

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TREND MICRO, INC.

Petitioner

v.

OPEN TEXT INC.

Patent Owner

Case IPR2023-01389

Patent No. 8,856,505

PATENT OWNER'S PRELIMINARY RESPONSE

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
U.S. Patent & Trademark Office
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EXHIBIT LIST

Exhibit	Description
2001	Declaration of Ron Schnell
2002	<i>Curriculum Vitae</i> of Ron Schnell
2003	<i>Sonrai Memory Ltd. v. Kingston Tech. Co. and Kingston Tech. Corp.</i> , Case No. 6:21-cv-1284-ADA, Order Denying Kingston Tech. Co. and Kingston Tech. Corp.'s Opposed Motion to Stay Pending Resolution of <i>Inter Partes</i> Review, Dkt. 94 (W.D. Tex., Oct. 18, 2022)
2004	<i>mCom IP, LLC v. Cisco Systems, Inc.</i> , Case No. 6:22-cv-00261-ADA, Order Denying Defendant's Motion to Stay Pending <i>Inter Partes</i> Review, Dkt. 42 (W.D. Tex., Oct. 20, 2022)
2005	<i>Intellectual Ventures I LLC et al. v. Hewlett Packard Enterprise Co.</i> , No. 6:21-cv-00596-ADA, Order Denying Hewlett Packard Enterprise Company's Opposed Motion to Stay Pending Resolution of <i>Inter Partes</i> Review, Dkt. 104 (W.D. Tex., Dec. 22, 2022)
2006	<i>Webroot, Inc. and Open Text Inc., v. AO Kaspersky Lab. et al.</i> , Case No. 6:22-cv-243-ADA-DTG, Dec. 9, 2022 Transcript of Motions Hearing, Dkt. 133 (W.D. Tex. Dec. 15, 2022) (excerpted)
2007	Dani Kass, "Catching Up On Patent Litigation With Judge Albright" (Law360 Mar. 14, 2023)
2008	<i>Webroot, Inc. and Open Text Inc., v. Trend Micro, Inc. et al.</i> , Case No. 6:22-cv-243-ADA-DTG, Amend the Schedule Order, Dkt. 521 (W.D. Tex. Dec. 7, 2023)
2009	<i>Webroot, Inc. and Open Text Inc., v. AO Kaspersky Lab. et al.</i> , Case No. 6:22-cv-243-ADA-DTG, Claim Construction Order, Dkt. 391 (W.D. Tex. July 25, 2023)
2010	<i>Webroot, Inc. and Open Text Inc., v. Sophos Ltd.</i> , Case No. 6:22-cv-240-ADA-DTG, Defendant Sophos Ltd.'s Final Invalidity Contentions

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Exhibit	Description
	– Claim Chart 505-A-21 (“Garfinkel”) (W.D. Tex. Nov. 1, 2023) (excerpted)
2011	<i>Webroot, Inc. and Open Text Inc., v. Sophos Ltd.</i> , Case No. 6:22-cv-240-ADA-DTG, Defendant Sophos Ltd.’s Final Invalidity Contentions – Claim Chart 505-A-22 (“Hoglund”) (W.D. Tex. Nov. 1, 2023) (excerpted)
2012	Wayback Machine re symposium website address, https://web.archive.org/web/20230000000000*/https://www.ndss-symposium.org/ndss2003/
2013	Network and Distributed System Security Symposium conference proceedings--2003 [electronic resource]: NDSS '03 Symposium; https://science-catalogue.canada.ca/record=b2011094~S6

Pursuant to 35 U.S.C. § 316(a)(8) and 37 C.F.R. § 42.120, Open Text Inc. (“Patent Owner” or “Open Text”) responds to the Petition filed by CrowdStrike, Inc. (“Petitioner” or “CrowdStrike”) regarding U.S. Patent No. 8,856,505. (Ex. 1001, “the ’505 patent”).

I. INTRODUCTION

The Board should decline to institute IPR of the ’505 patent because an IPR would duplicate the parties’ district court litigation efforts and because Petitioner’s solitary ground relies on a primary prior art reference that was not publicly accessible and which fails to disclose key limitations of the ’505 patent.

First, the Board should deny institution under *Fintiv* because institution would undermine the congressional purpose of IPRs to “limit unnecessary and counterproductive litigation costs.” H.R. Rep. No. 112–98, pt. 1, at 40 (2011), 2011 U.S.C.C.A.N. 67, 69. The validity of the ’505 patent is currently being litigated in three consolidated district court cases in the Western District of Texas. Petitioner’s case is scheduled for trial in November 2024—and all of the trials will occur long before the statutory deadline for a final written decision on this petition, which is expected in March 2025. These cases have advanced well past claim construction, and the parties have invested significant resources in the litigation. Consequently, the only possible outcome of institution would be to needlessly increase litigation

costs by forcing the parties to litigate validity before ***both*** the Board and the district court. The Board should decline to institute on this ground, alone.

Second, the Board should deny institution because Petitioner fails to demonstrate a reasonable likelihood that it will prevail on the merits. Petitioner relies entirely on an expert declaration to establish public accessibility of its primary prior art reference—a declaration that is unsupported by any evidence of record in this proceeding. Furthermore, the evidence that is cited fails to show that Garfinkel was publicly accessible prior to the critical priority date.

Moreover, the cited prior art combination fails to disclose key limitations of the challenged claims. While repeatedly relying on a POSITA's purported "understanding" of what might be possible based on the prior art's disclosure, Petitioner fails to show that the prior art necessarily discloses managing pestware-related events or scanning a registry during a second period of a boot sequence. And Petitioner's arguments regarding generating a record of events blends two mutually exclusive embodiments of Garfinkel, making it impossible for Garfinkel and/or its combination with Hoglund to disclose or render obvious all limitations of the independent claims. Accordingly, the petition cannot succeed.

Patent Owner respectfully requests that the Board deny institution.

II. THE BOARD SHOULD EXERCISE ITS DISCRETION TO DENY INSTITUTION UNDER 35 U.S.C. § 314(A)

The '505 patent is one of dozens of patents asserted in claims and counterclaims among four different parties in a series of cases pending in the Western District of Texas. The district court has already issued its claim constructions and is on track to adjudicate the same prior art and invalidity grounds raised in the petition months before the Board would issue a final written decision. Instituting a parallel IPR proceeding that lags far behind the district court would needlessly increase the cost of resolving the underlying dispute. The Board should therefore exercise its discretionary authority to deny institution under 35 U.S.C. § 314(a).

Because Congress's goal in enacting post-grant proceedings like IPRs was "to ... limit unnecessary and counterproductive litigation costs," Director Vidal has instructed the Board not to institute IPRs that would "increase, rather than limit, litigation costs." Director's Memo, *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* ("Guidance") at 1 (June 21, 2022).

Instituting this IPR would cause just such an increase. The reasons are easy to see: a district court stay is out of the question, and the district court will consider the very same arguments presented in the petition. Accordingly, the Board and the

district court will labor to decide the very same issues with the district court well ahead of the Board. The parallel tracks of two adjudicatory bodies will “increase, rather than limit, litigation costs,” create “potential conflict between the ... (PTAB) and district court proceedings,” and generally increase “the potential for inefficiency and gamesmanship.” Guidance at 1. This is precisely the situation that Director Vidal sought to avoid when she instructed the Board to take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020).

Confirming this conclusion, every one of the *Fintiv* factors weighs for discretionary denial:

(1) A stay of the co-pending district court litigation—involving 27 patents and three defendants—is highly unlikely. Petitioner cannot avoid a district court trial based on an institution of this Petition, and trial on the Petition will not narrow the issues on which discovery and trial must proceed. Indeed, the '505 patent is currently asserted against three defendants in a now-consolidated case. Moreover, none of Petitioner's codefendants have agreed not to litigate the validity of the '505 patent in the district court if the Board institutes this IPR.

(2) Trial in the district court is scheduled to occur nearly four months before a final written decision, and the district court case is on track for that trial date.

(3) The parties and district court have already invested heavily in carrying the parallel litigation past claim construction and well into discovery.

(4) The issues raised in the petition are the same as those the district court has before it, and Petitioner's narrow stipulation will not change that because the stipulation does not apply to Petitioner's co-defendants, at least one of which has raised the same prior art before the district court and will maintain those assertions irrespective of the Board's institution decision.

(5) Petitioner will get its chance to make its arguments before the district court because Petitioner is a defendant in the parallel litigation.

(6) As shown below, the petition's grounds of unpatentability are weak. Thus, every *Fintiv* factor here weighs for discretionary denial. The district court is well on its way to an efficient resolution of the disputes between Patent Owner, Petitioner, and Petitioner's codefendants. Both the goals of the AIA and the general welfare of the patent system would be best served by denying institution.

A. *Fintiv* Factor 1: The District Court Has Not Granted And Will Not Grant A Stay.

The first *Fintiv* factor asks “whether [1] the court granted a stay or [2] evidence exists that one may be granted if a proceeding is instituted.” *Fintiv*, IPR2020-00019, Paper 11 at 6.¹ Here, the undisputed answer to both questions is *no*: no stay has been requested or ordered, and Petitioner has identified no evidence that one will (or even might) be granted if a proceeding is instituted. To the contrary, all evidence indicates that a stay is out of the question.

¹ The decision in *Fintiv* addresses various scenarios that may indicate whether a stay may be granted. *Fintiv*, IPR2020-00019, Paper 11 at 6-9. However, nothing in *Fintiv* suggests that these are the only scenarios that a panel may consider. In particular, *Fintiv* does not hold that an actual denial of a stay is the only consideration relevant to this factor. Rather, *Fintiv* contemplates that any type evidence may be relevant. For example, *Fintiv* holds that one way to “support the arguments that ... a stay may be less likely, and instituting would lead to duplicative costs” is to show the “work completed by the parties and court in the parallel proceeding.” *Fintiv* IPR2020-00019, Paper 11 at 10.

The district court has stated expressly that it considers issue simplification “the most important factor” in deciding whether to stay patent litigation²—and here, a stay would not simplify anything. The validity of the ’505 patent will be litigated in the district court, whether this petition is instituted or not, because the patent is asserted against three other defendants, none of whom have promised to forego their validity challenges in the district court based on this institution decision.

² See, e.g., EX-2003, *Sonrai Memory Ltd. v. Kingston Tech. Co., Inc.*, No. 6:21-cv-1284-ADA, slip op. at *4-5 (W.D. Tex. Oct. 18, 2022) (denying a stay following IPR institution because issue simplification was the “most important factor” and the Court had already held a *Markman* hearing and “expended significant resources”); EX-2004, *mCom IP, LLC v. Cisco Sys., Inc.*, No. 6:22-00261-ADA, slip op. at *5 (W.D. Tex. Oct. 20, 2022) (finding “simplification is not likely” where the IPR did not challenge all of the claims asserted in the district court, since the other claims would still require a trial); EX-2005, *Intellectual Ventures I LLC v. Hewlett Packard Enterprise Co.*, No. 6:21-cv-00596-ADA, slip op. at *7 (W.D. Tex. Dec. 22, 2022)(denying a stay following IPR institution , as even IPR estoppel would not simplify the invalidity case, given the defendants’ reliance on prior art systems).

Moreover, the validity of the '505 patent will be litigated in the district court alongside issues regarding 26 *other* patents asserted by and against Petitioner and *two other* defendants—issues that the district court is highly unlikely to delay deciding in favor of letting the Board proceed with *this* IPR. The case against Petitioner alone involves seventeen patents—eleven asserted by Patent Owner and six asserted in counterclaims by Petitioner.

The table below lists the patents, parties, and IPR petitions involved in this highly complex litigation:³

**Table 1. Patent Owner's Asserted Patents
Against Each WDTX Defendant and Resulting Review Petitions**

Patent	Kaspersky	Sophos	Trend Micro
8,856,505	Asserted; no IPR	Asserted; no IPR	IPR2023-01138
11,409,869	IPR2023-01160	PGR2023-00031 (Denied)	IPR2023-01380
8,201,243	IPR2024-00292	IPR2023-00731 (Denied) IPR2024-00252	IPR2023-01390
8,719,932	PR2024-00297	IPR2023-00732 (Denied)	IPR2023-01391

³ Patent Owner and CrowdStrike have reached a resolution of the disputes in proceedings initiated by a CrowdStrike petition. The parties to those proceedings have filed a Joint Motion to Terminate in each proceeding.

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Patent	Kaspersky	Sophos	Trend Micro
		IPR2024-00253	
8,418,250	IPR2023-01334	IPR2023-0699	IPR2023-00655 (Denied) IPR2024-0106
8,726,389	IPR2024-0035	IPR2023-00633 (Denied)	IPR2023-01459
10,599,844	Asserted; no IPR	IPR2023-00528 (Denied)	IPR2023-00662 (Denied)
9,413,721	N/A	IPR2023-00491 (Denied)	N/A
9,578,045	IPR2023-01199	Asserted; no IPR	IPR2023-00677 (Denied)
10,257,224	IPR2023-01011	Asserted; no IPR	IPR2023-00657 (Denied)
10,284,591	IPR2023-00895 (Denied)	Asserted; no IPR	IPR2023-00692 (Denied)
8,181,244	N/A	Asserted; no IPR	IPR2023-01392
8,763,123	N/A	Asserted; no IPR	N/A
8,438,386	N/A	N/A	N/A
10,025,928	N/A	N/A	N/A

As U.S. Magistrate Judge Gilliland noted during a December 9, 2022 hearing, this is “a phenomenal case that I’m hoping one day maybe people will write songs about because it is about as complicated as you’re going to get with patent cases.” (EX-2006 52.) Consequently, should the Board institute trial on this Petition, the institution will not cause the district court to stay this complex litigation.

Second, the district court has been clear in public comments that it will not stay cases where, as here, the court can resolve the case as quickly as the Board can:

[T]here's no unfairness to either side by not staying a case for the PTAB when I can try the case as quickly as they can resolve it.... And so far, I think that's proven to be true.

(EX-2007 3.) Indeed, as commentators have observed, "Judge Albright almost never stays proceedings to let the PTAB make its decision first." (*Id.* 2.)

Judge Albright's public comments apply squarely to the situation here. Trial in the district court case against Petitioner is currently scheduled for November 2024. (EX-2008 4.) The Board's final written decision if IPR is instituted would not be expected until late March 2025. That Judge Albright has made public comments indicating that his practice is to deny a stay in precisely the circumstances presented here is further evidence that he would not stay the WDTX case in response to institution of an IPR here.

Even where no stay has been requested, the Board has found Factor 1 to favor discretionary denial where (as here) "Petitioner present[ed] no evidence that it has requested a stay [] or that a stay is likely." *Luxshare Precision Industry v. Amphenol Corp.*, IPR2022-00132, Paper 10, at 9 (PTAB May 3, 2022). And such a decision is particularly appropriate where the circumstances show that "a stay ... is unlikely." *Nintendo Co. v. Gamevice, Inc.*, IPR2020-01197, Paper 13, at 11-12 (PTAB Jan. 12, 2021); *Samsung Elecs. Co. v. Clear Imaging Research LLC*, IPR2020-01399, Paper 13 at 11-12 (PTAB Feb. 3, 2021) (holding Factor 1 may weigh for denial where there

is evidence that the district court is unwilling “to avoid duplicative efforts and await the PTAB’s final resolution”); *Motorola Mobility LLC v. Ironworks Patents, LLC*, IPR2021-00421, Paper 11 at 7-8 (PTAB July 22, 2021).

In sum, the district court has not granted a stay and there is no evidence suggesting that the district court would grant a stay of a multi-patent, multi-defendant case so that the Board can reach a decision months *after* the current trial date on *just one* patent. Factor 1 weighs in favor of discretionary denial. *Samsung*, IPR2020-01399, Paper 13 at 11-12; *Motorola*, IPR 2021-00421, Paper 11 at 7-8.

B. *Fintiv* Factor 2: A District Court Trial Is Expected Before The Projected Statutory Deadline

Factor 2—the implications of the district court and IPR schedules—also weighs for denial. “[A] parallel proceeding in an advanced state implicates considerations of efficiency and fairness, which can serve as an independent reason to apply discretion to deny institution.” *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 11-12, 17 (PTAB May 13, 2020) (*informative*); Guidance at 1.

Here, an IPR would extend months past the parallel district court litigation. Trial is currently scheduled for November 2024. (EX-2008 4). Should the Board institute, its final written decision deadline would be in late March 2025, more than four months after the currently scheduled trial against Petitioner.

Thus, if the Board institutes IPR here, the IPR proceedings would not produce a result before the trial. Instead, the parties would waste a year expending precisely the “duplicative,” “unnecessary[,] and counterproductive litigation costs” that the AIA was designed to avoid. *Fintiv*, IPR2020-00019, Paper 11 at 5 (citing *Magellan Midstream Partners L.P v. Sunoco Partners Mktg. & Terms. L.P.*, IPR2019-01445, Paper 12 at 10 (Jan. 22, 2020)); *Fintiv*, IPR2020-00019, Paper 15 at 17 (discretionarily denying institution where district court trial was scheduled two months before the final decision deadline); *NHK Spring Co., Ltd. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (*precedential*) (finding that institution of IPR when the district court trial would resolve validity before the PTAB “would not be consistent with an objective of the AIA...to provide an effective and efficient alternative to district court litigation”); *Samsung Elecs. Co. v. California Institute of Tech.*, IPR2023-00131, Paper 10 at 15, 24 (PTAB May 4, 2023) (discretionarily denying institution where “[r]egardless of whether we consider the scheduled trial date or the trial date expected based on time-to-trial statistics, the trial in the underlying litigation would commence several months before the expected date of our final written decision”); *Eclinical Works, LLC v. Decapolis LLC*, IPR2022-00229, Paper 10 at 9 (PTAB Apr. 13, 2022)

(discretionarily denying institution where WDTX trial was scheduled “roughly one to two months before any final decision would have been due”).

Because the district court will resolve validity before the Board reaches its final written decision, the second *Fintiv* factor also favors discretionary denial.

C. *Fintiv* Factor 3: The Parties Will Have Invested Significant Resources In The District Court Proceeding.

Factor 3—the resources invested in the parallel district court proceeding—favors denial “if, at the time of the institution decision, the district court has issued substantive orders related to the patent.” *Fintiv*, IPR2020-00019, Paper 11 at 9-10; *see also id.* at n.16 (collecting cases). *Fintiv* holds specifically that “claim construction orders may indicate that the court and parties have invested sufficient time in the parallel proceeding to favor denial.” *Id.* at 10.

The parties have invested significant resources in the parallel litigation over the last twenty months. For example, the parties have already exchanged their final infringement and invalidity contentions, the district court has held multiple *Markman* hearings, and it issued its claim construction order for the '505 Patent on July 28, 2023. (EX-2009.)

Fact discovery is substantially underway and is scheduled to complete in April 2024, just after the Board's institution decision. (EX-2008 2.) During this discovery, Petitioner has produced over 3.5 million pages of documents and Patent Owner has

made approximately 122GB of source code available. The Court has also held multiple discovery hearings, and Patent Owner has noticed dozens of depositions across the litigations.

Furthermore, Petitioner's and Patent Owner's experts have already invested many hours preparing for their reports by reviewing the patent, prior art, and the defendants' invalidity contentions, as well as traveling to review source code. *See Regeneron Pharms. Inc. v. Novartis Pharma AG*, IPR2020-01317, Paper 15 at 17 (PTAB Jan. 15, 2021) (denying institution where the parties had expended considerable resources in claim construction, substantial fact discovery, and preparation for expert reports). Institution will not reduce the substantial expenses in the related litigation, as the district court trial will be held months before the Board reaches its final written decision.

Furthermore, Petitioner's delay in filing this petition further weighs for denial. Petitioner waited more than ten months after receiving Patent Owner's infringement contentions before filing its petition. During this time, Petitioner knew that the parties were investing in a rapidly proceeding litigation. Petitioner offers no explanation for its delay, which weighs for denial. *Fintiv*, IPR2020-00019, Paper 11 at 11-12; *Regeneron*, IPR2020-01317, Paper 15 at 17 (finding that even where the petition was filed "less than a month after learning of the complaints," the investment

by the parties in the parallel proceeding “outweighs the effort expended so far in this proceeding”).

D. *Fintiv* Factor 4: The Issues Overlap Significantly.

Factor 4—the degree of overlap between the issues in the petition and those before the district court—also strongly supports denial.

Fintiv explains that “concerns of inefficiency and the possibility of conflicting decisions [are] particularly strong” where “the Board [is] presented with substantially identical prior art arguments...at issue in district court.” *Fintiv*, IPR2020-00019, Paper 11 at 12. “Accordingly, if the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial.” *Id.*

Here, Petitioner has offered only the limited stipulation that it would not use in the district court any prior art reference relied upon in the petition (Petition 47), and Petitioner’s co-defendants have offered no stipulation. Petitioner argues that Factor 4 favors institution because Petitioner’s “stipulation is far more restrictive than a *Sand Revolution* stipulation,” (which relates to only the same grounds rather than the same art). (Petition 48.)

But Petitioner’s stipulation (to not use the same prior art references) is certainly not “significantly broader” than a “marginal” *Sand Revolution* stipulation

(to not use the same grounds). *Sand Revolution II, LLC v. Continental Intermodal Grp. Trucking LLC*, IPR2019-01393, Paper 24 at 12 n.5 (June 16, 2020). Even if technically broader, Petitioner's stipulation does no more than a *Sand Revolution* stipulation to "ensure that [the] IPR functions as a true alternative to litigation." *Id.* To the contrary, the stipulation merely compounds litigation costs by allowing Petitioner to pursue separate invalidity theories in parallel at two different tribunals. Thus, the best that Petitioner's stipulation could do is "weigh[] only marginally in favor of [institution]." *Id.* at 11-12. The stipulation cannot carry any more weight.

And under the circumstances here, the stipulation carries no weight because it does not bar the other defendants in the parallel litigation from litigating substantially the same invalidity challenges before the district court. Petitioner's co-defendant, Sophos, asserts the same prior art references in the litigation that Petitioner asserts here in the petition.⁴ Instituting an IPR would both multiply the burden on Patent Owner and create the possibility of inconsistent decisions between the district court and the Board.

⁴ Codefendant Sophos cites the same prior art references—Garfinkel and Hoglund. (EX-2010; EX-2011.)

Consequently, Petitioner's stipulation does not "mitigate[]" any concerns of duplicative efforts between the district court and the Board," or "of potentially conflicting decisions." *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 19 (PTAB Dec. 1, 2020); *Google LLC v. EcoFactor, Inc.*, IPR2021-00454, Paper 9 at 12-14 (PTAB July 22, 2021) (denying institution based on *Fintiv*, even where co-defendants in the parallel litigation provided matching *Sands Revolution* stipulations). Thus, Factor 4 weighs heavily in favor of discretionary denial.

E. *Fintiv* Factor 5: Both Parties Are Parties In The Parallel Litigation

Factor 5—the overlap of the parties between the petition and the parallel litigation—suggests denial because Petitioner is a defendant in the parallel litigation and, as such, will have a full, fair opportunity to litigate its invalidity contentions. Under *Fintiv*, "[i]f a petitioner is unrelated to a defendant in an earlier court proceeding, the Board has weighed this fact against exercising discretion to deny institution." *Fintiv*, IPR2020-00019, Paper 11 at 13-14. That is not the case here because Petitioner is a defendant in the litigation. Accordingly, the circumstances raise no fairness concerns that denial would deprive Petitioner of its "day in court." *See Vizio, Inc. v. Maxell, Ltd.*, IPR2022-01459, Paper 7 at 21-22 (PTAB Apr. 11, 2023) ("Because Petitioner is the litigation defendant, factor 5 weighs in favor of

discretionary denial”); *Nokia of Am. Corp. v. Godo Kaisha IP Bridge*, IPR2022-00755, Paper 9 at 13 (PTAB Nov. 2, 2022) (holding that Factor 5 weighed for discretionary denial where Petitioner was defendant in parallel proceeding).

That Petitioner and at least one other defendant are litigating substantially the same petitioned issues in the district court—specifically, obviousness based primarily on Garfinkel and Hoglund—further supports denial. *Fintiv* holds that, “[e]ven when a petitioner is unrelated to a defendant, however, if the issues are the same as, or substantially similar to, those ... about to be litigated, or other circumstances weigh against redoing the work of another tribunal, the Board may, nonetheless, exercise the authority to deny institution.” *Fintiv*, IPR2020-00019, Paper 11 at 14. Because of this consideration, *Fintiv* goes on to require that “[a]n unrelated petitioner ... discuss why addressing the same or substantially the same issues would not be duplicative of the [other] case even if the petition is brought by a different party.” *Id.*

Petitioner offers no such explanation here. That another defendant is currently litigating the same obviousness issue based on the same primary reference raises serious concerns of duplicative work by adjudicators. Any public-policy concerns regarding patent validity will be thoroughly addressed by the parallel litigation. Consequently, this factor too weighs for discretionary denial.

F. *Fintiv* Factor 6: The Petition Does Not Present Compelling Evidence Of Unpatentability

Factor 6—the merits of the petition—also counsels for denial because, as detailed below, the petition fails to show a “reasonable likelihood” that Petitioner would prevail on any challenged claim. *See* 35 U.S.C. § 314(a). In addition to its failure to establish that the primary prior art reference, Garfinkel, was publicly accessible prior art, Petitioner fails to show that the cited prior art combination discloses pestware management techniques that are applied during a boot sequence, let alone during any particular time periods within the boot sequence. (Section VI, *infra*.) Because the petition fails to show a reasonable likelihood of success on the merits, the petition may not be instituted.

Even if the petition did have a “reasonable likelihood” of succeeding (it does not), it certainly would not pass the higher threshold of a “compelling” unpatentability challenge that could preclude discretionary denial. Guidance at 4. “[T]he compelling merits standard is a higher standard than the standard for institution set by statute.” *Commscope Techs. v. Dali Wireless, Inc.*, IPR 2022-01242, Paper 23, at 3 (PTAB Feb. 27, 2023). That higher standard requires that the petition is “highly likely” to succeed on the merits. *Id.* at 4. The opposite is true here.

* * *

In sum, all six factors weigh for discretionary denial. Accordingly, Patent Owner respectfully requests that the Board exercise its discretion to deny institution.

III. INADEQUACY OF THE PRIOR ART & THE NEED FOR IMPROVED ANTI-MALWARE TECHNIQUES

“Personal computers and business computers are continually attacked by trojans, spyware, and adware, collectively referred to as ‘malware’ or ‘pestware.’ These types of programs generally act to gather information about a person or organization—often without the person or organizations’ knowledge.” (EX-1001 1:32-37.) While pestware may be non-malicious, it still “may cause issues with privacy or system performance.” (EX-1001 1:37-39.)

Pestware techniques evolved to include “cloaking techniques” that made such pestware difficult to identify, remove, or even detect. (EX-1001 1:46-48, 1:57-60.) For example, prior art detection tools relied on the dependability of operating system calls to return lists of running programs, file system and registry contents, etc. (EX-1001 1:51-56.) But evolved pestware techniques included “intercepting and altering the results of operating system queries,” thereby “modifying the behavior of a computer operating system itself.” (EX-1001 1:48-56.) That is, where existing anti-pestware applications relied on real-time shields, those shields were not executed until after pestware had already been able to execute and modify the operating system. (EX-1001 1:57-61.)

Figure 3 of the '505 patent, below, illustrates a traditional boot and operating system sequence in which pestware (e.g., a rootkit) is loaded prior to a conventional anti-virus/anti-spyware application in the boot sequence:

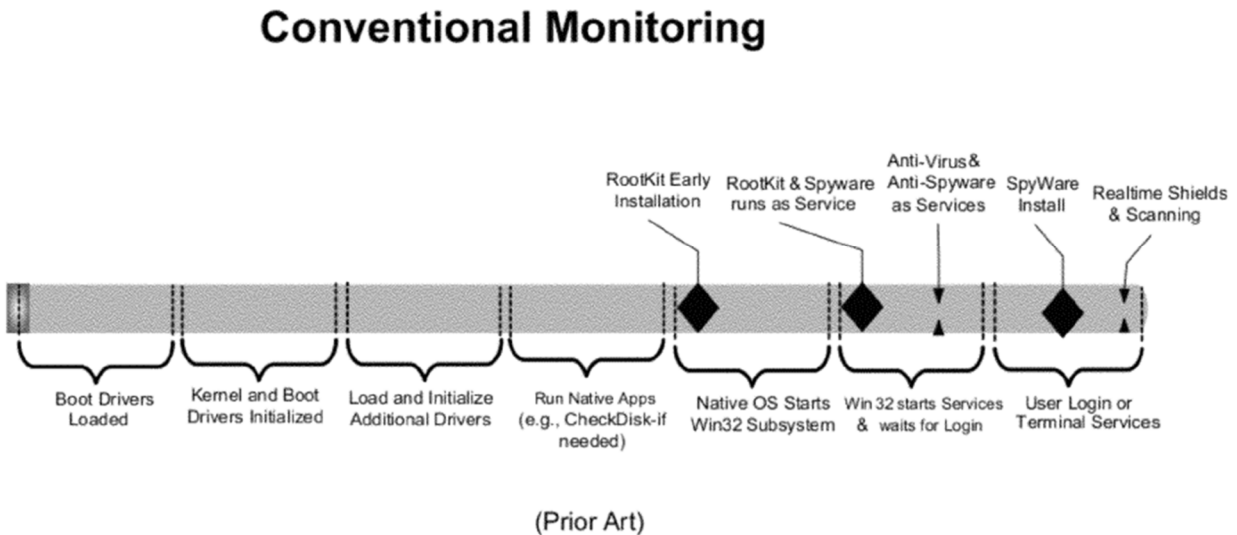


FIG. 3

(EX-1001 Fig. 3.) Because the rootkit is loaded earlier, user-mode services or applications like the conventional anti-virus/anti-spyware application are unable to detect and prevent the pestware. (EX-1001 1:57-65.)

Accordingly, conventional systems were still unable to detect rootkits effectively and accurately, and an improved technology for managing malware during a boot sequence was needed.

IV. THE '505 PATENT'S NEW TECHNOLOGY FOR MANAGING MALWARE THROUGH KERNEL DETECTION DURING A BOOT SEQUENCE

A. Overview of the '505 Patent

The '505 patent discloses a system and method for managing “pestware”—*i.e.*, “any program that collects and/or reports information about a person or an organization and any ‘watcher processes’ related to the pestware.” (EX-1001 1:41-45; *see id.* 1:32-37; Section V(B), *infra.*) Specifically, the '505 patent recognized that standard user-space malware protection systems may begin operation too late to capture pestware that initializes and begins affecting the computer during the boot process. (*See* EX-1001 1:57-65.) Accordingly, the '505 patent discloses and claims a system and method for kernel-level detection of pestware during a boot sequence. (EX-1001 Title, Abstract, cls. 1, 6, 11.)

The '505 patent teaches that during a first period in a boot sequence—after a kernel is loaded and before the computer becomes configured to run native applications—a kernel-level monitor observes and manages events during the boot sequence of a computer, such as those events that might be associated with the loading, execution, and behavior of pestware. (EX-1001 3:66-4:1, 2:17-29, cl. 1.) During a second period of the boot sequence, which occurs when the computer is configured to run native applications, any pestware-related events are managed

according to a set of behavior rules and the computer's registry is scanned for pestware. (EX-1001 cl. 1.) Figure 4 illustrates this kernel-level monitoring that occurs earlier in the boot sequence than conventional anti-virus/anti-spyware applications:

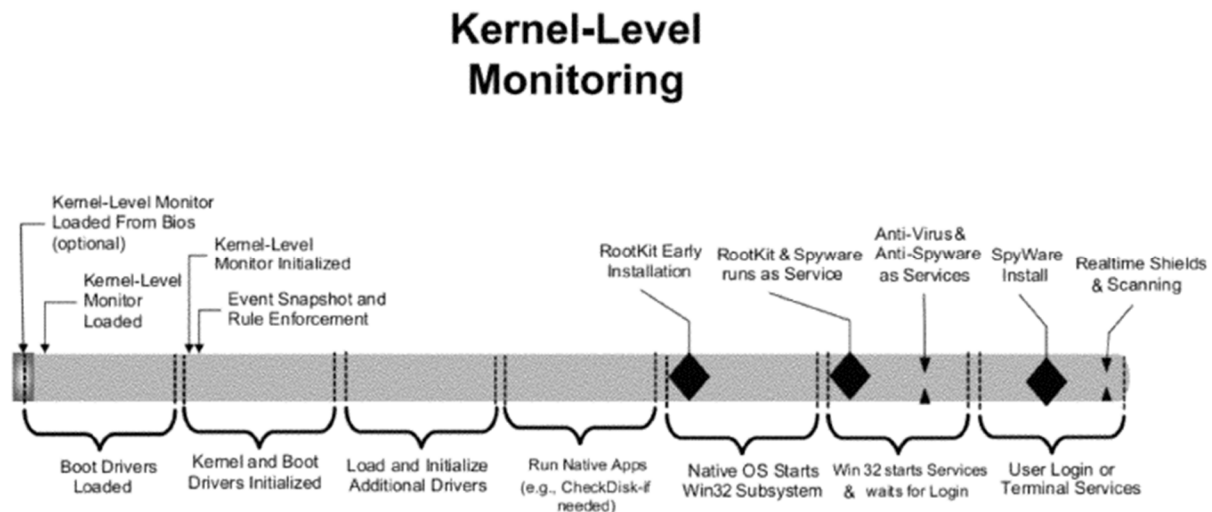
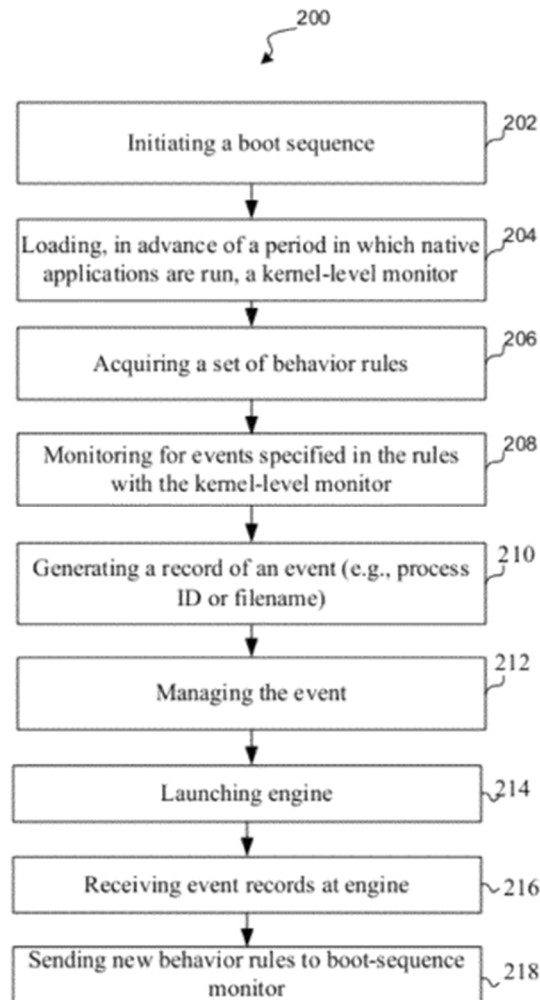


FIG. 4

(EX-1001 Fig. 4.)

In order to ensure the most effective monitoring and management, a record of the monitor-observed events is generated and analyzed to identify the pestware-related events. (EX-1001 cl. 1.) A pestware management engine modifies the set of behavior rules in order to prevent pestware-related events, such that each time the kernel-level monitoring occurs, it has the most up-to-date and most effective set of

behavior rules. (EX-1001 3:66-4:5, cl. 1.) Figure 2 illustrates an embodiment of this process:



(EX-1001 Fig. 2.)

B. Claim Construction

In the parallel district court litigation, the court construed the following terms of the '505 patent:

Claim Term	Court's Construction
<i>pestware</i> (cls. 1, 2, 4, 6, 7, 9, 11, 12, 14, 16-20)	“any program that collects and/or reports information about a person or an organization and any ‘watcher processes’ related to the pestware” (EX-2009 3.)
[Order of the method steps in claims 1, 6, 11.]	No order recited except for the “generating” step must happen before the “analyzing” step. (EX-2009 17.)

The court found all other terms to have their plain-and-ordinary meaning. (EX-2009 15-18.)

Petitioner asserts that the Board should construe the claims of the '505 patent consistent with the court's district court claim construction order. (Petition 9.) For purposes of this preliminary response, Patent Owner and its expert, therefore, apply the plain-and-ordinary meaning of all claim terms and the district court's construction of “*pestware*” and method steps, above. (EX-2001 ¶¶38-41.)

C. Level of Ordinary Skill in the Art

A POSITA at the time of the invention of the '505 patent would have had a bachelor's degree in computer science or a related field, or an equivalent technical

degree or equivalent work experience, and an additional one to two years of education or experience in the field of computer security topics such as malware/exploit detection. More education can supplement practical experience and vice versa. (EX-2001 ¶¶42-46 (noting that minor distinctions in Petitioner's and Patent Owner's definitions would not alter the analysis).)

V. OVERVIEW OF THE PRIOR ART

A. Overview of Garfinkel

Garfinkel discloses an intrusion detection system (IDS) architecture based on “virtual machine introspection.” (EX-1006 Title, Abstract, 2 col. 1; EX-2001 ¶¶47-59.)

Garfinkel explains that prior art IDSs were typically defeated either through attack, e.g., tampering with the IDS or trusted components, or evasion, e.g., disguising malicious activity so it goes unrecognized. (EX-1006 1 col. 1.) Garfinkel posits that countering these two approaches produced conflicting requirements—specifically, the need for better visibility into the state of monitored systems and isolation of the IDS from the monitored system and attacker. (EX-1006 1 cols. 1-2.) The existing IDS architectures described by Garfinkel included two types: (1) network-based intrusion detection systems (NIDS) that offered high attack resistance at the cost of visibility; and (2) host-based intrusion detection systems

(HIDS) that offered high visibility but sacrificed attack resistance. (EX-1006 1 col. 2.)

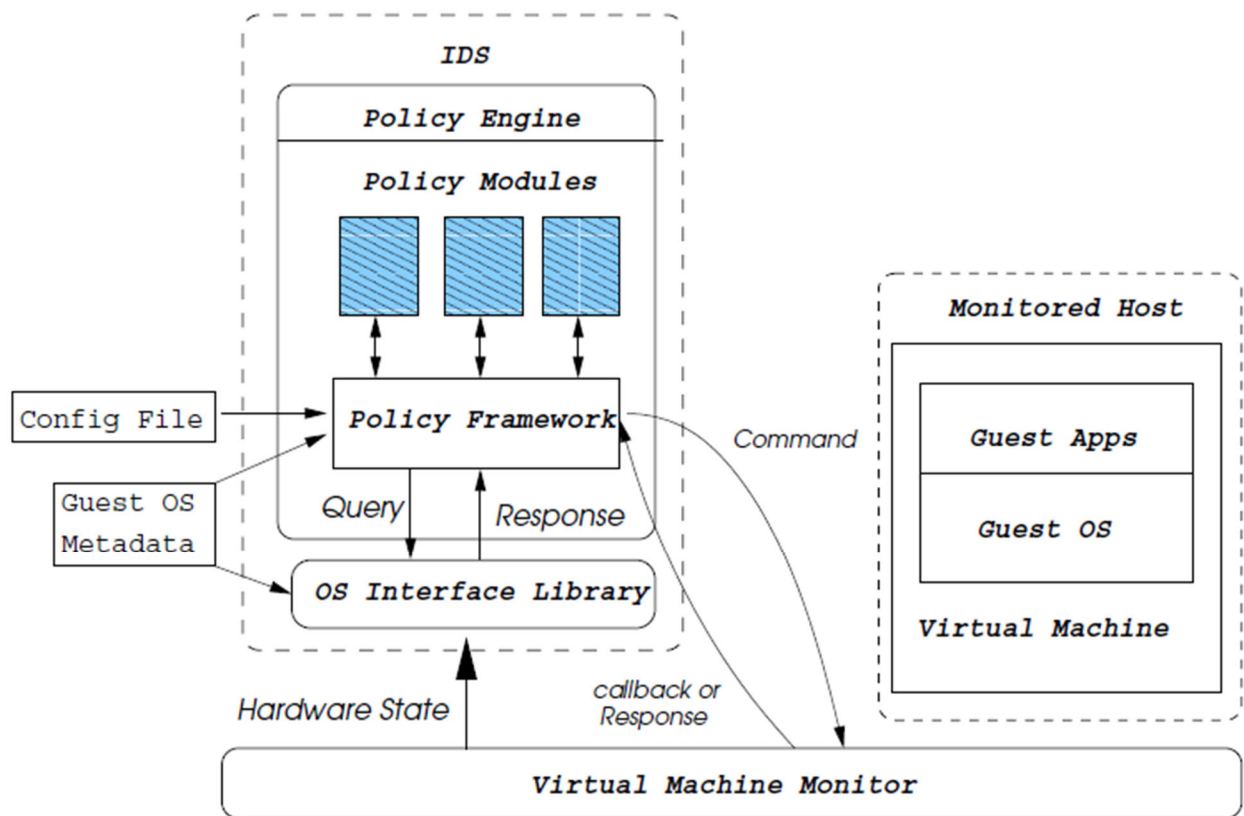
Garfinkel acknowledged that some systems might move the IDS into the kernel; however, Garfinkel criticizes that approach, stating that “kernel code is no safer from tampering by a privileged user than normal user-level code.” (EX-1006 2 col. 2.) Garfinkel asserts that “[a] critical fault in a kernel-based IDS will often [] fail open” and “cause the entire system to crash or allow the attacker to compromise the kernel.” (EX-1006 3 col. 1.)

Thus, Garfinkel sought to present a new IDS architecture to resist both evasion and attack by providing visibility into the state of the monitored host, while still providing strong isolation for the IDS. (EX-1006 1 col. 2.)

Garfinkel discloses an architecture which places the IDS on the same machine as the host it is monitoring while still being “outside” of the host system by being in a different hardware protection domain. (EX-1006 1 col. 2, §11.) The IDS relies on a virtual machine monitor (VMM)—i.e., software—to virtualize the hardware of the host machine into a virtual machine. (EX-1006 §§3-3.1.) The virtual machine runs a “guest” operating system (OS) and guest applications. (*Id.*) In this way, the IDS is isolated from the monitored host, while still having visibility into the virtual machine via the VMM. (EX-1006 §3.4.) Garfinkel refers to this approach of

“inspecting a virtual machine from the outside for the purpose of analyzing the software running inside” as “virtual machine introspection (VMI).” (EX-1006 2 col. 1.)

Garfinkel's proposed VMI-based IDS architecture is illustrated below, with the virtual machine running the host being monitored on the right and the IDS on the left, with the two interfaced via a VMM:



(EX-1006 Fig. 1.)

Garfinkel's IDS is implemented in two parts. The (EX-1006 §4.3.) The first, an operating system (OS) interface library, provides “an OS-level view of the virtual

machine's state in order to facilitate easy policy development and implementation.”

(*Id.*) The second, a policy engine, relies on one or more policy modules to “execute IDS policies by using the OS interface library and the VMM interface.” (*Id.*)

Depending on the type of policy modules implemented in the IDS, the policy engine uses a variety of commands to inspect, monitor, and/or control what happens in the virtual machine. (*See, e.g.*, EX-1006 §§4.2.1, 5.4.1; EX-2001 ¶¶56, 59.) Garfinkel discloses six different exemplary policy modules—four “polling modules” that run periodically and two “event-driven modules” that are triggered by a specific event. (EX-1006 §5.4.2; *see also generally id.* §6; EX-2001 ¶¶54, 57.)

For example, one of the polling policy modules is a “lie detector” module. (EX-1006 §6.1.1.) “Attackers often achieve stealth by modifying the OS kernel, shared libraries, or user-level services,” which can lead to inconsistencies between the kernel (or hardware) view of the system and the view provided by user-level programs. (*Id.*) Garfinkel therefore discloses a module which periodically inspects the hardware state both directly and by querying the host system through user-level programs. (*Id.*) If it detects a conflict between those views, then it knows the system is lying and reports the presence of tampering. (*Id.*)

Where polling policy modules are implemented, the IDS uses “inspection commands,” which cause the VMM to provide the hardware state of the virtual machine to the IDS. (EX-1006 6 col. 1; *see also id.* §6.1.)

Unlike the polling modules, which run periodically, the event-driven policy modules are triggered by an event. (EX-1006 §5.4.2.) The IDS uses “monitor commands” to request notification (e.g., by registering callbacks) for events taking place in the virtual machine. (EX-1006 § 6 col.1; *see also id.* §5.4.1.) “[E]ach event-driven checker registers all of the events it would like to be notified of with the policy framework.” (EX-1006 §6.2.) “At runtime, when one of these events occurs, the VMM relays a message to the policy framework.” (*Id.*) The virtual machine may continue to run, or the VMM can be directed to suspend the machine at each event. (*Id.*)

For example, one of the event-driven policy modules is a “memory access enforcer,” which marks certain portions of the kernel (e.g., `sys_call_table`) as read-only through the VMM. (EX-1006 §6.2.1.) If a malicious program tries to modify these sections of kernel memory, the VM will be halted and the enforcer notified. (*Id.*)

That is, upon obtaining notification of an event, the IDS’s policy engine determines whether the system has been compromised based on the relevant policy

modules. (EX-1006 §§4.3.2, 5.4-5.4.2.) The IDS then uses “administrative commands” to control execution (e.g., suspend or resume) in the virtual machine. (EX-1006 §4.2.1.) For example, in Garfinkel’s prototype, Livewire, Garfinkel teaches that its prototype, Livewire, suspends the virtual machine’s execution every time an event occurred until the IDS responded with a command to resume. (EX-1006 §5.2.) Garfinkel’s prototype was implemented via Linux-based software. (EX-1006 §§5-5.1.)

B. Overview of Hoglund

Hoglund is a book titled “Rootkits: Subverting the Windows Kernel” that discusses rootkit “threats to the Windows operating system.” (EX-1007 2; EX-2001 ¶¶60-67.) Hoglund explains that:

Rootkits can be generic to different versions of an OS, but will still be limited to a given OS family. For example, some rootkits in the public domain affect all flavors of Windows NT, 2000, and XP. This is possible only when all the flavors of the OS have similar data structures and behaviors. It would be far less feasible to create a generic rootkit that can infect both Windows and Solaris, for example.

(EX-1007 41.)

While Hoglund describes a variety of techniques that may be used by these rootkits (EX-1007 38), there are only a few discrete disclosures relevant to the

present petition, which discuss the potential for rootkits to alter Windows registry keys. (EX-2001 ¶¶61-65.)

Hoglund then discusses some of the techniques that can be used to detect the presence of a rootkit based on their potential alteration of the Windows registry. (EX-1007 346.) For example, Hoglund teaches using detection software to hook specific software functions, but acknowledges that this method requires knowing which associated registry keys to guard. (EX-1007 347.) While Hoglund discloses a few likely registry keys, it “assume[s] you have discovered all the locations to watch in order to prevent rootkits from loading, and...further assume[s] you have resolved all the possible names of critical resources to protect.” (EX-1007 347.) Even then, Hoglund criticizes this detection method because it requires comparison with a signature and would, therefore, only detect known rootkits. (EX-1007 347; EX-2001 ¶¶66.)

As an alternative, Hoglund discloses a method for detecting hidden registry keys. (EX-1007 359.) Hoglund explains that the goal of such a technique is to catch the operating system in a “lie”—i.e., where an API returns values known to be false. (EX-1007 359.) Specifically, Hoglund discloses a known tool called “rootkit-revealer.” (*Id.*) First, the tool determines the “truth” by parsing files that correspond to the registry without the aide of the standard Win32 API calls and parsing the file

system at a very low level while avoiding typical API calls. (*Id.*) The tool then calls the highest-level APIs to compare the result with what it knows to be true. (*Id.*) A discrepancy indicates the presence of a rootkit. (*Id.*; EX-2001 ¶67.)

VI. PETITIONER FAILS TO SHOW A REASONABLE LIKELIHOOD THAT IT WOULD PREVAIL WITH RESPECT TO ANY CHALLENGED CLAIM

The Board should deny institution because the petition fails to show a reasonable likelihood of success on any claim.

An IPR may be instituted *only if* the petitioner demonstrates a “reasonable likelihood” that it would prevail as to at least one of the challenged claims. 35 U.S.C. § 314(a). “In an inter partes review, the burden of persuasion is on the petitioner.... Failure to prove the matter as required by the applicable standard means that the party with the burden of persuasion loses on that point—thus, if the fact trier of the issue is left uncertain, the party with the burden loses.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378-79 (Fed. Cir. 2015); *see Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (noting petitioners have the “burden from the onset to show with particularity why the patent it challenges is unpatentable”).

Petitioner asserts a single ground against claims 1-20 of the ’505 patent (“the challenged claims”):

Ground 1	Section 103(a)	Obvious over Garfinkel and Hoglund	Claims 1-20
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Petitioner's solitary ground suffers from two critical deficiencies. First, Petitioner has not established that its primary prior art reference, Garfinkel, was publicly accessible. Second, Petitioner's combination fails to disclose key limitations of the '505 patent, and no POSITA would have been motivated to modify or combine the references in a way that overcomes these deficiencies.

A. Petitioner Has Not Established That The Prior Art Was Publicly Accessible

Petitioner fails to meet its burden to show that the prior art was publicly available no later than August 7, 2006 (i.e., the '505 patent's priority date). (EX-1001 1.)

The petition must establish a reasonable likelihood that an asserted reference qualifies as a printed publication. *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 at 3 (PTAB Dec. 20, 2019) (*precedential*). “[P]ublic accessibility” is “the touchstone in determining whether a reference constitutes a ‘printed publication’ bar under 35 U.S.C § 102(b).” *In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986). “A reference is publicly accessible ‘upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising

reasonable diligence, can locate it” *Kyocera Wireless Corp. v. ITC*, 545 F.3d 1340,1350 (Fed. Cir. 2008) (quoting *SRI Int’l, Inc. v. Internet Sec. Sys. Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008)). “A party seeking to introduce a reference ‘should produce sufficient proof of its dissemination or that it has otherwise been available and accessible to persons concerned with the art to which the document relates and thus most likely to avail themselves of its contents.’” *Argentum Pharms. LLC v. Research Corp. Techs., Inc.*, IPR2016-00204, Paper 19 at 9 (PTAB May 23, 2016) (quoting *In re Wyer*, 655 F.2d 221, 227 (CCPA 1981)).

To support its claim that the prior art references were publicly accessible, Petitioner relies entirely on the conclusion of Dr. Ingrid Hsieh-Yee. (Petition 3-4 (citing EX-1015 18).) First, Dr. Hsieh-Yee’s declaration is entitled to no weight as it does not cite any supporting evidence of record in this proceeding. Second, even if Dr. Hsieh-Yee’s declaration were supported by evidence, it fails to establish that Garfinkel was publicly accessible in the relevant timeframe.

1. Dr. Hsieh-Yee’s declaration cites no supporting evidence of record.

Dr. Hsieh-Yee’s declaration cites either webpage links or an appendix that was not included in Petitioner’s submission; therefore it is unsupported by evidence.

37 C.F.R. §42.65(a).

“All evidence must be filed in the form of an exhibit,” and “[e]ach exhibit must be filed with the first document in which it is cited.” 37 C.F.R. §§ 42.63(a), 42.6(c). Where a declaration cites webpage links instead of exhibits, it is unsupported by evidence. *Sophos Ltd. et al. v. Open Text Inc.*, IPR2023-00731, Paper 23 at 12-13 (PTAB Nov. 2, 2023).

Dr. Hsieh-Yee's declaration references nine different appendices, none of which are attached to either her own declaration or as exhibits to the petition. (E.g., EX-1015 ¶¶4, 8, 25.) She lists links for four of these appendices; however, it is impossible for Patent Owner to determine whether the webpages at such links have changed since Dr. Hsieh-Yee accessed those pages in August 2023. (EX-1015 ¶25.) For the other missing appendices, it is impossible for Patent Owner to determine their contents.

Accordingly, Dr. Hsieh-Yee's declaration “does not disclose the underlying facts or data on which the opinion is based” and is therefore “entitled to little or no weight.” 37 C.F.R. Section 42.65(a); *Sophos*, IPR2023-00731, Paper 23 at 15. This, alone, is reason enough to find that Petitioner has failed to establish Garfinkel's public accessibility. *Id.*

2. Dr. Hsieh-Yee's declaration does not establish that Garfinkel was publicly accessible before the priority date.

Even if Dr. Hsieh-Yee's declaration were supported by evidence, it does not establish a reasonable likelihood that Garfinkel "has been disseminated" or that it was "otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it." *SRI*, 511 F.3d at 1194.

First, nothing on Garfinkel's face evinces a timeframe in which it might have been published. It is undated, does not contain a copyright date, and makes no mention of any symposium at which it might have been presented or disseminated.

Second, Dr. Hsieh-Yee does not establish dissemination of Garfinkel at the NDSS symposium in 2003. Dr. Hsieh-Yee cites no evidence that Garfinkel was disseminated at or around the time of the conference. (*See generally* EX-1015.) She does not address "whether the copies were freely distributed to interested members of the public" or whether there was a "legal obligation of confidentiality" when distributing any copies, among other factors. *Medtronic Inc. v. Barry*, 891 F.3d 1368, 1381 (Fed. Cir. 2018).

Third, Dr. Hsieh-Yee does not establish that Garfinkel was "otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it." *SRI Int'l*, 511 F.3d at

1194. Petitioner must establish that Garfinkel was made available to the public *before the critical date* of the challenged patent. *Hulu*, Paper 29 at 16. Dr. Hsieh-Yee has no personal knowledge of when Garfinkel was first published and, instead, relies on two sources of evidence.

Dr. Hsieh-Yee first cites the symposium website as allegedly listing a February 6, 2003 publication date for Garfinkel. (EX-1015 ¶¶27-29.) However, a digital repository's listing of a particular publication date does not demonstrate that the prior art reference was actually available in that repository as of that date. *Sophos*, IPR2023-00731, Paper 23 at 17 (citing *In-Depth Geophysical, Inc. v. Conocophillips Co.*, IPR2019-00849, Paper 17 at 5, 12 (PTAB Mar. 30, 2020) (“Simply pointing to a date, alleged to be a ‘publication date,’ even where that date cascaded through various patent references, without interpretation or explanation, does not meet the threshold standard to show that it is reasonably likely that a reference was [publicly] accessible on that date.”)).

Dr. Hsieh-Yee cites no evidence that suggests a specific date by which Garfinkel was available and accessible via the symposium website. For example, if the same symposium website address that allegedly hosts the article is searched on the Wayback Machine, there are no saved pages before January 2018—long after the priority date of the '505 patent. (EX-2012 1.) Dr. Hsieh-Yee's declaration—

and Petitioner—do not establish that Garfinkel was available via the symposium website as of any date.

Dr. Hsieh-Yee also relies on a MARC record and bibliographic data obtained from an online catalog for the Federal Science Libraries Network of Canada to allege that Garfinkel was publicly accessible in-person at the National Science Library (NRC) in Ottawa as of October 1, 2003. (EX-1015 ¶¶30-35.) Dr. Hsieh-Yee testifies that she found this library catalog entry by searching WorldCat for a record of the NDSS symposium 2003, which then indicated that the National Science Library of Canada held that conference's proceedings. (EX-1015 ¶30.) Dr. Hsieh-Yee does not show how a POSITA—without the benefit of Dr. Hsieh-Yee's prior knowledge of Garfinkel's existence—would have located it at the Ottawa library. (*Id.*)

Dr. Hsieh-Yee cites bibliographic data from the Federal Science Libraries Network of Canada catalog, which shows the title of the symposium proceedings and year—i.e., NDSS 2003. (EX-1015 ¶31.) The bibliographic data does not reference Garfinkel at all. (EX-2013 1-3.) The data describes the materials corresponding to the listed call number as “[c]ontain[ing] the collection of papers submitted to the NDSS 2003 conference, an archive of the papers and slides (*when available*) from the NDSS conferences 2002 – 1996, and conference organizers

along with the General Chair's and Program Chairs' messages." (*Id.*⁵) In particular, the data lists the collection as being available on CD-ROM or paper for "[i]n library use only." (*Id.*) Nothing in the bibliographic data indicates what papers were available or included in this collection and/or what date they were made available in the library's system.

In an attempt to remedy this deficiency, Dr. Hsieh-Yee cites the MARC record—i.e., bibliographic metadata—for this catalog entry, which is neither linked nor provided in Petitioner's submission. (EX-1015 ¶¶7, 32-35.) Dr. Hsieh-Yee alleges that because Fields 008 and 040 of the MARC record indicate that the National Science Library of Canada created the record as of October 1, 2003, Garfinkel became discoverable in the online catalog as of that date. (EX-1015 ¶¶32, 35.)

This conclusion is incorrect for many reasons. Most critically, Dr. Hsieh-Yee cites no evidence to support whether Garfinkel—as relied on by Petitioner—was included in the NRC Ottawa library's collection for the symposium. She provides no copy of the collection contained in Ottawa at all and nothing to support her assumption that the collection held by the library contains Garfinkel and/or contains

⁵ All emphasis added unless otherwise noted.

a copy of Garfinkel that matches the copy of Garfinkel on which Petitioner relies. Additionally, Dr. Hsieh-Yee cites no evidence to support her apparent assumption that the creation date of the MARC record corresponds to the date that the collection was made available in the Ottawa library.

Furthermore, while Dr. Hsieh-Yee concludes that the collection was “discoverable” based on the Federal Science Libraries Network of Canada’s library catalog, she does not establish that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, could locate it. (EX-1015 ¶¶32.) She cites fields of the MARC record that would allegedly “help users discover this work.” (EX-1015 ¶¶33-35.) But these fields indicate highly generalized subject matter—e.g., “computer networks,” “security measures,” “access control”—or the publisher of the conference proceedings. (*Id.*) Nothing in these fields or in Dr. Hsieh-Yee’s discussion of these fields indicates that a POSITA exercising reasonable diligence would have located Garfinkel, particularly where she has cited no evidence that Garfinkel was actually included in the library’s collection corresponding to this record. Accordingly, Dr. Hsieh-Yee’s testimony does not establish that Garfinkel was publicly accessible at the NRC in Ottawa at all, let alone that it was publicly accessible before the critical date.

Finally, Dr. Hsieh-Yee opines that actual usage of Garfinkel is reflected by other publications citing it. (EX-1015 ¶36.) However, she does not provide or link to the Google Scholar results she references, making it impossible to verify their citation of Garfinkel and/or whether there was any overlap in authorship between the references. Moreover, such citations alone would not establish public accessibility, because there is no evidence that any cited Garfinkel reference contains the same disclosure as the Garfinkel reference on which Petitioner relies.

The petition adds nothing to support public accessibility of Garfinkel, relying solely on Dr. Hsieh-Yee's declaration. (Petition 3-4.) Accordingly, Petitioner has not established a reasonable likelihood that Garfinkel was publicly accessible, and its petition should be denied.

B. Petitioner Fails to Show That the Combination of Garfinkel and Hoglund Renders Obvious Any Independent Claim

Even if Garfinkel were publicly accessible (which it is not), Petitioner's solitary ground fails to disclose or render obvious multiple limitations of the independent claims. In particular, Petitioner does not establish that the cited combination discloses or renders obvious: (1) managing pestware-related events during a second period of a boot sequence; (2) scanning data in a registry during a second period of a boot sequence; or (3) generating, in response to monitoring, a record of events.

1. The cited combination does not disclose or render obvious managing pestware-related events during a second period in the boot sequence.

Petitioner fails to show that Garfinkel, or the cited combination, discloses or renders obvious managing pestware-related events during a second period in the boot sequence.

Limitation [1d] recites “*managing pestware-related events in accordance with a set of behavior rules during a second period in the boot sequence occurring when the computer is configured to run native applications.*” (EX-1001 cl. [1d]; see also *id.* cls. [6f], [11d].) Petitioner makes two alternative arguments—both of which rely on Garfinkel as allegedly disclosing this limitation of the independent claims. (Petition 16-18; see also *id.* 31, 37.)

a) Garfinkel does not teach or suggest using its lie detector module to manage pestware-related events during a second period in the boot sequence.

Petitioner first relies on Garfinkel's disclosure of a lie detector policy module as allegedly teaching this limitation. (Petition 16-17.) But this argument suffers from two deficiencies: (1) Garfinkel's lie detector policy module does not “*manag[e] pestware-related events;*” and (2) Garfinkel does not teach application of its lie detector policy module during a second period in the boot sequence.

Petitioner characterizes Garfinkel's lie detector policy module as capable of identifying and halting malware. (Petition 16-17.) But Garfinkel's application of

its lie detector policy module is not the equivalent of “*managing pestware-related events*,” as claimed by the ’505 patent.

Garfinkel discloses six sample policy modules—four of which are “*polling modules*”—i.e., “modules that run periodically and check for signs of an intrusion.” (EX-1006 §5.4.2.) These are distinct from Garfinkel’s two “*event-driven modules*”—i.e., “modules that are triggered by a specific event.” (*Id.*) Garfinkel lists the lie detector module as a type of polling module, which periodically checks for inconsistencies between the kernel/hardware-view of the system and the user-level program-view of the system. (EX-1006 §6.1.1.) When the module detects a conflict between these two views, “it reports the presence of malicious tampering.” (*Id.*) That is, Garfinkel’s application of a lie detector module does not involve “*managing pestware-related events*,” or any event at all. (EX-2001 ¶¶72-76.) In fact, Garfinkel does not even disclose a means of identifying what event might have resulted in the “lie”—only that a lie or inconsistency exists. (See EX-1006 §6.1.1 (“This technique has the nice property that it does not matter what part of the system the intruder modified in order to elicit the malicious behavior.”); EX-2001 ¶76.) Accordingly, Garfinkel’s lie detector is not used to “*manag[e] pestware-related events*.”

Garfinkel also does not disclose or suggest applying its lie detector module at any specific time, and Petitioner fails to even make such an allegation. (Petition 17.) Indeed, Garfinkel does not reference a boot sequence at all. (*See generally* EX-1006.) Nothing in Garfinkel's disclosure would indicate to a POSITA that application of the lie detector policy module occurs during the boot sequence at all, let alone during any specific time during the boot sequence. (EX-2001 ¶77.)

Petitioner appears to instead rely on an inherency argument, asserting that a POSITA "would understand that the lie detector" operates during the boot sequence when user space programs are operating and that this corresponds to a second period in the boot sequence. (Petition 17.) Specifically, Petitioner asserts that Garfinkel's second period in the boot sequence occurs after the "/sbin/init" function has started and the necessary subsystems are loaded. (*Id.* 17.)

Not only does Petitioner fail to explain *why* a POSITA would have allegedly understood this to be necessarily true, but Garfinkel's explicit teachings contradict this understanding. (EX-2001 ¶77.) Garfinkel teaches only that the lie detector module obtains the first kernel-view of the system by directly inspecting the hardware and kernel state and the second user-level program-view by querying the host system through user-level programs. (EX-1006 §6.1.1.) That inspection and query may take place at any time in the system's lifespan—even long after the boot

sequence has completed. (EX-2001 ¶¶76-77.) Indeed, Garfinkel's disclosure of the lie detector module as a "polling" module supports this, teaching that such modules are to be applied periodically. (EX-1006 §5.4.2.) Accordingly, Petitioner's argument cannot succeed. *Roland Corp. v. InMusic Brands, Inc.*, IPR2018-00335, Paper 14 at 17 (PTAB July 2, 2018) (quoting *Rosco, Inc. v. Mirror Lite Co.*, 304 F.3d 1373, 1380 (Fed. Cir. 2002) (declining to institute where petitioner failed to support its inherency argument with adequate explanation); *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) ("Inherency...may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.")).

Accordingly, Garfinkel does not disclose or suggest "*managing pestware-related events...during a second period in the boot sequence.*" And Petitioner has not asserted that Hoglund or a combination of the prior art discloses or renders obvious this limitation.

b) Garfinkel does not teach or suggest using its memory access enforcer to manage pestware-related events during a second period in the boot sequence.

Petitioner alternatively asserts that Garfinkel discloses a memory access enforcer policy module, which allegedly monitors system calls or modifications to memory. (Petition 17.) Again, Petitioner does not identify any express teaching by

Garfinkel that such a module is applied during a boot sequence or at any specific time during a boot sequence, and in fact Garfinkel does not explicitly teach any particular time at which the module is applied. (*See id.*) Petitioner again appears to rely on inherency, alleging in a single sentence that a POSITA “would have known” that a rootkit attempts to modify memory and perform malicious system calls “in the period of the boot sequence after /sbin/init/ is completed and after OS subsystems are initiated”—i.e., during an alleged second period of the boot sequence. (*Id.*)

Contrary to Petitioner's argument, Garfinkel's memory access enforcer module does not inherently operate “*during a second period in the boot sequence.*” (EX-2001 ¶¶78-83.) The petition contains no explanation of why a POSITA would have allegedly understood rootkits to necessarily attack during the boot sequence—let alone a second period of the boot sequence—or why that must necessarily mean that Garfinkel's policy module is applied during the boot sequence. (Petition 17.) Petitioner instead relies solely on its expert's declaration. (Petition 17.)

But Petitioner (and Dr. Nielson) fail to acknowledge that the “/sbin/init” program runs throughout the lifetime of the system—*i.e.*, until it is shut down. (EX-2001 ¶82.) Even in light of Garfinkel's teaching that it captures, *e.g.*, the SuckIT rootkit when it tries to modify the dispatch table, a POSITA would not understand such an attack to necessarily occur during the boot sequence. (EX-2001 ¶82.) It is

equally possible that such an attack would be made after the boot sequence has completed, and Garfinkel's disclosure of capturing the SucKIT rootkit is based on application of the memory access enforcer module after the boot sequence is complete. (*Id.*) Accordingly, a POSITA would not understand that Garfinkel discloses or suggests necessarily managing pestware during the boot sequence at all, let alone "*during a second period of the boot sequence.*"

This is confirmed by the fact that Petitioner's argument is contrary to Dr. Nielson's opinion. For example, Dr. Nielson alleges in connection with limitation [1c] that Garfinkel discloses monitoring and blocking the SucKIT rootkit by applying the memory access enforcer module during the *first* period of the boot sequence "before the computer is configured to run native applications." (EX-1003 ¶¶181-183.) Dr. Nielson's later opinion in connection with limitation [1d]—that "[a] POSITA would have understood that Linux rootkits *also* modify memory during the user-level boot sequence that begins after '/sbin/init'"—means that Garfinkel does not disclose *necessarily* managing SucKIT in either period of the boot sequence. (EX-1003 ¶193; *see also id.* ¶190 ("Garfinkel discloses monitoring for rootkits such as SucKIT *at any stage of the boot sequence.*").) "Inherency...may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169

F.3d at 745. Accordingly, Garfinkel does not inherently disclose or suggest managing pestware-related events “*during a second period of the boot sequence.*”

Petitioner relies solely on Garfinkel as teaching this limitation in the petition. Accordingly, Petitioner fails to show that Garfinkel, Hoglund, or the cited combination discloses or renders obvious managing pestware-related events during a second period of the boot sequence.

2. The cited combination does not disclose or render obvious scanning data in a registry during a second period in the boot sequence.

Limitation [1h] recites “*scanning data in a registry of the computer for pestware during the second period in the boot sequence.*” (EX-1001 cl. 1; *see also id.* cls. [6j], [11h].) That is, the independent claims require both scanning data in a registry of the computer and doing so during a second period in the boot sequence.

First, neither Garfinkel, Hoglund, nor their combination discloses or renders obvious scanning during a second period in the boot sequence. Second, Petitioner fails to show that a POSITA would have been motivated to combine Garfinkel’s and Hoglund’s teachings to render obvious scanning data in a registry for pestware.

a) None of Garfinkel, Hoglund, or their combination discloses or renders obvious scanning data during a second period in the boot sequence.

Petitioner does not assert that either Garfinkel or Hoglund teaches scanning data “*during the second period in the boot sequence.*” (See Petition 21-22.) At most,

Petitioner relies on Garfinkel's disclosure of a signature scanner and alleges merely that Garfinkel discloses a system capable of scanning data "during boot." (Petition 21.) Accordingly, Petitioner does not meet its burden and fails to establish that this limitation was known in the prior art.

First, Garfinkel does not disclose or suggest applying its signature scanner "*during the second period in the boot sequence.*" Garfinkel lists a signature detector as a type of polling module—*i.e.*, one that "periodically check[s] the system for signs of malicious activity." (EX-1006 §§6.1.3, 6.1.) Garfinkel teaches that the signature detector periodically performs a scan of memory for known attack signatures—*e.g.*, a known signature substring of the program. (EX-1006 §6.1.3.) Nothing in Garfinkel suggests that this signature detector is applied "*during the second period in the boot sequence.*" (EX-2001 ¶¶85-87.) Rather, by disclosing it as a polling module, Garfinkel indicates to a POSITA that such a detector should be applied periodically throughout the life of the system, long after the boot sequence is complete. (EX-1006 §6.1; EX-2001 ¶87.) Accordingly, Garfinkel does not teach scanning data for pestware "*during the second period in the boot sequence.*"

Second, Hoglund does not remedy this deficiency because Hoglund explicitly discloses a tool that is applied *after* the boot sequence has completed. Hoglund references a known tool called "Rootkit-Revealer," which detects hidden registry

entries by parsing the registry through two different methods and comparing the results. (EX-1007 359; EX-2001 ¶¶88-90.) Hoglund explains that one of these methods “calls the ***highest level APIs***.” (EX-1007 359.) A POSITA would understand that this tool could not call the highest-level APIs until the system is fully up and running—*i.e.*, ***after*** the boot sequence is complete. (EX-2001 ¶¶88-89.) That is, Hoglund discloses a tool that is not used during the boot sequence at all. (*Id.*)

Accordingly, none of Garfinkel, Hoglund or their combination of teachings discloses or renders obvious scanning a registry of the computer “*during the second period in the boot sequence.*”

b) The combination of Garfinkel and Hoglund does not render obvious “*scanning data in a registry of the computer for pestware.*”

Petitioner fails to show that a POSITA would have been motivated to combine Garfinkel's and Hoglund's teachings to render obvious “*scanning data in a registry of the computer for pestware.*”

While Petitioner asserts that Garfinkel discloses a system *capable* of scanning memory with access to a registry, its expert, Dr. Nielson, concedes that “Garfinkel does not explicitly disclose scanning the registry.” (Petition 21; EX-1003 ¶231.) Furthermore, Petitioner mischaracterizes Garfinkel as disclosing “a signature scanner that scans ***files***, buffer cache, and memory with access to memory registers.”

(Petition 21.) But Garfinkel does not teach scanning the file system. (See EX-1006 §6.1.3; EX-2001 ¶¶91-94.) Garfinkel explicitly discloses a signature detector that “performs a scan of all of *host memory* for attack signatures.” (EX-1006 §6.1.3.) Thus, Garfinkel’s signature scanner does not scan any portion of the registry stored on disk and could not operate as a registry scanner. (EX-2001 ¶94.)

In an attempt to overcome this deficiency, Petitioner relies on Hoglund’s disclosure of the rootkit revealer tool, which Petitioner characterizes as a “scanning tool.” (Petition 21-22.) Petitioner argues in a single, conclusory sentence that a POSITA would have been motivated to combine Garfinkel’s signature detector with Hoglund’s “registry scanning” where Garfinkel’s IDS hosts a Windows-based operating system. (Petition 21-22.) However, a POSITA would not have been motivated to combine the teachings of Garfinkel and Hoglund because each applies distinct techniques for distinct purposes. (EX-2001 ¶¶95-96.)

As a preliminary matter, Petitioner makes only generalized, high-level arguments regarding motivation to combine at the beginning of its petition (Petition 10-12) and fails to elaborate on any alleged motivation to combine the prior art teachings with respect to this specific limitation.

Petitioners have the burden to prove that a POSITA (a) would have “been motivated to combine the teachings of the prior art references to achieve the claimed

invention” and (b) “would have had a reasonable expectation of success in doing so.” *Procter & Gamble Co. v. Teva Pharms. USA, Inc.*, 566 F.3d 989, 994 (Fed. Cir. 2009) (internal citations omitted). These are two distinct requirements, and neither implies the other. *See Eli Lilly & Co. v. Teva Pharms. Int’l GmbH*, 8 F.4th 1331, 1344 (Fed. Cir. 2021).

Petitioner’s generalized argument in support of motivation to combine distills down to a single theory—that because Garfinkel’s virtual machine can host a Linux-based or Windows-based operating system as the “guest OS,” a POSITA would understand Garfinkel’s teachings to be “interchangeable for equivalent stages in either boot process” and would have looked to Hoglund for details regarding timing of rootkit intrusion on Linux and Windows. (Petition 10-12.) Petitioner’s argument does not address limitation [1h] or articulate why a POSITA would have been motivated to apply Hoglund’s teaching of detecting registry changes, particularly where Hoglund discloses many alternative methods of detection. (*See generally* Petition 10-12, 22.) Thus, Petitioner’s argument is insufficient to meet its burden.

Petitioner’s argument also fails because it ignores the critical distinctions between Garfinkel’s signature detector and the rootkit revealer referenced in Hoglund. (EX-2001 ¶97.)

Garfinkel discloses a “signature detector,” another polling policy module that scans memory periodically for known attack signatures and which does not scan the registry. (EX-1006 §6.1.3.) Garfinkel teaches that such an approach “requires a more careful selection of signatures to avoid false positives.” (EX-1006 §6.1.3.) And while Garfinkel references a list of “[p]opular” attack tools that includes “back-orifice,” Garfinkel contains no other disclosure related to this specific attack tool. (See *id.*; EX-2001 ¶93.) Furthermore, “back-orifice” is not one of the attack tools that Garfinkel identifies as having been captured or blocked by any of its policy modules, including the signature detector. (EX-1006 Table 1.)

Hoglund does not disclose a signature detector and does not teach or suggest applying a signature scanner to a Windows registry. (EX-2001 ¶¶95-96.) As previously discussed in Section VI(B)(2)(a), Hoglund explains that the rootkit revealer operates by querying data in the registry through two different methods and comparing the results of those methods to detect discrepancies. (*Id.*; EX-1007 359.) Petitioner's expert characterizes this rootkit revealer as a “Windows scanning rootkit signature detector,” but Hoglund does not teach this tool scanning for a signature. (EX-1003 ¶236; EX-2001 ¶95.) Rootkit revealer detects changes to a registry and does not scan for a signature. (EX-2001 ¶95.)

At least because Garfinkel discloses techniques implementing a *signature* scanner and Hoglund discloses techniques using detection of registry *changes*, a POSITA would not have been motivated to combine Garfinkel's and Hoglund's distinct teachings to "*scan[] data in a registry of the computer for pestware during the second period in the boot sequence.*"

3. The cited combination does not disclose or render obvious generating a record of events in response to the monitoring of events.

Petitioner fails to show that Garfinkel, or the cited combination, discloses or renders obvious generating a record of events in response to the monitoring of events.

Limitation [1e] recites "*generating, in response to the monitoring, a record of events, the record of events including the pestware-related events.*" (EX-1001 cl. 1; see also id. cls. [6g], [11e].) Petitioner asserts that Garfinkel teaches that its "event-driven inspection may be based on a log of events...to reduce computer load." (Petition 18.)

However, this teaching of Garfinkel is actually a proposed modification to the disclosed system, and Petitioner fails to: (1) acknowledge that Garfinkel actually teaches away from such a modification; or (2) show that, if a POSITA were to

implement such a modification, the resulting embodiment would still practice or teach all limitations of the independent claims as alleged.

Garfinkel teaches that the authors' prototype takes "an extremely conservative approach to introspection by primarily engaging in passive checks that incur no visible impact on system performance." (EX-1006 13 col.2.) Garfinkel acknowledges that where a system designer wishes to monitor "frequent asynchronous events, e.g., all system calls," such an endeavor would be "quite performance intensive." (*Id.*) But Garfinkel discloses, under "Future Work," that this could be supported by its VMI IDS by "hard coding the functionality to log these events directly into the monitor, then offloading the processing of these logs to the policy engine." (*Id.*) That is, Garfinkel teaches that instead of receiving real-time notification of events through the VMM and analyzing those events in real-time to determine whether the system has been compromised, the IDS could be modified such that the VMM logs asynchronous events, passing them to the IDS to be analyzed after-the-fact. (EX-1006 13 col.2; EX-2001 ¶¶98-100 (explaining that asynchronous events do not occur at the same time).)

But Garfinkel teaches away from making such a modification, explaining:

However, *this approach seems somewhat inflexible*. We believe a more promising approach would involve support for providing a small, safe and extensible mechanism for efficiently filtering architecture

events in the VMM, in much the same fashion that current OSes provides this functionality for filtering packets via BPF.

(EX-1006 13 col.2.) That is, Garfinkel teaches away from modifying the IDS to have the VMM log events, calling such an approach “inflexible.” (*Id.*) Instead, Garfinkel directs a POSITA to an alternative, “more promising approach” of implementing a mechanism for filtering events in the VMM. (*Id.*) Based on this disclosure, a POSITA would not have been motivated to modify Garfinkel's disclosed IDS to generate a record of events because Garfinkel specifically criticizes this approach and suggests what it considers to be a better alternative. (EX-2001 ¶¶101-102.)

Additionally, Petitioner relies—for the record-related limitations only—on a modified embodiment of Garfinkel's disclosed IDS, without establishing that the resulting embodiment would still practice or teach the other independent claim limitations. For example, if the IDS were modified as Garfinkel proposes under its “future work” section, the VMM would log events (instead of notifying the IDS in real-time) and the policy modules would be applied at some unspecified time (e.g., after the boot sequence), after the log is passed to the policy engine. (EX-2001 ¶¶100, 102.) Even if one assumes that Petitioner's previous arguments that certain policy modules are necessarily applied during the boot sequence are correct (which

they are not), Petitioner has not shown that such arguments are true of Garfinkel's modified IDS. Indeed—they are not because Garfinkel does not teach when such a log would eventually be analyzed by the policy engine and/or how the associated events might be managed after-the-fact. (*See* EX-1006 13 col.2; EX-2001 ¶102.) As a result, Petitioner's arguments that Garfinkel teaches managing pestware-related events during a boot sequence are incorrect. (EX-2001 ¶¶102-103.)

Effectively, Petitioner attempts to rely on features of two different and mutually exclusive embodiments of Garfinkel's IDS for different sets of limitations, making it impossible for Petitioner's reading of Garfinkel to disclose or render obvious all limitations of the independent claims. Accordingly, Petitioner has not shown that Garfinkel discloses or renders this limitation in conjunction with the other independent claim limitations.

C. Petitioner Fails to Show a Reasonable Likelihood of Success as to Any of Challenged Dependent Claims

Regarding the dependent claims, because Petitioner fails to establish a reasonable likelihood of success as to any independent claim, Petitioner has failed to show a reasonable likelihood of prevailing with respect to any of the challenged claims. *Twinstrand Biosciences v. Guardant Health, Inc*, IPR2022-01115, Paper 14 at 19 (PTAB Dec. 30, 2022).

VII. OTHER LIMITATIONS NOT ADDRESSED

At this preliminary stage, Patent Owner addresses only those deficiencies in the prior art necessary to clearly show a lack of reasonable likelihood of the petition's success. Patent Owner's decision not to address certain limitations or secondary prior art references at this preliminary stage in no way reflects Patent Owner's agreement with any unaddressed contention in the petition or lack of dispute as to additional limitations or prior art.

VIII. THERE ARE SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

In determining obviousness of the claimed invention, objective evidence of secondary considerations pertaining to nonobviousness must be considered, including long-felt but unsolved needs, failure of others, and commercial success. *In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)); *Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1358 (Fed. Cir. 2013).

As discussed above, a long-felt and persistent need existed to improve detection and neutralization of pestware. (Section IV, *supra*.) Prior attempts to develop such technology was ineffective against pestware installed early-on before conventional anti-virus systems were operational. (*Id.*) Where others failed, the innovative approach claimed in the '505 patent succeeded. (Section V.A, *supra*.)

Patent Owner has accused at least four industry participants, including Petitioner, of infringing the innovative technology claimed in the '505 patent, demonstrating the critical need and widespread industry reliance on these novel methods. Accordingly, secondary objective indicia of nonobviousness exist, such that Petitioner's grounds fail.

IX. CONCLUSION

For all the reasons stated herein, Petitioner has failed to establish that the challenged claims of the '505 patent are unpatentable. Patent Owner respectfully requests the Board find the challenged claims patentable over the grounds in the Petition.

Date: December 22, 2023

Respectfully submitted,

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CERTIFICATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S PRELIMINARY RESPONSE** specified in 37 C.F.R. § 42.24 have 11,971 words, in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word 365 v.2022.

Date: December 22, 2023

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** and all supporting **EXHIBITS 2001-2013** were served by filing the documents through the Patent Trial and Appeal Case Tracking System (P-TACTS) on December 22, 2023 and courtesy copies were also served via electronic mail, in their entireties on the following:

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