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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DARREN P. LOHER

Appeal 2015-007202
Application 14/043,683¹
Technology Center 2400

Before THU A. DANG, LARRY J. HUME, and SCOTT B. HOWARD,
Administrative Patent Judges.

HUME, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the Final Rejection of claims 1–18. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ According to Appellant, the real party in interest is Level 3 Communications, LLC. Br. 2.

STATEMENT OF THE CASE²

The Invention

Appellant's disclosed and claimed invention relates to systems, methods, and computer program products for

determining packet quality on an Internet protocol-based (IP-based) network [that] includes a packet test device that traces multiple paths on the IP-based network to obtain node identifiers corresponding to nodes on each path, and an Internet quality monitor (IQM) that associates a quality metric with each path, and associates an identified link between nodes in a path with one of the quality metrics.

Abstract.

Exemplary Claims

Claims 1, 5, 9, and 14, reproduced below, are representative of the subject matter on appeal (*emphases* added to contested limitations):

1. A method for monitoring quality of data transmission on an Internet protocol (IP)-based network, the method comprising:

deriving a network topology corresponding to at least a portion of the IP-based network, wherein the network topology includes one or more paths in the IP-based network;

determining a quality metric associated with each of the one or more paths in the network topology;

² Our Decision relies upon Appellant's Appeal Brief ("Br.," filed Feb. 3, 2015); Examiner's Answer ("Ans.," mailed May 21, 2015); Final Office Action ("Final Act.," mailed Sept. 4, 2014); and the original Specification ("Spec.," filed Oct. 1, 2013). We note Appellants did not file a Reply Brief in response to the factual findings and legal conclusions in the Examiner's Answer.

deriving two or more links associated with each of the one or more paths, wherein each link includes two or more nodes in an associated path;

determining a quality metric associated with each of the two or more links based on the quality metrics associated with the one or more paths; and

analyzing the quality metrics for the two or more links related to different paths to identify sources of reduced quality.

5. A method as recited in claim 1, wherein determining a quality metric comprises:

receiving looped back data packets; and

measuring one or more of packet loss, jitter, and latency associated with the looped back data packets.

9. A computer-program product having computer-executable instructions on a non-transitory computer readable medium, which, when executed, cause a computer to perform a process for determining quality of data communicated on an Internet protocol-based (IP-based) network, the process comprising:

determining a quality metric associated with each of one or more destination nodes in the IP-based network, wherein determining a quality metric comprises:

transmitting one or more data packets to one of the destination nodes;

receiving the data packets after the data packets have been looped back from the destination node; and

measuring the quality metric based on the looped back data packets;

tracing a path associated with each destination node using a Session Initiation Protocol (SIP) – based traceroute function to determine node identifiers (IDs) corresponding to nodes on each path; and

associating a quality metric with each path.

14. A system for determining packet quality on an Internet protocol-based (IP-based) network, the system comprising:

a packet test device tracing multiple paths on the IP-based network to obtain node identifiers corresponding to nodes on each path, each path terminating at an associated destination node; and

an Internet quality monitor (IQM) associating a quality metric with each path, determining one or more links in each path, and associating each of the one or more links with one of the quality metrics, wherein a quality metric is determining by:

transmitting one or more data packets to one of the destination nodes;

receiving the data packets after the data packets have been looped back from the destination node; and

measuring the quality metric based on the looped back data packets.³

Prior Art

The Examiner relies upon the following prior art as evidence in rejecting the claims on appeal:

Klinker et al. ("Klinker")	US 2006/0182034 A1	Aug. 17, 2006
Adhikari et al. ("Adhikari")	US 7,352,705 B1	Apr. 1, 2008

³ The bold portions of claim 14 indicates the contested limitations under § 112, second paragraph, Rejection R1.

*Rejections on Appeal*⁴

R1. Claims 14–18 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Ans. 2; Final Act. 2.

R2. Claims 1, 2, 4–8, 14, 16, and 18 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Klinker. Ans. 2; Final Act. 4.

R3. Claims 3, 9–13, and 17 stand rejected under 35 U.S.C. § 103(a) as being obvious over the combination of Klinker and Adhikari. Ans. 2; Final Act. 8.

⁴ In the event of further prosecution of this application, we invite the Examiner's attention to the question of whether method claims 1–8 are patent-eligible under 35 U.S.C. § 101 in light of the preliminary examination instructions on patent eligible subject matter. *See 2014 Interim Guidance on Patent Subject Matter Eligibility*, USPTO (Dec. 16, 2014). Abstract ideas have been identified by the courts by way of example, including fundamental economic practices, certain methods of organizing human activities, an idea ". . . of itself . . . ," and *mathematical relationships/formulae*. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355–56 (2014) (internal citation omitted). Claim 1 only recites a "method" without reliance upon a computer or other hardware to carry out the method such that a question arises as to whether a person would also be capable of performing the acts of the claimed method as mental steps, or with the aid of pen and paper. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) ("That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*"). Our reviewing court further guides that "a method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101." *CyberSource*, 654 F.3d at 1373. We leave further consideration of this § 101 issue to the Examiner. Although the Board is authorized to reject claims under 37 C.F.R. § 41.50(b), no inference should be drawn when the Board elects not to do so. *See Manual of Patent Examining Procedure* (MPEP) § 1213.02 (9th ed., Rev. 07.2015, Nov. 2015).

R4. Claim 15 stands rejected under 35 U.S.C. § 103(a) as being obvious over Klinker. Ans. 2; Final Act. 12.

CLAIM GROUPING

Based on Appellant's arguments (Br. 4–12), we decide the appeal of anticipation Rejection R2 of claims 1, 2, 4, and 6–8 on the basis of representative claim 1; we decide the appeal of anticipation Rejection R2 of claims 14, 16, and 18 on the basis of representative claim 14; and we decide the appeal of obviousness Rejection R3 of claims 3, 9–13, and 17 on the basis of representative claim 9.

We decide the appeal of separately argued indefiniteness Rejection R1 of claims 14–18 and anticipation Rejection R2 of separately argued claim 5, *infra*. Remaining claim 15 in Rejection R4, not argued separately or substantively with specificity, stands or falls with independent claim 14 from which it depends.⁵

ISSUES AND ANALYSIS

In reaching this decision, we consider all evidence presented and all arguments actually made by Appellant. We do not consider arguments that Appellant could have made but chose not to make in the Briefs, and we deem any such arguments waived. 37 C.F.R. § 41.37(c)(1)(iv).

We agree with particular arguments advanced by Appellant concerning indefiniteness Rejection R1 of claims 14–18. However, we disagree with Appellant's arguments with respect to prior art Rejections R2

⁵ "Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately." 37 C.F.R. § 41.37(c)(1)(iv).

through R4 of claims 1–18, and we incorporate herein and adopt as our own: (1) the findings and reasons set forth by the Examiner in the Final Office Action from which this appeal is taken, and (2) the reasons and rebuttals set forth in the Examiner's Answer in response to Appellant's arguments. We incorporate such findings, reasons, and rebuttals herein by reference unless otherwise noted. However, we highlight and address specific findings and arguments regarding claims 1, 5, 9, and 14 for emphasis as follows.

1. § 112, ¶ 2, Rejection R1 of Claims 14–18

Issue 1

Appellant argues (Br. 5) the Examiner's rejection of claim 14 under 35 U.S.C. § 112, second paragraph, is in error. These contentions present us with the following issue:

Did the Examiner err in interpreting the limitations in claim 14 of "an Internet quality monitor (IQM)," and "a packet test device" as "means-plus-function" limitations under 35 U.S.C. § 112, sixth paragraph, and, if such interpretation is correct, did the Examiner err in rejecting claim 14 and claims depending therefrom under § 112, second paragraph, as being indefinite for not having sufficient structural support in the Specification?

Analysis

We note particular arguments made by Appellant in connection with indefiniteness Rejection R1 of claims 14–18, and Appellant's admission that these claims should be construed under the means-plus-function provisions of 35 U.S.C. § 112, sixth paragraph, i.e.,

Appellant respectfully traverses this assertion. Appellant does intent [sic] to invoke the sixth paragraph or (f) of § 112.

The specification clearly states that both the packet test device 130 and internet quality monitor 128 may be implemented in a number of ways, including, but not limited to, general purpose computers, database servers, or *special purpose computers*.

Br. 5 (emphasis added).

In contrast, the Examiner's findings (Ans. 3) assert Appellant has only cited to disclosure of a *general purpose computer*, and finds "[t]he [I]nternet quality monitor and packet test device are performing functions which would require special programming and *because no algorithm is disclosed*, these claimed terms are indefinite and properly stand rejected under 112 2nd." Ans. 4 (emphasis added).

Our reviewing court guides, for a computer-implemented claim limitation interpreted under § 112, sixth paragraph, the corresponding structure must include the algorithm needed to transform the general purpose computer or processor disclosed in the specification into the special purpose computer programmed to perform the disclosed algorithm. *Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Techs., Inc.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008); *see also Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1318 (Fed. Cir. 2013). Thus, the specification must sufficiently disclose an algorithm to transform the general purpose computer or processor to a special purpose processor programmed to perform the disclosed algorithm. *Aristocrat*, 521 F.3d at 1338. An algorithm is defined, for example, as "a finite sequence of steps for solving a logical or mathematical problem or performing a task." MICROSOFT COMPUTER DICTIONARY 23 (5th ed. 2002). An applicant may express the algorithm in any understandable terms including as a mathematical formula, in prose, in a flow chart, or "in any

other manner that provides sufficient structure." *Finisar Corp. v. DirectTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008).

An indefiniteness rejection under § 112, second paragraph, is appropriate if the specification discloses no corresponding algorithm associated with a computer or processor. *Aristocrat*, 521 F.3d at 1337–38. Mere reference to a general purpose computer or processor with appropriate programming without providing an explanation of the appropriate programming or to "software" without providing detail about the means to accomplish the software function is not an adequate disclosure. *Id.* at 1334; *Finisar*, 523 F.3d at 1340–41. In addition, simply reciting the claimed function in the specification, while saying nothing about how the computer or processor ensures that those functions are performed, is not a sufficient disclosure for an algorithm which, by definition, must contain a sequence of steps. *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1384 (Fed. Cir. 2009).

If the specification explicitly discloses an algorithm, the sufficiency of the disclosure must be determined in light of the level of ordinary skill in the art. *Aristocrat*, 521 F.3d at 1337. The specification must sufficiently disclose an algorithm to transform a general purpose processor to a special purpose processor so that a person of ordinary skill in the art can implement the disclosed algorithm to achieve the claimed function. *Id.* at 1338.

In this case, contrary to the Examiner's findings, we find Appellant's Figures 4 and 5 disclose algorithms which, in conjunction with the disclosed programmed special purpose computer (Spec. ¶ 29), appear to provide

sufficient structural support for the claimed "Internet quality monitor" and "packet test device."

Therefore, based upon the findings above, on this record, we are persuaded of at least one error in the Examiner's findings regarding structural support for the § 112, sixth paragraph, limitations at issue such that we cannot sustain the Examiner's indefiniteness rejection of independent claim 14, and claims 15–18 which depend therefrom.

2. § 102(e) Rejection R2 of Claims 1, 2, 4, and 6–8

Issue 2

Appellant argues (Br. 6–7) the Examiner's rejection of claim 1 under 35 U.S.C. § 102(e) as being anticipated by Klinker is in error. These contentions present us with the following issue:

Did the Examiner err in finding the cited prior art discloses a "method for monitoring quality of data transmission on an Internet protocol (IP)-based network" that includes, *inter alia*, the steps of:

deriving two or more links associated with each of the one or more paths, wherein each link includes two or more nodes in an associated path; [and]

determining a quality metric associated with each of the two or more links based on the quality metrics associated with the one or more paths;

as recited in claim 1?

Analysis

Appellant contends, "Klinker very clearly uses only one proxy point per path and then analyzes path performance from the source to the proxy point," and also states "preferably the proxy point is located within the

middle mile of the path." Br. 6 (citing Klinker Abstract, ¶ 40). Because Klinker allegedly "only looks at one point to source segment per path[,] Klinker does not teach having two or more links per path." *Id.*

In response to the Examiner's finding that Klinger discloses deriving two or more links associated with each path as well as metrics for those links (Final Act. 4 (citing Klinker ¶ 202 and Figs. 19A–D)), Appellant admits Klinker's disclosure of the "deriving" step, and further clarifies their argument by stating:

This is correct, however, Klinker does not determine a quality metric associated with each of the two or more links based on the quality metrics associated with the one or more paths. Klinker only determines one proxy point per path and then analyzes path performance from the source to the proxy point. Thus, Klinker does not teach all of the claimed elements.

Id. (emphasis added). Thus, we take Appellant's admission ("[t]his is correct") quoted above to mean Appellant agrees with the Examiner that Klinker discloses the limitation of "deriving two or more links associated with each of the one or more paths, wherein each link includes two or more nodes in an associated path," as recited in claim 1, such that their contention is essentially that *Klinker does not disclose a quality metric associated with each of the plural links.*

The Examiner observes that Appellant cites (Br. 6) to portions of Klinker (paragraphs 35, 38, and 40) in support of their argument, but notes these paragraphs highlighted by Appellant were not invoked by the Examiner in the rejection, such that Appellant's arguments are not commensurate with, or relevant to the rejection, which instead relies upon the embodiment disclosed in Klinker paragraph 202. Ans. 5–6. "Paragraph

202 teaches candidate paths are identified by measuring the nodes along the path and recording the flow characteristics. Therefore, if a plurality of nodes is being measured, two or more links are measured as claimed." Ans. 5.

Therefore, based upon the findings above, on this record, we are not persuaded of error in the Examiner's reliance on the disclosure of the cited prior art to disclose the disputed limitation of claim 1, nor do we find error in the Examiner's resulting finding of anticipation. Therefore, we sustain the Examiner's anticipation rejection of independent claim 1, and grouped claims 2, 4, and 6–8, which fall therewith. *See Claim Grouping, supra.*

3. § 102(e) Rejection R2 of Claim 5

Issue 3

Appellant argues (Br. 8) the Examiner's rejection of claim 5 under 35 U.S.C. § 102(e) as being anticipated by Klinker is in error. These contentions present us with the following issue:

Did the Examiner err in finding the cited prior art discloses the method of claim 1, "wherein determining a quality metric comprises: receiving looped back data packets; and measuring one or more of packet loss, jitter, and latency associated with the looped back data packets," as recited in claim 5?

Analysis

Appellant contends the Examiner erred in relying upon Klinker's disclosure of a round trip time (RTT) calculated by correlator 652 as disclosing the recited "looped back data packets," because the RTT "is not the same as receiving the data packets after the data packets have been

looped back from the destination node . . . [such that] Klinker does not anticipate claim 5." Br. 8.

In response, the Examiner finds, and we agree:

When calculating RTT in computer networks, generally speaking the signal sent is a data packet and the round trip time is referred to as a ping time which can be determined using a ping command. Ping commands (i.e. ICMP echo as taught by Klinker) send an ICMP echo request and receives an ICMP echo reply. The echo reply **MUST** include the data received in the echo request as is known in the art. Therefore one can see that the originally sent data would be included within the received echo reply to determine the RTT using ping.

Ans. 8. We note Appellant does not rebut the Examiner's factual findings or finding of anticipation by filing a Reply Brief.

Therefore, based upon the findings above, on this record, we are not persuaded of error in the Examiner's reliance on the disclosure of the cited prior art to disclose the disputed limitation of claim 5, nor do we find error in the Examiner's resulting finding of anticipation. Therefore, we sustain the Examiner's anticipation rejection of dependent claim 5.

4. § 102(e) Rejection R2 of Claims 14, 16, and 18

Issue 4

Appellant argues (Br. 7–8) the Examiner's rejection of claim 14 under 35 U.S.C. § 102(e) as being anticipated by Klinker is in error. These contentions present us with the following issue:

Did the Examiner err in finding the cited prior art discloses a "system for determining packet quality on an Internet protocol-based (IP-based) network" that includes, *inter alia*, "an Internet quality monitor (IQM)

associating a quality metric with each path . . . wherein a quality metric is determin[ed] by . . . receiving the data packets after the data packets have been looped back from the destination node," as recited in claim 14?⁶

Analysis

Appellant contends, substantially the same as in *Issue 3, supra*, that calculation of an RTT "is not the same as receiving the data packets after the data packets have been looped back from the destination node." Br. 7.

For the same reasons discussed above with respect to the rejection of claim 5 in *Issue 3*, we are not persuaded of error in the Examiner's reliance on the disclosure of the cited prior art to disclose the disputed limitation of claim 14, nor do we find error in the Examiner's resulting finding of anticipation. Therefore, we sustain the Examiner's anticipation rejection of independent claim 14, and grouped claims 16 and 18 which fall therewith. *See Claim Grouping, supra*.

5. § 103(a) Rejection R3 of Claims 3, 9–13, and 17

Issue 5

Appellant argues (Br. 9–11) the Examiner's rejection of claim 9 under 35 U.S.C. § 103(a) as being obvious over the combination of Klinker and Adhikari is in error. These contentions present us with the following issue:

Did the Examiner err in finding the cited prior art combination teaches or suggests a "computer program product" that performs a process that

⁶ Appellant also argues, "Paragraph [0027] clearly teaches away from making such changes to Klinker." Br. 8. We note that "[t]eaching away is irrelevant to anticipation." *Seachange Int'l, Inc., v. C-Cor, Inc.*, 413 F.3d 1361, 1380 (Fed. Cir. 2005).

includes, *inter alia*, the steps of "determining a quality metric associated with each of one or more destination nodes in the IP-based network, wherein determining a quality metric comprises . . . receiving the data packets after the data packets have been looped back from the destination node," as recited in claim 9?

Analysis

Similar to arguments set forth with respect to independent claim 14 and dependent claim 5, *supra*, Appellant contends calculation of an RTT "is not the same as receiving the data packets after the data packets have been looped back from the destination node." Br. 10. We are not persuaded by Appellant's arguments for the reasons set forth above.

Appellant further argues Klinker (paragraph 27) teaches away from the claimed invention by favoring the use of a particular probing technique because, allegedly, "this paragraph clearly states that [other types of probing] techniques should not be used" by teaching that, by using probes "to determine network degradations, additional data traffic further retards the efficiency of particular data routes, slowing mission-critical data applications and resulting in excessive costs." Br. 11.

In response, the Examiner finds, and we agree, "Klinker teaches various tracing techniques in order to determine path characteristics, however Klinker is silent with respect to using SIP-based traceroute functions are required by claim 3 [and 9]." Ans. 9. Instead, Adhikari "teaches a SIP-based trace route function which is used to determine the state of the network. The reason SIP-based traceroute is used is to help

determine a state of the network and measure characteristics of the network."
Id.

We agree with the Examiner because, as our reviewing court has held, "[a] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *Ricoh Co., Ltd. v. Quanta Computer, Inc.*, 550 F.3d 1325, 1332 (Fed. Cir. 2008) (internal quotation and citations omitted). A reference does not teach away if it merely expresses a general preference for an alternative invention from amongst options available to the ordinarily skilled artisan, and the reference does not discredit or discourage investigation into the invention claimed. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). One of ordinary skill in the art would have understood Klinker's preferred method of probing to be an alternative to other known probing methods, such as the SIP-based traceroute of Adhikari, depending on the application. In the absence of persuasive evidence to the contrary, we fail to find that Klinker teaches away from the contested limitation.

Therefore, based upon the findings above, on this record, we are not persuaded of error in the Examiner's reliance on the teachings and suggestions of the cited prior art combination to teach or suggest the disputed limitation of claim 9, nor do we find error in the Examiner's resulting legal conclusion of obviousness. Therefore, we sustain the Examiner's obviousness rejection of independent claim 9, and grouped claims 3, 10–13, and 17, which fall therewith. *See Claim Grouping, supra.*

CONCLUSIONS

(1) The Examiner erred with respect to indefiniteness Rejection R1 of claims 14–18 under 35 U.S.C. § 112, second paragraph, and we do not sustain the rejection.

(2) The Examiner did not err with respect to anticipation Rejection R2 of claims 1, 2, 4–8, 14, 16, and 18 under 35 U.S.C. § 102(e) over the cited prior art of record, and we sustain the rejection.

(3) The Examiner did not err with respect to obviousness Rejections R3 and R4 of claims 3, 9–13, 15, and 17 under 35 U.S.C. § 103(a) over the cited prior art combinations of record, and we sustain the rejections.

DECISION

Because we have affirmed at least one ground of rejection with respect to each claim on appeal, we affirm the Examiner's decision rejecting claims 1–18. *See* 37 C.F.R. § 41.50(a)(1).

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