitting the application into a plurality of subcomponents; and
 - moving at least one subcomponent of the application to an edge network.

The Examiner relies on the following as evidence of unpatentability:

Cohen	US 6,011,918	Jan. 4, 2000
Davis	US 2003/0154239 A1	Aug. 14, 2003

The Rejections

Claims 14 and 17-20 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.² Ans. 3-4.

Claims 1-14 and 17-20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Cohen and Davis. Ans. 4-11.

Only those arguments actually made by Appellants have been considered in this decision. Arguments that Appellants did not make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2010).

§ 101 REJECTION

The preamble of claim 14 recites: “A computer program product for application splitting for network edge computing, the computer program product disposed upon recordable media for machine-readable information, the computer program product comprising computer program instructions for” App. Br. 17. The Examiner rejects claim 14 under § 101 as directed to non-statutory subject matter finding: “It can be reasonably interpreted that the computer program product disposed upon recordable media for machine-readable information that would include embodiments including propagation media, such as carrier waves, which fail to establish a

² Claims 14 and 17-20 were rejected in the Final Office Action mailed July 1, 2009, under 35 U.S.C. § 112, second paragraph, as indefinite for essentially the same reasons as presented in the § 101 rejection. Appellants’ Appeal Brief responded to the § 112 rejection. App. Br. 6-8. The Examiner’s Answer re-framed the § 112 rejection as new grounds for rejection under § 101. Ans. 3-4. Appellants replied to the new grounds for rejection in the Reply Brief. Reply Br. 6. We therefore review this rejection based on Appellants’ arguments stated in the Reply Brief.

statutory category of invention.” Ans. 4. Appellants replied suggesting the recited “recordable media” is specifically distinguished from “transmission media” at pages 7 and 8 of the Specification and thus claim 14 does not include non-statutory transmission media. Reply Br. 6.

ISSUE

Has the Examiner erred in rejecting claim 14 under § 101 by finding that claim 14 encompasses non-statutory embodiments (i.e., transitory signals such as propagation media)?

ANALYSIS

Transitory signals are unpatentable as non-statutory subject matter under § 101. *See In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007). The USPTO also provides the following guidance:

The broadest reasonable interpretation of a claim drawn to a computer readable medium . . . typically covers forms of non-transitory tangible media and transitory propagating signals *per se* in view of the ordinary and customary meaning of computer readable media, particularly *when the specification is silent*. When the broadest reasonable interpretation of a claim covers a signal *per se*, the claim must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter.

David J. Kappos, *Subject Matter Eligibility of Computer Readable Media*, 1351 OFF. GAZ. PAT. OFFICE 212 (Feb. 23, 2010) (citation omitted) (second emphasis added).

Appellants argue that “recordable media” is clearly defined in the Specification to exclude transmission media. We are unpersuaded. We first note that the Specification recites: “The invention also may be embodied in a computer program product, such as a diskette *or other recording medium as well as any transmission medium such as wireless transmission*, for use with any suitable data processing system.” Spec. 7:25-27 (emphasis added). The

Specification is therefore not silent as regards whether the invention may encompass non-statutory subject matter but rather explicitly recites that the computer program product may be embodied in a manner that encompasses non-statutory subject matter – i.e., “any transmission medium.” Thus, we find that the recited “computer program product” of claim 14 encompasses a “transmission medium” rendering the claim non-statutory subject matter under § 101.

Appellants also argue that page 8 of the Specification distinguishes (potentially patentable) “recordable media” from non-statutory “transmission media.” Reply Br. 6. We are unpersuaded. Indeed page 8 of the Specification as originally filed September 22, 2005, included recitations that defined “signal bearing media” as including “transmission media” or “recordable media” and then provided non-exclusive examples of “transmission media” and non-exclusive examples of “recordable media.” Since the terms “transmission media” and “recordable media” are defined as inclusive of examples and not exclusive of other examples (nor even mutually exclusive of one another), we find that the recitations of claim 14 do not limit the “recordable media” of claim 14 to distinguish from, and thus exclude, non-statutory “transmission media.” We further note that Appellants amended page 8 of the Specification in a response filed on April 3, 2009. This amendment attempted to remove reference to “transmission media” and corresponding examples but did not further narrow the definition of “recordable media” or “computer program product” given the disclosure on page 7 of the Specification noted *supra*. Furthermore, Appellants’ amendment to the Specification—without a corresponding claim amendment—falls short of overcoming the Examiner’s § 101 rejection of

claim 16. *See* OG Notice (noting that adding the term “non-transitory” to a claim drawn to computer readable medium that covers both transitory and non-transitory embodiments can avoid a rejection under § 101). *Accord Ex parte Busche*, No. 2009-007718, 2010 WL 5184640, at *5 (BPAI 2010) (non-precedential).

This amendment is consistent with our finding that a “computer program product” disposed on a “recordable media”, as recited in claim 14, encompasses non-statutory subject matter (i.e., transitory signals).

We are not persuaded of error in the Examiner’s rejection of claim 14 and dependent claim 17-20 not separately argued with particularity. Reply Br. 6.

§ 103 REJECTION

The Examiner rejects claim 1, finding each of the recited method steps in teachings of Cohen, but noted: “Cohen does not explicitly disclose threshold and wherein network resource utilization data is data describing the state of the consumption or availability of network; wherein an application [split threshold] is a value of network resource utilization [at which splitting] one or more applications is predetermined to be advantageous.” Ans. 5. The Examiner then finds that Davis provides such teachings such that the combination of Davis and Cohen teaches all elements of claim 1, and articulated a rationale for the combination. Ans. 6. Appellants contend that the combination of Cohen and Davis fails to teach or suggest the recited “determining” and “identifying” steps. App. Br. 8; Reply Br. 7.

ISSUE 1

Has the Examiner erred in finding that the combination of Cohen and Davis teaches the “determining” step?

ANALYSIS

The determining step in claim 1 recites (emphases added): “determining whether the *network resource utilization data* meets an *application split threshold*, wherein an *application split threshold* is a value of network resource utilization at which splitting one or more applications is predetermined to be advantageous.” App. Br. 12. The Examiner’s Answer explains that Cohen teaches that weight values are assigned to classes of an application and the classes are partitioned based on the weighted classes and the computing topologies. Ans. 12. The weights for a possible partitioning are compared to client threshold information specified by the computing topology. *Id.* If the weighted classes for a possible partitioning exceed the threshold, another possible partitioning is evaluated by again comparing with the thresholds specified by the computing topology. Ans. 12-13. The Examiner relies on Davis in combination with Cohen to teach a threshold value used in a comparison with resource utilization to determine whether an application’s resource usage exceeds a threshold value. Ans. 13.

Appellants contend that Cohen and Davis are not directed to “splitting” an application as recited in the determining step because they do not teach (individually or in combination) splitting of an “existing application.” Reply Br. 7. We find this argument unpersuasive. We note that the adjective “existing” as a modifier to “application” is not supported in the Specification and, in any event, is not commensurate with the scope of the claim.

Regardless, we find that Cohen does teach splitting of an “existing application” in accordance with the plain meaning of the term – i.e., an application that presently exists. Cohen recites (emphases added):

These and other objects of the present invention are provided by methods, systems and computer program products for automatically generating client/server applications *from an application written* to execute on a single processing system. The application has program classes and programmed methods associated with the objects. . . . The identified *classes are then partitioned* into client classes and server classes based on the weighted relationships between the programmed methods in the classes, the weight associated with each class and a computing topology associated with a target client processing system.

Cohen col. 3, ll. 11-28. Thus, Cohen shows generating applications from an “*application written to . . .*” (i.e., an application already written – an existing application). The identified classes are then *partitioned* (i.e., split). Thus, we find Cohen teaches splitting an existing application.

Appellants further argue that Cohen fails to teach the determining step because Cohen fails to teach use of “network resource utilization data” and an “application split threshold” as the terms are defined in the claim. App. Br. 9; Reply Br. 7-8. More specifically, Appellants argue that Cohen does not teach “resource utilization data” as data describing the state of consumption or availability of network resources. Reply Br. 8. Appellants further argue that Davis fails to teach the determining step because Davis describes comparing resource utilization data to a threshold at which a process should be terminated – not a value at which an application should be split (i.e., not an “application split threshold” as claimed). App. Br. 9-10; Reply Br. 8-9. We find these arguments unpersuasive because they are not commensurate with the grounds of rejection. Further, “one cannot show non-

obviousness by attacking references individually where, as here, the rejections are based on combinations of references,” *In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

The Examiner relies on Cohen’s teaching of an application split threshold related to resource utilization data. Ans. 5 (citing Cohen, Fig. 9; col. 10, ll. 58-65; col. 11, ll. 1-40); *see also* Ans. 12-13. We agree. Both “network resource utilization data” and “application split threshold” are defined within claim 1 in terms of values relating to “network resources.” Appellants define “network resources” in the Specification as referring generally to any hardware or software within a network used by the network and describes examples of “network resources” as including: storage, processors, routers, bandwidth of the network between nodes, applications, files, etc. Spec. 19-20. Applying such a broad definition, we find that Cohen’s teachings of weight values associated with classes relate to “network resource utilization data” in that they relate to “computing resources required by the identified class.” Cohen col. 3, ll. 21-23. Further, we find that Cohen’s teachings of “computing topology” information teaches an “application split threshold” in that a computing topology specifies capacities of resources available for a partition of classes. Cohen col. 7, l. 57 through col. 8, l. 5. Further, Cohen teaches that one of a plurality of possible partitions may be selected by determining which possible partitioning (according to its weights) meets the threshold of available resources of a computing topology. Cohen col. 11, ll. 2-8.

The Examiner relies on Davis’s teaching of a threshold value relating to consumption or availability of network resources, i.e., “network resource utilization data.” Ans. 6 (citing Davis, ¶¶ [0015], [0017], [0046]); *see also*

Ans. 13. We agree. For example, Davis recites: “Generally, sandboxing is accomplished by monitoring the resource (e.g., CPU, memory, disk, network I/O) utilization of each application server process. If an application server process over-utilizes resources, it is terminated, and a new application server is started.” Davis ¶ [0046]. In other words, Davis teaches monitoring network resource utilization data of a presently operating application and determines whether the resource is over-utilized by the application.

Accordingly, we find that the combination of Cohen and Davis teaches the determining step.

ISSUE 2

Has the Examiner erred in finding that the combination of Cohen and Davis teaches the “identifying” step?

ANALYSIS

The identifying step in claim 1 recites: “identifying an application on the enterprise network to split if the network resource utilization data meets an application split threshold.” The Examiner finds Cohen teaches the identifying step as item 26 of Figure 2 and corresponding text at column 3, lines 15-25, of the Specification. Ans. 5, 14. Appellants disagree and present similar arguments to those presented with respect to the “determining” step (i.e., Cohen and Davis don’t teach network resource utilization data and an application split threshold as defined in claim 1). App. Br. 10-11; Reply Br. 9-10. We find this argument unpersuasive for the same reasons as discussed above with respect to the “determining” step.

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SUMMARY

For the foregoing reasons, Appellants have not persuaded us of error in the rejection of independent claim 1 and claims 2-14 and 17-20 not separately argued with particularity. App. Br. 11; Reply Br. 10-11.

DECISION

The Examiner's decision rejecting claims 1-14 and 17-20 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

THOMAS, *Administrative Patent Judge*, concurring.

I concur with, and join, the majority's decision to affirm the rejection of claims 1-14 and 17-20. However, the majority contends that Cohen's "computing topology specifies capacities of resources *available* for a partition of classes" (Opinion at 3). The basis for the majority's determination in this regard appears to be founded on equating the "capacity" to do something with "availability" to do the same. However, I disagree that a computing capacity necessarily gives you the availability of resources, as "capacity" merely indicates the potential or suitability for holding, storing, or accommodating MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 168 (10th ed. 1997), whereas "availability" has a temporal component in that it must be present or ready for immediate use. *Id.* at 79. As such, I would not reach the rejection based on Cohen disclosing "availability," but would instead focus on Davis' teachings in which I concur with the majority. If we were solely relying on Cohen for this feature (which we are not), I would be inclined to reverse the rejection.

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