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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/014,746	05/03/2021	7523497	50348.65	9957
63467	7590	05/01/2023		
Ramey LLP 5020 Montrose Blvd. Suite 800 Houston, TX 77006			EXAMINER LAROSE, COLIN M	
			ART UNIT	PAPER NUMBER
			3992	
			MAIL DATE	DELIVERY MODE
			05/01/2023	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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***EX PARTE* REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/014,746 .

PATENT UNDER REEXAMINATION 7523497 .

ART UNIT 3992 .

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

Notice of Intent to Issue Ex Parte Reexamination Certificate	Control No. 90/014,746	Patent Under Reexamination 7523497	
	Examiner Colin LaRose	Art Unit 3992	AIA Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☒ Prosecution on the merits is (or remains) closed in this *ex parte* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. *Cf.* 37 CFR 1.313(a). A Certificate will be issued in view of
 - (a) ☒ Patent owner's communication(s) filed: 17 October 2022.
 - (b) ☐ Patent owner's failure to file an appropriate timely response to the Office action mailed: ____.
 - (c) ☐ Patent owner's failure to timely file an Appeal Brief (37 CFR 41.31).
 - (d) ☐ The decision on appeal by the ☐ Board of Patent Appeals and Interferences ☐ Court dated ____
 - (e) ☐ Other: ____.
 2. The Reexamination Certificate will indicate the following:
 - (a) Change in the Specification: ☐ Yes ☒ No
 - (b) Change in the Drawing(s): ☐ Yes ☒ No
 - (c) Status of the Claim(s):
 - (1) Patent claim(s) confirmed: 7 and 10.
 - (2) Patent claim(s) amended (including dependent on amended claim(s)): ____
 - (3) Patent claim(s) canceled: 1,4,13 and 16.
 - (4) Newly presented claim(s) patentable: ____.
 - (5) Newly presented canceled claims: ____.
 - (6) Patent claim(s) ☐ previously ☐ currently disclaimed: ____
 - (7) Patent claim(s) not subject to reexamination: 2-3,5-6,8-9,11-12,14-15 and 17-18.
 3. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
 4. ☒ Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."
 5. ☐ Note attached NOTICE OF REFERENCES CITED (PTO-892).
 6. ☐ Note attached LIST OF REFERENCES CITED (PTO/SB/08 or PTO/SB/08 substitute).
 7. ☐ The drawing correction request filed on ____ is: ☐ approved ☐ disapproved.
 8. ☐ Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the certified copies have
 - ☐ been received.
 - ☐ not been received.
 - ☐ been filed in Application No. ____.
 - ☐ been filed in reexamination Control No. ____.
 - ☐ been received by the International Bureau in PCT Application No. ____.
- * Certified copies not received: ____.
9. ☒ Note attached Examiner's Amendment.
 10. ☐ Note attached Interview Summary (PTO-474).
 11. ☐ Other: ____.

All correspondence relating to this reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

/COLIN M LAROSE/
Primary Examiner, Art Unit 3992

cc: Requester (if third party requester)

NOTICE OF INTENT TO ISSUE REEXAMINATION CERTIFICATE
(EX PARTE REEXAMINATION OF U.S. 7,523,497)

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. The changes made by this examiner's amendment will be reflected in the reexamination certificate to issue in due course.

Cancel claims 1, 4, 13, and 16.

STATEMENT OF REASONS FOR CONFIRMATION

The following is an examiner's statement of reasons for confirmation of claims 7 and 10 found patentable in this reexamination proceeding:

Claim 7 was previously rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Maher (U.S. 7,058,974) and Savage (“Practical Network Support for IP Traceback”). *See* Final Rejection dated 3/16/2022, at pp. 29-31. This rejection was based on the broadest reasonable interpretation of the claim in which the limitation “classifying data packets received at said host computer into wanted data packets and unwanted data packets by path” was construed such that the “by path” aspect of the limitation did not require the complete path information, *i.e.*, the path comprising all routers in the network via which the packets are routed to the host computer. *See id.* at pp. 11-13.

According to MPEP § 2258(I)(G) –

During reexamination ordered under 35 U.S.C. 304, and also during reexamination ordered under 35 U.S.C. 257, claims are given the broadest reasonable interpretation consistent with the specification and limitations in the specification are not read into the claims (*In re Yamamoto*, 740 F.2d 1569, 222 USPQ 934 (Fed.

Cir. 1984)). In a reexamination proceeding involving claims of an expired patent, claim construction pursuant to the principle set forth by the court in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005) (words of a claim "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at the time of the invention) should be applied since the expired claim are not subject to amendment. *See Ex parte Papst-Motoren*, 1 USPQ2d 1655 (Bd. Pat. App. & Inter. 1986).

The '497 Patent has an earliest effective filing date of November 16, 2000, and pursuant to 35 U.S.C. § 154(b), the term of the patent was adjusted by 719 days. Accordingly, the '497 Patent expired on November 5, 2022, and the claim is now subject to interpretation in accordance with *Phillips* rather than the broadest reasonable interpretation.

On p. 9 of the Appeal Brief, Patent Owner asserts that the ordinary and customary meaning of the term "path" is defined as "the sequence of communication links and packet switches traversed by a packet from the sending end system to the receiving end system ... [wherein] a packet starts in a host (the source), passes through a series of routers, and ends its journey in another host (the destination)." ¹ Additionally, Patent Owner points out that claim 7 recites "determining a path ... said path comprising all routers in said network via which said packets are routed to said computer," and concludes that the ordinary meaning and language of claim 7 establish that a "path" must include a link such as a series of routers and must provide information about how the packets travel from the source to the destination. *See* Appeal Brief at p. 10.

Since claim 7 is now interpreted in accordance with *Phillips* instead of the broadest reasonable interpretation, Patent Owner's assertions are persuasive, and the limitation of "classifying data packets received at said host computer into wanted and unwanted data packets

¹ Definition of "path" provided in Computer Networking, A Top-Down Approach (Sixth Edition) by Kurose et al., 2013.

by path” is construed to denote that received data packets are classified into “wanted” or “unwanted” packets according to the path of each packet, wherein the path comprises the sequence of communication links and packet switches traversed by a packet when the packet is transmitted from a source to a destination via a series of routers.

Patent Owner further argues that neither Maher nor Savage teach or suggest “classifying data packets received at said host computer into wanted and unwanted data packets by path,” as claimed. This argument is persuasive. Maher classifies data packets received at a host computer into wanted and unwanted packets according to the source of the packets, not according to the path information (*see* Maher at column 7:54–8:3 – data packets are classified into valid (“wanted”) and unverified (“unwanted”) categories based on whether the packets are transmitted between a known source and destination). Savage teaches tracing flooding attacks by marking packets with the addresses of the routers they traverse (*see* Section 3 of Savage). Although Savage determines path information for received packets, Savage does not classify the data packets into “wanted” or “unwanted” using the path information.

The reasons for allowance of claim 10 are the same as presented on pp. 31-34 of the Final Rejection:

Regarding **claim 10**, Maher discloses a method (FIG. 5) of providing packet flooding defense for a network (*see, e.g.*, FIGS. 1a and 1b) comprising a plurality of host computers (i.e., webfarm 16 includes webserver 30), routers (i.e., webfarm 16 includes one or more network apparatuses, illustrated in FIG. 4, performing host routing and computing functions), communication lines and transmitted data packets, said method comprising the steps of:

classifying data packets received at said router (step 514; see also columns 7:54–8:3 – data packets received by a network apparatus (FIG. 4) are classified into valid (“wanted”) and unverified (“unwanted”) categories based on whether the packets are transmitted between known sources and destinations, *i.e.*, via a known path; the packets are considered “wanted” or “unwanted” to the extent that it is desirable for packets to flow between known sources and destinations, and it is undesirable for packets to flow from unverified sources);

associating a maximum acceptable transmission rate with each class of data packet received at said router (*see* columns 7:54–8:3 and column 11:66–12:19 – the “wanted” class of packets is given a high priority processing rate, *i.e.*, “quality of service,” whereas the “unwanted” class of packets is given a low priority processing rate); and

allocating a transmission rate equal to or less than said maximum acceptable transmission rate for unwanted data packets (*see id.* – unwanted packets are given a lower processing rate than wanted packets).

Maher does not appear to expressly disclose the method includes:

determining a path by which data packets arrive at said router via packet marks provided by routers leading to said host computer; said path comprising all routers in said network via which said packets are routed to said computer.

Also, Maher discloses classifying data packets received at said router but does not appear to disclose the classifying is done via packet marks provided by routers leading to said host computer by path, as claimed.

Savage discloses methods for combatting denial-of-service attacks that involve anonymous packet flooding (*see* Abstract). Savage teaches that it is conventional to employ

“ingress filtering” in order to defend against anonymous attacks (*see* Section 2.1). Ingress filtering involves configuring routers to block packets that arrive with illegitimate source addresses (*see id.*). This is a similar prevention technique that is employed by Maher, which as explained above, teaches giving higher priority to traffic originating from verified sources, and giving lower priority to traffic from unverified sources.

Savage, however, identifies problems with ingress filtering. Notably, as traffic is aggregated from multiple ISPs into transit networks, there is no longer enough information to unambiguously determine if an arriving packet originates from a valid, known source. Also, its effectiveness depends on widespread, if not universal, deployment. The overhead of ingress filtering can become prohibitive on high-speed links, and even if universally deployed, attackers could still circumvent the filtering by forging addresses within a valid customer network. *See id.*

With these problems in mind, Savage proposes tracing flooding attacks by marking packets probabilistically or deterministically, with the addresses of the routers they traverse (*see* Section 3). For instance, a packet can be marked by appending the address of each node it traverses so that every received packet has a complete ordered list of the routers it traversed; this provides a complete path of the packet through a network and allows the receiver of the packet to trace the entire path back to its origin (*see* Section 4.1). Alternatively, probabilistic marking of only one node address can allow reconstruction of a complete traffic path from a given source when enough packets have been received (*see* Section 4.2).

It would have been obvious to those skilled in the art to modify Maher by Savage to determine a complete path by which data packets arrive at a host computer via packet marks provided by routers leading to said host computer, as claimed, since Savage teaches that providing a complete traceback of a received packet via marking at each traversed node is a more

effective way to combat denial-of-service flooding attacks than the ingress filtering technique that is employed by Maher. Accordingly, Savage provides an express teaching and motivation to improve upon Maher's system by determining complete path information rather than simply filtering packets based on their source addresses.

However, neither Maher nor Savage appears to disclose or suggest the classifying of data packets is done "via packet marks provided by routers leading to said host computer by path," as claimed.

Maher is silent on the incorporation of router-provided packet marks, and therefore does not teach classifying the packets on such a basis.

Savage discloses utilizing router-provided packet marks in order to acquire complete traceback information for packets received by a victim. However, Savage does not appear to disclose using the router-provided packet marks for classifying the packets, as claimed. Rather, Savage only appears to be concerned with determining the path of received packets (the "traceback" problem) and does not seem to disclose any methods or algorithms for using the router marking data to classify received packets in any manner, *e.g.* to distinguish between the packets from an attacker and the packets from a non-attacker.

For this reason, claim 10 is confirmed as patentable over the combination of Maher and Savage. Furthermore, Schuba does not appear to cure this deficiency in the teachings of Maher and Savage because Schuba's disclosure does not involve routers marking traversed packets, as claimed.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the

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patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Colin LaRose whose telephone number is 571-272-7423.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew J. Fischer can be reached at 571-272-6779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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