Trials@uspto.gov
571-272-7822

Paper 9
Date: May 5, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CROWDSTRIKE, INC.,
Petitioner

v.

WEBROOT INC.,
Patent Owner.

IPR2023-00126
Patent 10,257,224 B2

Before PATRICK M. BOUCHER, MICHELLE N. WORMMEESTER, and AARON W. MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

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I. INTRODUCTION

A. Background and Summary

CrowdStrike Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting institution of an *inter partes* review of claims 1–4, 7–8, 10–13, and 16–19 of U.S. Patent No. 10,257,224 B1 (Ex. 1001, "the '224 patent"). Open Text Inc. ("Patent Owner") filed a Preliminary Response (Paper 6, "Prelim. Resp."). With our authorization, the parties filed additional briefs concerning discretionary denial. *See* Papers 7, 8.

Under 35 U.S.C. § 314, an *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Upon consideration of the Petition in view of the present record and for the reasons explained below, we determine that Petitioner has shown a reasonable likelihood of prevailing with respect to at least one of the challenged claims.

We accordingly institute an *inter partes* review of claims 1–4, 7–8, 10–13, and 16–19 of the '224 patent on all presented challenges. *See SAS Inst., Inc. v. Iancu,* 138 S. Ct. 1348, 1353 (2018) ("The agency cannot curate the claims at issue but must decide them all.").

B. Related Matters

The parties identify the following district court cases as related to this proceeding:

Webroot, Inc. et al. v. Trend Micro Inc.,
Case No. 6:22-cv-00239 (WDTX);

Webroot, Inc. et al. v. Sophos Ltd.,
Case No. 6:22-cv-00240 (WDTX);

Webroot, Inc. et al. v. CrowdStrike, Inc. et al.,
Case No. 6:22-cv-00241 (WDTX); and

Webroot, Inc. et al. v. AO Kaspersky Lab,
Case No. 6:22-cv-00243 (WDTX).

See Pet. 76; Paper 4, 1.

C. The '224 Patent

The '224 patent describes "methods and systems for providing forensic visibility into client systems." Ex. 1001, 1:18–19. The patent explains that "existing network forensic tools, such as network sniffers and packet capturing tools, passively collect information about network traffic," such as hostnames, ports, protocols, and IP addresses. *Id*. at 1:36–38. Such tools, however, "tend to receive network events outside of a host or system" and "have no ability to establish any sort of context from within the host or system that is generating the event." *Id*. at 1:41–42, 1:46–48. Thus, the edge devices have no way of knowing to what extent a virus may have impacted a device, what files may have become infected, or what processes and/or objects are linked to the virus. *See id*. at 2:14–18.

The patent describes methods "whereby events occurring within a computing device are captured and additional context and a global perspective is provided for each capture event." Ex. 1001, 2:26–29. As an example, "a sensor agent may provide visibility into occurrences across an environment, such as a networked environment, to ensure that an administrator is aware of any system changes and data communication in and out of computing devices residing on the network." *Id*. at 2:29–32.

Figure 6 provides a flowchart of a method for providing forensic visibility that corresponds to the challenged independent claims:

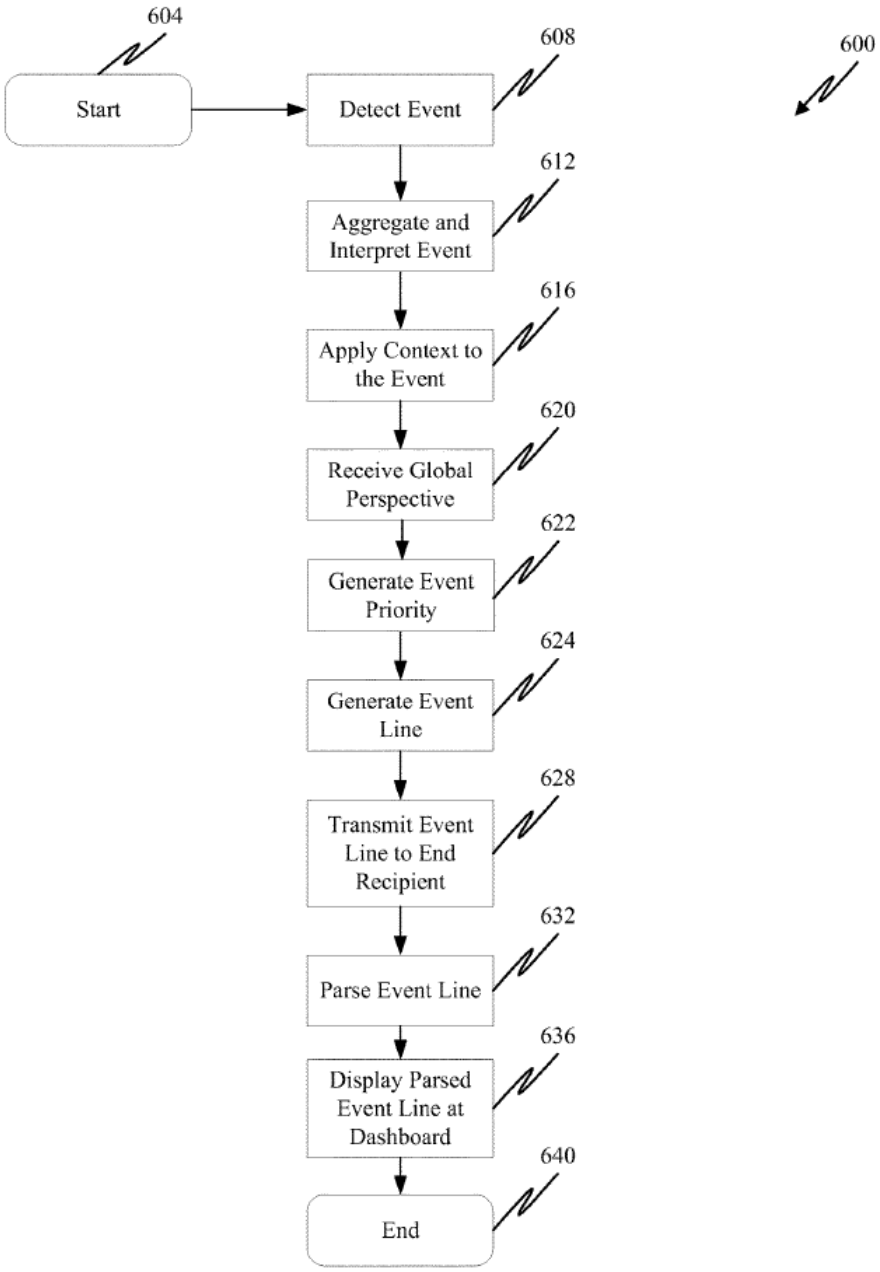


Figure 6 is a Flowchart of One Embodiment of the Patented Method

The method is initiated at step 604, and an event may be detected at step 608 "by one or more system filters 340 of a sensor agent 208." Ex. 1001, 18:28–29. At step 612, "local aggregator and interpreter 344

receives events from the low level system filters 340," and, at step 616, "a contextual state may be applied by a context analyzer 348 to the event information." *Id*. at 18:49–52, 18:59–60.

Once the contextual state is applied, "a global perspective is applied for each event and/or each object of the event and contextual state" at step 620. Ex. 1001, 18:67–19:1. The "global perspective" may include "information related to the age, popularity, and determination of an object—whether it is known good, bad, or unknown" and "information pertaining specifically to an IP/URL address," including "network activity and an assessment of the reputation and category of each website and IP address." *Id*. at 19:2–9.

At step 622, "an event priority may be applied to the event." Ex. 1001, 19:11–12. "[T]he event priority may be obtained . . . applying [a] rule set to aggregated event information, contextual state information, and global perspective information" and, at step 624, "such data is appended to each relevant portion of an event line." *Id*. at 19:12–17. At step 628, the event distributor may "transmit the event line . . . to the end recipient." *Id*. at 19:18–20.

D. Illustrative Claim

Challenged claims 1, 10, and 17 are independent. Claim 1 is directed to a method and claim 10 is directed to a system that corresponds closely to the claim 10 method. Claim 17 is also directed to a system, but differs somewhat in that it rearranges the wording of some of the limitations and narrows the "global perspective" limitation.

Claims 1 and 17 are reproduced below:

1. A method comprising:

gathering an event defining an action of a first object acting on a target, wherein the first object is executed on a device;

generating contextual state information for the event by correlating the event to an originating object of the first object;

obtaining a global perspective for the event based on the contextual state information, wherein the global perspective comprises information associated with one or more of the first object and the originating object, and wherein the global perspective relates to one or more other events related to the event across a network;

generating an event line comprising information relating to the event, wherein the information relates to at least one of the first object, the action of the first object, the target, and the originating object; and

transmitting the generated event line.

17. A system for providing forensic visibility into a system, comprising:

a first device comprising:

a communication interface;

a processor;

data storage; and

a sensor agent stored on the data storage that is executable by the processor, wherein the sensor agent is operable to:

gather an event defining an action of a first object acting on a target;

determine a global perspective for the event based on contextual state information for the event, wherein the global perspective relates to one or more other events related to the event across a network, and wherein the contextual state comprises an indication of an originating object of the first object and an indication of at least one

of a second device on which the first object is executed and a user associated with the first object;

generate an event line comprising information relating to the event, wherein the information relates to at least one of the first object, the action of the first object, the target, and the originating object; and

transmit the generated event line utilizing the communication interface.

Notably, although the independent claims generally correspond to the method shown in the Figure 6 flowchart, they omit step 622, which applies a priority to the event by applying a rule set to the aggregated event information, contextual state information, and global perspective information. In the independent claims, nothing is done with the "global perspective."

E. Asserted Grounds

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

Claims Challenged	35 U.S.C. §	References/Basis
1–2, 4, 8, 10–13, 17	103(a)	Morris[1]
3, 17	103(a)	Morris, Van Oorschot[2]
1–2, 4, 7–8, 10–13, 16–19	103(a)	Capalik[3]
3, 17	103(a)	Capalik, Van Oorschot

[1] U.S. Publication No. 2007/0016953 A1 (Ex. 1005).

[2] U.S. Patent No. 8,087,087 B1 (Ex. 1006).

[3] U.S. Publication No. 2011/0321166 A1 (Ex. 1008).

See Pet. 1. Petitioner also relies on a Declaration of Dr. Wenke Lee, filed as Exhibit 1003. Patent Owner relies on a Declaration of Nenad Medvidovic, Ph.D., filed as Exhibit 2001.

II. ANALYSIS

A. Parallel Litigation

As noted above, the '224 patent is the subject of parallel proceedings in the form of the related litigation. Patent Owner asks that we exercise our discretion to deny the Petition based on the state of the related litigation. *See* Prelim. Resp. 4–16.

Institution of an *inter partes* review is discretionary. *See* 35 U.S.C. § 314(a) (2018) (stating "[t]he Director may not authorize an inter partes review to be instituted unless the Director determines that the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition") (emphasis added); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) ("[T]he PTO is permitted, but never compelled, to institute an IPR proceeding."). The advanced state of a parallel district court action may warrant exercising discretion on behalf of the Director to deny a petition for *inter partes* review. *See NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential) ("NHK"); *Apple Inc. v. Fintiv Inc.*, IPR2020-00019, Paper 11 at 5–6, 8 (PTAB March 20, 2020) (precedential) ("*Fintiv*"); Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019), 58 & n.2, available at https://www.uspto.gov/TrialPracticeGuide Consolidated ("Trial Practice Guide").

Whether to exercise such discretion is informed by the Director's Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation ("Interim Procedure").

We consider the following factors in assessing "whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding":

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Fintiv at 5–6. In evaluating these factors, we "take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review." *Id*. at 6.

1. Possibility of Stay

A stay of a related proceeding pending resolution of the PTAB trial "allays concerns about inefficiency and duplication of efforts." *Fintiv* at 6. At this time, no stay has been requested or ordered in the related litigation, although Petitioner states that it "will seek a stay if institution is granted." Pet. 70; *see also* Prelim. Resp. 5.

According to Patent Owner, even if Petitioner does seek a stay, it is unlikely the court will grant one because of the complexity of the related

litigation, which includes multiple patents, additional defendants, and various counterclaim allegations. *See* Prelim. Resp. 5–6. Petitioner acknowledges this complexity. Pet. 72.

Although we agree with Patent Owner that a stay appears unlikely even if we institute trial, there has been no actual denial of a stay as contemplated by *Fintiv* to weigh this factor against exercising discretion to deny institution. *See Fintiv* at 6–7. We thus treat this factor as neutral.

2. Schedules

According to *Fintiv*, "[i]f the court's trial date is earlier than the projected statutory deadline, the Board generally has weighed this fact in favor of exercising authority to deny institution." *Fintiv* at 9. The parties agree that, according to median time-to-trial statistics in the Western District of Texas, where the related litigation is pending, the expected trial date for the related litigation is mid-July 2024. Pet. 71; Prelim. Resp. 8. This is generally consistent with the currently scheduled trial date of August 19, 2024. *See* Ex. 2007, 9; Prelim. Resp. 8. Although Petitioner contends that the complexity of the related litigation is likely to delay the trial further, the currently scheduled date is already about four months later than the deadline for the Board to issue a final written decision. *See* Pet. 72. This time difference is already sufficient for this factor to weigh against exercising discretion to deny institution, and we need not speculate whether a further trial delay in the related litigation is likely.

We accordingly treat this factor as weighing against exercising our discretion to deny institution.

3. Investment in Parallel Proceeding

"[I]f, at the time of the institution decision, the district court has issued substantive orders related to the patent at issue in the petition, this fact favors denial" of the Petition. *Fintiv* at 9–10. According to the current scheduling order in the related litigation, a Markman hearing was scheduled for March 7, 2023, and fact discovery was scheduled to have opened on April 18, 2023. Ex. 2007, 3, 6. The parties have otherwise not invested a great deal in the related litigation, with fact and expert discovery scheduled for closure only on January 18, 2024 and March 12, 2024, respectively. *Id.* at 7. Although Patent Owner argues that Petitioner delayed "eight months after receiving Patent Owner's March 4, 2022 complaint, three-and-a-half months after receiving Patent Owner's infringement contentions, and a month-and-a-half after serving its invalidity contentions before filing its petition" (Prelim. Resp. 12), such delays are not particularly long.

Patent Owner also argues under this factor that "Petitioner advocates for a claim construction in its petition that is the opposite of the claim construction it has advanced in the district court, thereby leading the Board toward conflicting claim analysis on the '224 patent." Prelim. Resp. 10–11. Patent Owner claims that, in the district court claim construction briefing, "Petitioner argued that certain method steps in the challenged claims had to take place in a specific order" but that Petitioner's Grounds 1 and 2 hinge on the fact that the method steps can take place in any order." *Id.* at 11.

We are not persuaded that this issue bears on *Fintiv* factor 3, which concerns the degree of investment, not the substance of the arguments being made. In any event, it is not unusual for a patent litigation defendant to pursue an IPR based on a broader construction (such as one offered by the

patent owner) while also taking a narrower position in the district court. We find nothing inherently wrong with that and, as our rules provide, we certainly will consider any claim construction issued by the district court and made of record. *See* 37 C.F.R. § 42.100(b). Moreover, as explained below (*see* Section II.F.1.b.iv), we do not agree with Patent Owner that the argument based on Morris that is being made in this proceeding is inconsistent with the construction Petitioner proposed in the District Court.

We treat this factor as weighing against exercising our discretion to deny institution.

4. Overlap of Issues

"[I]f 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." *Fintiv* at 12. Petitioner stipulates that, "if the Board institutes *inter partes* review, Petitioner will not seek resolution in the District Court of any ground of invalidity for the '224 Patent that utilizes Morris, Van Oorschot, and Capalik—the prior art references relied upon in the grounds of the instant petition." Pet. 73. This is more restrictive than a *Sand Revolution* stipulation but less restrictive than a *Sotera* stipulation. *See Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24, 11–12 (PTAB June 16, 2020) (informative); *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12, 13–14 (Dec. 1, 2020) (precedential). We conclude that, while not rising to the level of a stipulation that the Interim Procedure indicates would preclude discretionary denial, Petitioner's stipulation does mitigate concern about overlapping issues with the related litigation. *See* Interim Procedure, 7–8.

We treat this factor as weighing against exercising discretion to deny institution.

5. Overlap of Parties

This factor weighs against exercising discretion to deny institution because, although the parties are the same as in the related litigation (*see* Pet. 74; Prelim. Resp. 14–15), that trial is scheduled to occur well after the deadline for a Final Written Decision in this proceeding. *See Huawei Tech. Co. v. WSOU Inv., LLC*, IPR2021-00225, Paper 11 at 14 (PTAB June 14, 2021) ("this factor favors denial if trial precedes the Board's Final Written Decision and favors institution if the opposite is true") (internal quotation marks omitted); *Google LLC v. Parus Holdings, Inc.*, IPR2020-00846, Paper 9 at 21 (PTAB Oct. 21, 2020) ("Here, . . . Petitioner is the defendant in the parallel proceeding. This fact could weigh either in favor of, or against, exercising discretion to deny institution, depending on which tribunal was likely to address the challenged patent first.").

6. Other Circumstances

The final factor takes into account any other relevant circumstances, including the merits. "For example, if the merits of a ground raised in the petition seem particularly strong on the preliminary record, this fact has favored institution." *Fintiv* at 14–15. "[C]ompelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel." Interim Procedure 3–5. We address the merits of Petitioner's challenges below. For the reasons we explain, at least some of Petitioner's challenges meet the "reasonable likelihood" standard that we apply in determining whether to institute *inter partes* review, but do not meet the "compelling" standard. We accordingly treat this factor as neutral.

7. Assessment

As discussed above, the second, third, fourth, and fifth *Fintiv* factors weigh against exercising our discretion to deny institution; and the first and sixth factors are neutral. Given the parties' relatively modest investment thus far in the related litigation and the likelihood that trial will occur in the related litigation several months after we reach a Final Written Decision in this proceeding, we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny the Petition.

B. 35 U.S.C. § 325(d)

Patent Owner argues that "discretionary denial under 35 U.S.C. § 325(d) is proper because the Patent Office considered Morris 2012/0260340 . . . and Capalik 2008/0016570 . . . during prosecution of the '224 patent, and those references are substantively the same as the primary references used in all petitioned grounds." Prelim. Resp. 24. Patent Owner further argues that "the Examiner explicitly considered the same argument now relied on by Petitioner in connection with an International Search Report for Morris 340 and the prior art disclosure of Kumar 2013/0298244 . . . in combination with Capalik 570" and that "[a]fter consideration of these same disclosures, the Examiner allowed the '224 patent." *Id.*

We apply a two-part analysis under § 325(d), first assessing whether the same or substantially the same art or arguments were previously presented to the Office, and if so, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *See Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 8 (Feb. 13, 2020) (precedential).

Becton, Dickinson and Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (informative), provides a non-exclusive set of factors to use in evaluating a § 325(d) argument. Those considerations are (a) the degree of similarity of the asserted art and the art involved during examination, and the extent to which the asserted art is cumulative; (b) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for a rejection; (c) the extent of the overlap between the arguments made during examination in the positions take before us; (d) whether Petitioner has sufficiently pointed out how the Examiner erred; and (e) the extent to which additional facts presented in the Petition warrant reconsideration of the prior art or arguments." *See id*. at 17–18.

We acknowledge that Morris 340 is similar to Morris, but we cannot determine the extent to which Morris 340 was evaluated during the examination because it was never used in a rejection. The PCT Written Opinion compared Morris 340 to the then-pending EPO claims, not the US claims. And because Morris 340 was not the basis of a rejection, there is no overlap of arguments. It is not clear there is enough similarity and overlap to move to the second step of the *Advanced Bionics* framework, but if we did reach it, we would find, for the reasons presented in the Petition and described below, a sufficient showing that the Examiner likely erred during examination and that the arguments presented in the Petition justify reconsideration of the claims in view of Morris.

We accordingly decline to exercise § 325(d) discretion to not institute on the grounds based on Morris. Because, as explained below, we decide to go forward on Morris, and going forward on Morris means going forward on

Capalik also, we do not reach Patent Owner's § 325(d) arguments concerning that reference.

C. Failure to Address Secondary Considerations

Patent Owner contends that it "provid[ed] evidence regarding the long-felt unmet need for the invention in its district court complaint against Petitioner," and that, because "Petitioner fails to consider such evidence in its Petition[,] . . . institution should be denied." Prelim. Resp. 55 (citing Ex. 2015, 72–82).

In evaluating whether an invention would have been obvious, "[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Although it is Patent Owner's burden to introduce evidence supporting such objective indicia, *see In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996), the ultimate burden of persuasion to prove unpatentability of the challenged claims never shifts to Patent Owner, *see Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Rather, objective indicia should be considered along with all of the other evidence in making an obviousness determination. *See Eurand, Inc. v. Mylan Pharm. Inc. (In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.)*, 676 F.3d 1063, 1076–77 (Fed. Cir. 2012) (It is "to be considered as part of all the evidence, not just when the decisionmaker remains in doubt after reviewing the art.") (citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538–39 (Fed. Cir. 1983)).

We have reviewed the portions of the district court complaint that Patent Owner cites. Although Patent Owner characterizes those passages as "providing evidence" of a long-felt need, they cite only to the '224 patent itself. *See* Ex. 2015, 72–82. We do not discern evidence with the kind of specificity for objective indicia of nonobviousness, notably including evidence of a nexus with the merits of the challenged claims, that would cause us to fault Petitioner for failing to address the evidence in its Petition. *See Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33, 31–35 (PTAB Jan. 24, 2020). We accordingly decline to deny the Petition on this basis alone. The parties will have an opportunity during the trial to develop Patent Owner's evidence of objective indicia of nonobviousness so that it may be fully considered.

D. Level of Ordinary Skill in the Art

Petitioner asserts that one of ordinary skill in the art "would be a person having a bachelor's degree in computer science, computer engineering, or an equivalent, as well as two years of industry experience and would have had a working knowledge of host monitoring systems, software security analysis, and dynamic malware analysis" and that "[a]dditional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education." Pet. 6 (citing Ex. 1003 ¶¶ 32–35).

Patent Owner asserts that one of ordinary skill in the art "had a bachelor's degree in an accredited program of electrical engineering, computer engineering, or computer science, or a similar discipline, and . . . 2–3 years of practical work experience in the general fields of electrical engineering, computer science, networking, communications, and/or device

and network security," and that "[m]ore advanced degrees and/or training in a related discipline can compensate for shorter work experience." Prelim. Resp. 23–24 (citing Ex. 2001 ¶ 43).

As Patent Owner does not dispute Petitioner's characterization of the level of skill in the art, and because we find it generally consistent with the disclosures of the '224 patent and the prior art, we adopt it for purposes of this analysis. If the parties believe there are material differences in the competing proposals, they should identify them during the trial and explain how they affect the patentability analysis.

E. Claim Construction

Petitioner states that it "applies the ordinary and customary meaning of the claim terms as understood by [one of ordinary skill in the art] for all terms." Pet. 5–6.

Patent Owner asserts that Petitioner and its co-defendants have proposed several claim constructions in the district court, but does not argue for their adoption in this proceeding. *See* Prelim. Resp. 21–23. Patent Owner does assert that "[r]egarding the term 'gathering an event . . . generating contextual state information for the event . . . obtaining a global perspective for the event . . . ,' the construction that Petitioner has advocated in [the district court] directly contradicts the construction it implicitly asks the Board adopt in the petition." *Id*. at 23.

As explained below (*see* Section II.F.1.b.iv) we do not agree that there is an inconsistency, but since neither party is asking us to construe the claims to either require or not require a particular order, we need not resolve that issue now. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are

in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

F. Obviousness

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a person having ordinary skill in the art to which said subject matter pertains. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

Obviousness is resolved on the basis of underlying facts, including (1) the level of skill in the art, (2) the scope and content of the prior art, (3) the differences between the claimed subject matter and the prior art, and (4) any secondary considerations, including commercial success, long-felt but unsolved need, failure of others, and unexpected results. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

1. Obviousness in View of Morris

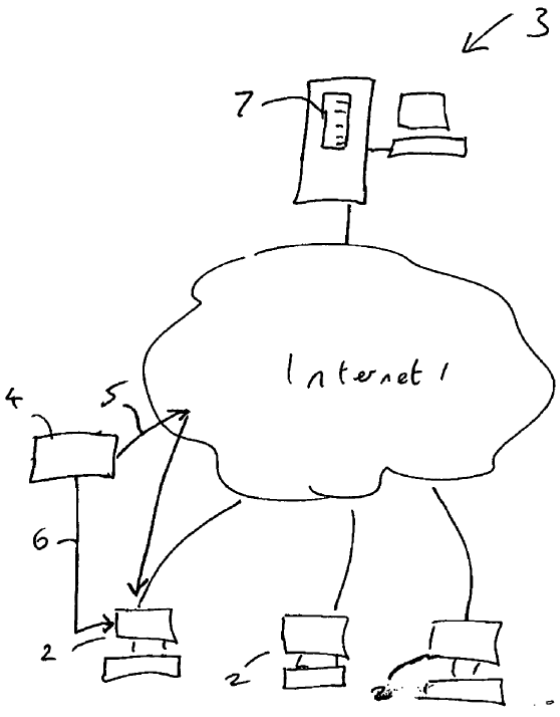
Petitioner contends that 1–2, 4, 8, 10–13, and 17 would have been obvious to one of ordinary skill in the art at the time of the invention in view of Morris, and that claims 3 and 17 would have been obvious in view of Morris and Van Oorschot.

a. Summary of Morris

Morris is a U.S. patent application publication describing "a method and apparatus for classifying a computer object as malware." Ex. 1005 ¶ 1. The reference explains that "prior art systems either rely on deep analysis of a new object in order to determine whether or not the object is malicious, which introduces delay and therefore risk to users during the period that the

file is analysed" or "limited analysis of the operation of the particular object or its method of transmission to a computer is carried out to decide a likelihood of the object being malicious." *Id.* ¶ 13.

Morris generally describes a "method of classifying a computer object as malware" that includes "at a base computer, receiving data about a computer object from each of plural remote computers on which the object or similar objects are stored" and "comparing in the base computer the data . . . received from the plural computers; and, classifying the computer object as malware on the basis of said comparison." Ex. 1005 ¶¶ 14–16. The overall structure of Morris' system is shown in Figure 1:



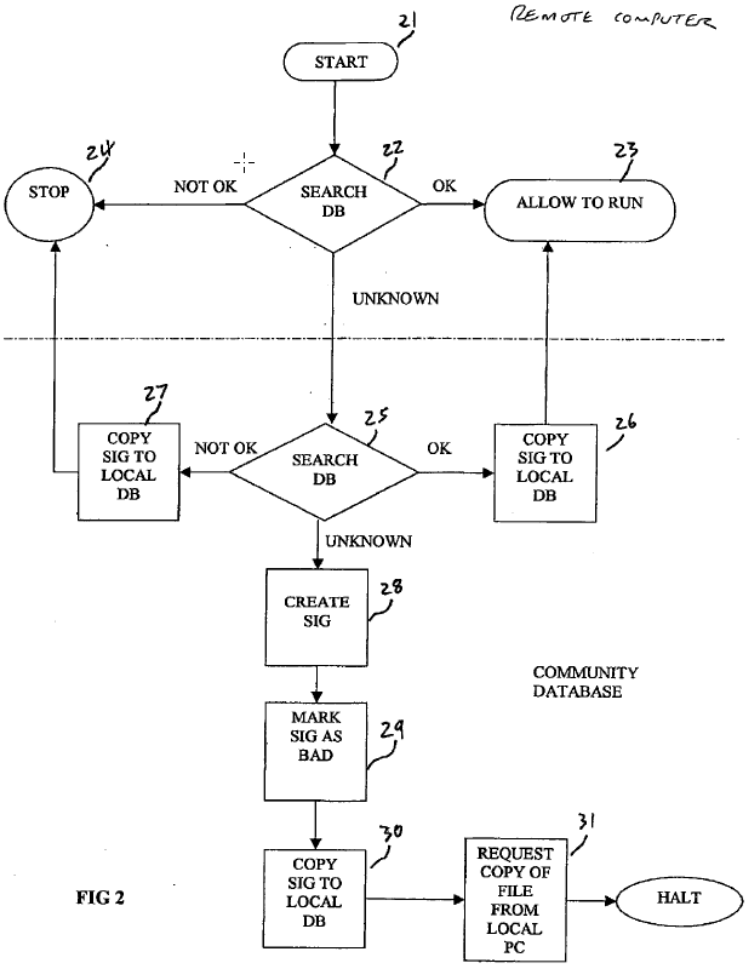
Morris' Figure 1 Showing the System Architecture

Morris explains that "[p]lural local or 'remote' computers 2 are connected via the Internet 1 to a 'central' or 'base' computer 3." Ex. 1005 ¶ 77. "An object 4 is shown schematically in the figure and may for

example be downloaded to a remote computer 2 via the Internet 1 as shown by lines 5 or applied directly as shown by line 6." *Id.*

"The base computer 3 holds a database 7 with which the remote computers 2 can interact when the remote computers 2 run an object 4 to determine whether the object 4 is safe or unsafe." Ex. 1005 ¶ 78. "The community database 7 is populated, over time, with information relating to each object run on all of the connected remote computers 2" and "data representative of each object 4 preferably takes the form of a so-called signature or key relating to the object and its effects." *Id.*

Figure 2 is a flowchart of Morris' method:



Flowchart Showing an Embodiment of Morris' Method

"[A]t the start point 21, a computer object 4 such as a process is run at a remote computer 2," and, at step 22, "by operation of local 'agent' software running on the remote computer 2, the operation of the process is hooked so that the agent software can search a local database stored at the remote computer 2 to search for a signature or key representing that particular process, its related objects and/or the event." Ex. 1005 ¶ 79. "If the signature indicates that the process is safe, then that process or event is allowed by the local agent software on the remote computer 2 to run at step 23," but "[i]f the signature indicates that the process is not safe, then the process or event is stopped at step 24." *Id*.

If the object is not known locally, "then details of the object are passed over the . . . network to the base computer 3 for storing in the community database 7 and preferably for further analysis at the base computer 3." Ex. 1005 ¶ 81. The community database 7 is searched at step 25 for a signature for the object that has already been stored in the community database 7. *See id*. If the signature is found and "indicates that that object is safe, then a copy of the signature or at least a message that the object is safe is sent to the local database of the remote computer 2 concerned at step 26 to populate the local database" and "a separate message is also passed back to the remote computer 2 to allow the object to run in the current instance." *Id*. ¶ 82. On the other hand, if the signature is found and "indicates for some reason that the object is unsafe, then again the signature is copied back to the local database and marked 'unsafe' at step 27, and/or a message is sent to the remote computer 2 so that running of the object is stopped (or it is not allowed to run) and/or the user given an informed choice whether to run it or not." *Id*. ¶ 83.

If object is unknown, a signature is created at step 28 (or a signature sent by the remote computer 2 for this purpose is used), and the signature is initially marked as bad or unsafe community database 7 at step 29. *See* Ex. 1005 ¶ 84. The signature is "copied to the local database of the remote computer 2 that first ran the object" and "[a] message may then be passed to the remote computer 2 to instruct the remote computer 2 not to run the object or alternatively the user may be given informed consent as to whether to allow the object to run or not." *Id*.

If the user at the remote computer 2 chooses to run the process, "then that process may be monitored by the remote computer 2 and/or community database 7 and, if no ill effect occurs or is exhibited after a period of time of n days for example, it may then be considered to be safe." Ex. 1005 ¶ 85.

Morris explains that "[t]he details of an object 4 that are passed to the base computer 3 are preferably in the form of a signature or 'key' that uniquely identifies the object 4." Ex. 1005 ¶ 86. The key "is specially arranged to have at least three severable components," one "representing executable instructions contained within or constituted by the object," one "representing data about said object," and one "representing the physical size of the object." *Id*.

Morris further explains that "[t]he data stored in the community database 7 provides an extensive corollary of an object's creation, configuration, execution, behavior, identities and relationships to other objects that either act upon it or are acted upon by it" and may include "Events" (including the "Actor," the "Event Type," and the "Victim"); "Identities" (which define the attributes of the object); the "Genesisactor" ("the key of an object that is not the direct Actor of an event but which is the

ultimate parent of the event being performed"); "Ancillary data"; and "Event Checksums." Ex. 1005 ¶¶ 105–109.

There are certain differences between the embodiment described in the '224 patent and the system described in Morris. In the patent, as explained above, a local system gathers an event, generates contextual state information by correlating the event to an originating object, obtains a global perspective, applies a priority using the global perspective, generates an event line, and then transmits the event line. In Morris, a local system gathers an event and sends it to a remote system, which attempts to match it to an existing signature to either approve or disapprove the event or, failing that, creates a new signature.

The question for us at this stage is whether the patent's claims, which use fairly general language, are sufficiently broad to cover Morris' structurally different system. We conclude that they are.

b. Independent Claim 1

We address Petitioner's contentions and Patent Owner's arguments concerning Morris for claim 1 below.

i. "[a] method"

Petitioner asserts that "[t]o the extent the preamble is found limiting, Morris discloses 'methods and apparatus for dealing with malware.'" Pet. 10 (quoting Ex. 1005 ¶ 1).

Patent Owner does not presently dispute Petitioner's contentions for the preamble, and we find Petitioner's showings sufficient to establish that it is met in Morris, to the extent it is limiting.

ii. "*gathering an event defining an action of a first object acting on a target, wherein the first object is executed on a device*"

Petitioner asserts that, in Morris, "'the base computer' gathers 'events initiated by or involving the object when the object is created, configured or runs on the respective remote computers.'" Pet. 10 (quoting Ex. 1005 ¶ 18). Petitioner argues that "[r]emote computers 2 'run an object 4' and gather and transmit 'information relating to each object run on all of the connected remote computers' to community database 7." Pet. 11 (citing Ex. 1005 ¶ 78). Morris describes how the "details of the object are passed over the Internet 1 or other network to the base computer 3 for storing in the community database 7 and preferably for further analysis at the base computer 3." Ex. 1005 ¶ 81.

Petitioner points out that the information is passed in "the form of a so-called signature or key relating to the object and its effects" and that the "key may include several components, including 'components representing data about said object' such as 'events,' which 'define the actions or behaviours of an object acting upon another object or some other entity.'" Pet. 11–12 (citing Ex. 1005 ¶¶ 78, 86, 87, 105). In Morris, an "event has three principal components: the key of the object performing the act (the 'Actor'), the act being performed (the 'Event Type'), and the key of the object or identity of another entity upon which the act is being performed (the 'Victim')." Ex. 1005 ¶¶ 104–107.

Patent Owner does not presently dispute Petitioner's contentions for this limitation and we find that Petitioner has shown that Morris describes gathering an event concerning an action of a first object acting on a target, wherein the first object is executed on a device, the remote computer 2.

iii. "*generating contextual state information for the event by correlating the event to an originating object of the first object*"

Petitioner asserts that "Morris discloses that additional contextual data correlated to the event is captured, including the 'Genesisactor' (i.e., originating object of the first object) which is the "object that is not the direct Actor of an event but which is the ultimate parent of the event being performed." Pet. 13 (citing Ex. 1005 ¶¶ 58, 107). According to Petitioner, "[t]he 'Genesisactor' generated from this event would be the 'ultimate parent of the event being performed'—such as the executable file that created 'Object 1' (i.e., the first object)." *Id*. (citing Ex. 1003 ¶¶ 83–86). Petitioner argues that "[b]y correlating event two with the 'Genesisactor' responsible for creating Object 1, Morris teaches generating contextual state information for the event by correlating the event to the originating object of the first object." *Id*.

Patent Owner argues that "Morris does not disclose or render obvious the 'originating object' limitations of the claims because the '224 patent explicitly distinguishes the GenesisActor from the claimed originating object." Prelim. Resp. 40–41 (citing Ex. 2001 ¶ 51). Patent Owner asserts that "GenesisActor information is not originating object information" because "the GenesisActor is determined based on a chain of previous events." *Id*. at 41 (quoting Ex. 1001, 17:35–55; Ex. 2001 ¶ 52). According to Patent Owner, "[t]he exemplary embodiments described in the specification of the '224 patent distinguish the GenesisActor information as distinct from the originating object information." *Id*. at 41–42 (citing Ex. 1001, 17:36–43, Fig. 5B; Ex. 2001 ¶ 53).

We agree that the patent's disclosure distinguishes between "an origination process" and a "Genesisactor," but do not agree with Patent Owner that the distinction means they are mutually exclusive. Instead, the record indicates that the Genesisactor is simply the first in the chain of originating processes. *See* Ex. 1005 ¶ 107 ("Genesisactor—the key of an object that is not the direct Actor of an event but which is the ultimate parent of the event being performed"). It is a species of the originating processes genus. Thus, on the present record, we conclude that the claim language "an originating object of the first object" is sufficiently broad to cover *any* originating object in the chain of originating objects, including the Genesis Actor. Patent Owner is essentially asking us to construe "an originating object of the first object" to be limited to the object that immediately originated the first object, or to exclude the first originating object, but does not actually propose, much less support, such a construction.

We also note that our determination that "an originating object of the first object" reads on the Genesisactor is consistent with the PCT Written Opinion that was submitted during prosecution. *See* Ex. 1002, 270 ("the metadata includes Genesisactor information which includes the parent of the object being performed [claimed originating object]").

For these reasons, we find that Petitioner has shown that Morris describes generating contextual state information for the event by correlating it to an originating object of the first object, as it describes inclusion of the "Genesisactor," which, for the reasons explained above, we conclude is "an originating object of the first object" as the record stands now.

iv. "*obtaining a global perspective for the event based on the contextual state information, wherein the global perspective comprises information associated with one or more of the first object and the originating object, and wherein the global perspective relates to one or more other events related to the event across a network*"

According to Petitioner, "Morris discloses that after event data and associated contextual metadata (e.g., Genesisactor) is gathered and generated, this data is then sent to base computer 3" and that "[b]ase computer 3 compares 'the data about the computer object received from the plural computers' and 'classif[ies] the computer object as malware on the basis of said comparison." Pet. 14 (citing Ex. 1005 ¶¶ 14–17, 20, 78, 81, 84). As explained above, this is done using the "signature for that object that has already been stored in the community database." Ex. 1005 ¶ 81.

Petitioner argues that "Morris discloses the global perspective comprises information associated with one or more of the first object and the originating object—namely, a determination as to whether the first and/or the originating objects are malware." Pet. 16. We note that "information associated with one or more of the first object and the originating object" would be the information in the signature at the base computer that allows it to be matched to the key received from the remote computer.

Petitioner argues that the "global perspective relates to one or more other events related to the event across a network" because "Morris discloses that 'a preferred embodiment . . . comprises connecting the computer to a community database that is connectable to a plurality of computers, and uploading the stored data to the community database for comparison with similar data provided by other computers.'" Pet. 16 (citing Ex. 1005 ¶¶ 67,

14, 16). Petitioner asserts that "Morris therefore discloses obtaining a global perspective for the event that relates to other related events across the network, such that a malware determination for the first and/or originating object takes into account related events on other devices." Pet. 17 (citing Ex. 1005 ¶ 17; Ex. 1003 ¶¶ 97–98).

Patent Owner does not presently dispute Petitioner's contentions for these limitations, and we find Petitioner's showings sufficient to establish that they would be present in this combination. In particular, we find that Petitioner has shown Morris to describe "obtaining a global perspective for the event based on the contextual state information" in its use of signatures at the base computer that are matched to the contextual state information in the key from the remote computers and would be based on events across the network.

As noted above, Patent Owner argues that Petitioner's analysis of Morris is inconsistent with Petitioner's argument in the district court that the claimed steps must appear in a particular order. We do not agree. The proposed construction requires that the "gathering an event," "generating contextual state information for the event," and "obtaining a global perspective for the event" steps take place in that order. *See* Ex. 2009, 35–36. In Morris, when a process is run at the remote computer, agent software identifies the process (the "gathering" step), determines the information needed to populate the key (the "generating" step), and then sends that key to the base computer, which has signatures embodying the global perspective (the "obtaining" step), in that order. Notably, the claim does not specify where or how the global perspective is obtained.

v. "generating an event line comprising information relating to the event, wherein the information relates to at least one of the first object, the action of the first object, the target, and the originating object"

Petitioner argues that Morris discloses "an event line" because it describes how "its system gathers event data to be 'sent from the plural remote computers to the base computer' for subsequent analysis." Pet. 17 (citing Ex. 1005 ¶ 18). Petitioner further argues that the event line, which Petitioner maps to Morris' key, would include information relating to at least one of the first object, the action of the first object, the target, or the originating object because it would include the Actor, the Event Type, the Victim, and, optionally, the Genesisactor. Pet. 18 (citing Ex. 1005 ¶ 17; Ex. 1003 ¶¶ 100–102). Patent Owner does not presently dispute Petitioner's contentions for this limitation.

As explained above, the '224 patent describes the "event line" as "assembled utilizing the event information, contextual state, and global perspective information." Ex. 1001, 17:66–18:1; *see id*. at 9:57–61 ("An event distributor . . . may then create an event line comprising information from the event, information from the contextual state, information from the global perspective, and information from regarding the priority of the event."). Thus, in the method described in the patent, the event line is generated after receipt of the global perspective. *See id*. at Fig. 6. The claim, however, places no limitations on the "event line" other than that it includes information that relates to "at least one of" the first object, the action of the first object, the target, and the originating object. We therefore conclude that the plain language of the event line limitation reads on Morris'

key, which, as explained above, would include information relating to the object, the action of the object, and/or the target.

We accordingly find Petitioner's showing sufficient to establish that this limitation would be met in Morris.

vi. "transmitting the generated event line"

Petitioner asserts that "Morris discloses transmitting its key to base computer 3 for processing." Pet. 18.

Patent Owner does not presently dispute Petitioner's contentions for this limitation, and we find Petitioner's showing sufficient to establish that it would be met in Morris.

vii. Conclusion on Claim 1

For the above reasons, we find that Petitioner has shown a reasonable likelihood that it will prove claim 1 unpatentable over Morris.

c. Independent Claims 10 and 17

Independent claim 10 is directed to a "system" that corresponds to the "method" recited in independent claim 1. Except for limitations that correspond to the different statutory classes, Petitioner relies on its analysis of independent claim 1. *See* Pet. 21–23. Patent Owner makes no separate arguments for claim 10, but instead relies on the same analysis as for claim 1. *See* Prelim. Resp. 38–44. We find Petitioner's showing sufficient to establish a reasonable likelihood that Petitioner will prove claim 10 unpatentable over Morris, for the reasons explained above in connection with claim 1.

Independent claim 17 is also directed to a "system" similar to the "method" of independent claim 1, except that it requires "a first device" and that the "contextual state" includes "an indication of an originating object of

the first object and an indication of at least one of a second device on which the first object is executed and a user associated with the first object."

Petitioner largely relies on its analysis for claim 1 (*see* Pet. 26–27), but also argues that Morris "discloses that multiple remote computers run an object and send this data to the base computer 3/database 7 to determine whether that object is malware" and that "[t]hus, Morris discloses obtaining contextual data concerning a second device on which the first object is executed." Pet. 27. Petitioner further argues that "Morris also discloses the contextual data can include "Identities" which 'define the attributes of an object,' including 'its logical location on the disk within the file system (its path)'" and that one of ordinary skill in the art "would have understood the file[']s 'path' would include user information associated with that file (i.e., user associated with the first object)." *Id*. (citing Ex. 1005 ¶¶ 106, 126–129).

Petitioner also argues that "[t]o the extent Patent Owner argues Morris does not disclose an indication of a user associated with the first object, Van Oorschot discloses a similar computer security system that captures event data" including "the user initiating the event," and that one of ordinary skill "would have understood this discloses the claimed user associated with the first object." Pet. 33 (citing Ex. 1006, 6:14–23; Ex. 1003 ¶¶ 148–154). Petitioner argues that "[i]t would have been obvious . . . to modify Morris's system to capture additional types of event data, such as 'the user initiating the event' as disclosed by Van Oorschot" because "[i]t was a common principle in the art of computer security systems that gathering more detailed information from threats results in improved threat analysis and detection." *Id*. at 33–34 (citing Ex. 1003 ¶¶ 148–154).

Patent Owner makes no separate arguments for claim 17, but instead relies on the same analysis as for claim 1. *See* Prelim. Resp. 38–44.

We find Petitioner's showing sufficient to establish a reasonable likelihood that Petitioner will prove claim 17 unpatentable over Morris, or Morris in combination with Van Oorschot, for the reasons given for claim 1 and with the addition of Petitioner's arguments summarized above.

d. Dependent Claim 2

Claim 2 adds to claim 1 that "the information associated with the one or more of the first object and the originating object is obtained from a community database" and that "the event line is transmitted to an end recipient."

At this time, Patent Owner does not dispute Petitioner's contentions for claim 2, and we find Petitioner's showing (*see* Pet. 19–20) sufficient to establish a reasonable likelihood that Petitioner will prove this claim unpatentable over Morris.

e. Dependent Claim 3

Claim 3 adds to claim 1 "obtaining an event priority based on one or more of the generated contextual state information and the global perspective, wherein the event line further includes the event priority."

Petitioner relies on Van Oorschot for claim 3, arguing that it "discloses 'assign[ing] a severity level' to 'system events' to determine an event priority." Pet. 29 (citing Ex. 1006, 5:39–49, 7:34–57, 9:4–17, 9:66–10:1). Petitioner contends that one of ordinary skill in the art "would have been motivated to incorporate Van Oorschot's assignment of event severity levels into Morris's methods according to well-known benefits for prioritizing events—namely, focusing threat analysis on the most

troublesome threats to conserve limited resources." *Id*. at 31 (citing Ex. 1003 ¶¶ 131–146).

At this time, Patent Owner does not dispute Petitioner's contentions for claim 3, and we find Petitioner's showing (*see* Pet. 28–32) sufficient to establish a reasonable likelihood that Petitioner will prove this claim unpatentable over Morris.

f. Dependent Claims 4 and 13

Claim 4 adds to claim 1 that "the event includes information identifying the first object performing the action, information identifying the action being performed, and information identifying the target upon which the act is being performed." Claim 13 adds corresponding limitations to claim 10.

Patent Owner does not presently dispute Petitioner's contentions for claim 4, and we find Petitioner's showing (*see* Pet. 20, 26) sufficient to establish a reasonable likelihood that Petitioner will prove these claims unpatentable over Morris.

g. Dependent Claim 8

Claim 8 adds to claim 1 that "the global perspective comprises information comprises [*sic*] at least one of: an age; a popularity; a determination as to whether the first object is malware; a determination as to whether the originating object is malware; an Internet Protocol (IP) Address; and a Uniform Resource Locator (URL)."

At this time, Patent Owner does not dispute Petitioner's contentions for claim 8, and we find Petitioner's showing (*see* Pet. 20) sufficient to establish a reasonable likelihood that Petitioner will prove this claim unpatentable over Morris.

h. Dependent Claim 11

Claim 11 adds to claim 10 that "the event is executed by the processor."

Patent Owner does not dispute Petitioner's contentions for claim 11 at this time, and we find Petitioner's showing (*see* Pet. 23) sufficient to establish a reasonable likelihood that Petitioner will prove this claim unpatentable over Morris.

i. Dependent Claim 12

Claim 12 adds to claim 10 "a global perspective information server; and an end recipient device, wherein the information associated with the one or more of the first object and the originating object is obtained from the global perspective information server and the sensor agent transmits the event line to the end recipient device."

At this time, Patent Owner does not dispute Petitioner's contentions for claim 12, and we find Petitioner's showing (*see* Pet. 23–26) sufficient to establish a reasonable likelihood that Petitioner will prove this claim unpatentable over Morris.

2. Obviousness in View of Capalik

Capalik is a U.S. patent application publication describing "systems and methods for analyzing malicious activities on a computer system." Ex. 1008 ¶ 4. In the method, "[a] plurality of activities performed at a virtual machine is identified," where "[e]ach of the activities includes an activity source, an activity target, and an association between the activity source and the activity target." *Id.* ¶ 10. Then, "[a] fingerprint indicative of the activity on the virtual machine is created from the stored activities" and "transmitted to one or more other computer systems on the network to prevent future

attacks that comprise the same or similar activities as indicated by the fingerprint." *Id*. Capalik describes producing the fingerprints using a "decoy network device" that runs one or more virtual machines running "decoy operating systems." *See id*. ¶¶ 33–48.

Regarding the claim language "obtaining a global perspective for the event [that] relates to one or more other events related to the event across a network," Petitioner argues that Capalik discloses that its methods "need not be restricted to analysis of a single virtualized operating system, but, rather, **are able to follow a chain of unauthorized activity <u>across multiple virtualized operating systems</u>**.'" Pet. 48 (citing Ex. 1008 ¶ 130). Petitioner contends that one of ordinary skill in the art "would have understood that in an attack across multiple virtualized operating systems, Capalik's methods would follow the related chain of unauthorized activity across each operating system and would perform the methods identified above for obtaining a global perspective—namely, determining 'association types' between sources and targets, including 'malicious associations.'" *Id*. (citing Ex. 1003 ¶¶ 175–177). Petitioner concludes that "in this way, Capalik's disclosed methods include obtaining a global perspective for an event that relates to a related event across a network, including a malware determination for the first and/or originating objects." *Id*.

Petitioner also points to Capalik's Figure 4E, which it annotates as shown below:

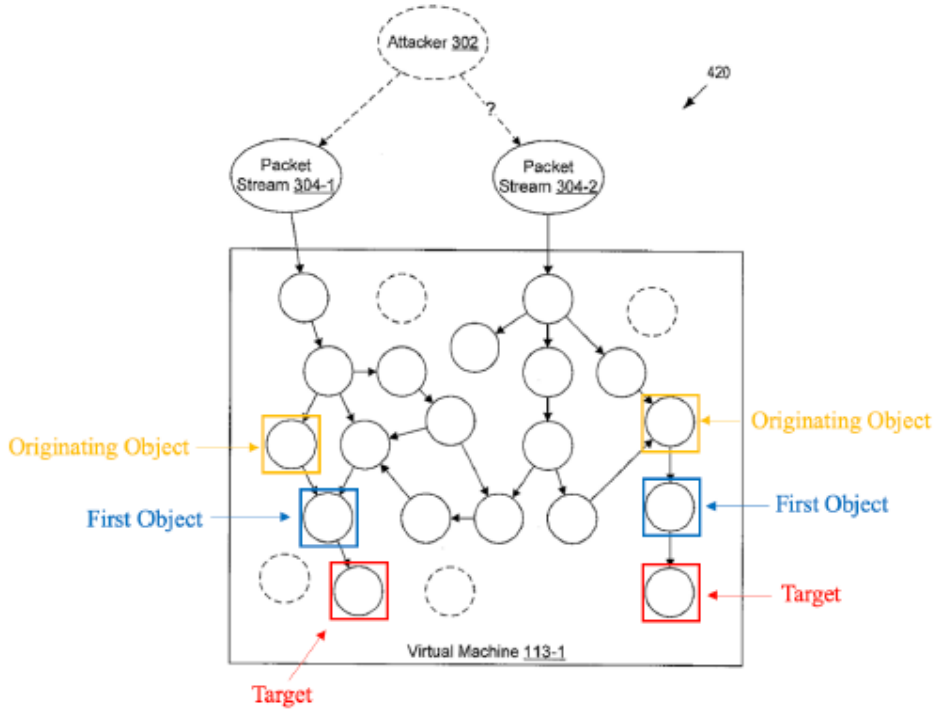


Figure 4E

Petitioner's Annotated Version of Capalik's Figure 3D

Petitioner contends that the figure shows how "Capalik's methods include making a malware determination for the originating and/or first objects." Pet. 49.

Patent Owner argues that "while Capalik teaches that its method is 'able to follow a chain of unauthorized activity across multiple virtualized operating systems,' these virtualized operating systems reside on the same single decoy network device" which "is not capable of performing [the network] limitation because the global perspective cannot 'relate[] to one or more other events related to the event across a network.'" Prelim. Resp. 49–50 (citing Ex. 1008 ¶¶ 45–46; Ex. 2001 ¶ 71). Regarding Capalik's Figure

4E, Patent Owner asserts that "the events Petitioner cites all occur on one virtual machine (and one decoy network device) and not across a network." *Id*. at 50.

We find that Petitioner has not shown how the network limitation is met in Capalik. The discussion of this limitation in the Petition relies on general statements in Capalik that its methods are able to "follow a chain of unauthorized activity across multiple virtualized operating systems" and enable "identifying and thwarting advanced threats that involve multiple attackers spread across multiple systems," but we fail to see how that teaches or suggests "obtaining a global perspective based on the contextual state information" that "relates to one or more other events related to the event across a network." Petitioner does not explain how an ability to follow unauthorized activity relates to the claimed global perspective, and the cited language discusses tracking activity across multiple "operating systems," not across a network.

Capalik's Figures 6A–6C provide an overview of its method, showing that it generally works by monitoring activity on a virtual machine (step 602); identifying activities, including their source, target, and association (step 604); identifying an association as malicious (step 610); and identifying sources that are affected by unauthorized activities (step 614). *See* Ex. 1008 ¶¶ 100–108. The method determines an activity status and an activity level (steps 632 and 634) and creates a fingerprint indicative of the activity on the virtual machine (step 636). *See id*. ¶¶ 116–120. Then, "[t]he decoy network device transmits ([step] 644) the fingerprint to one or more protected network devices 136 to prevent future attacks that comprise the same or similar activities as indicated by the fingerprint." *Id*. ¶ 126.

For the claimed global perspective, Petitioner points to Capalik's determination of whether the objects are malware using the data structure of Figure 5A, corresponding to step 610. *See* Pet. 45–46. But nothing in the description of that step indicates that any of the information used relates an event related to the event across a network. *See* Ex. 1008 ¶¶ 75–96, 106. Instead, Capalik describes determining that activity is malicious if it performs unauthorized activities on the decoy network device, not because it is related to another event across a network. *See id.* ¶ 106 ("By identifying that the process A 308 performed unauthorized activities, the process A 308 is determined to be affected by the unauthorized activities, and the association between the socket 306 and the process A308 is determined to be malicious (i.e., unauthorized).").

With respect to Figure 3E, as Patent Owner observes, the objects and targets all exist within one virtual machine (113–1), not on different networks. Petitioner does not explain how that teaches or suggests obtaining a global perspective that relates to one or more other events related to the event "across a network."

Because each of the challenged claims includes the "one or more other events related to the event across a network," we conclude that Petitioner has not established a reasonable likelihood that it will prove the challenged claims unpatentable over Capalik.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition, we determine that Petitioner has shown a reasonable likelihood of proving that at least one of the challenged claims of the '224 patent is unpatentable. We institute an *inter partes* review of all challenged claims on all presented challenges. *See SAS*, 138 S. Ct. at 1359–60.

The Board has not made a final determination as to the patentability of any challenged claim or any underlying factual or legal issue.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–4, 7–8, 10–13, and 16–19 of U.S. Patent No. 10,257,224 B1 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 10,257,224 B1 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

For PETITIONER:

Adam Seitz
Adam.seitz@eriseip.com

Paul Hart
Paul.hart@eriseip.com

For PATENT OWNER:

Brian Eutermoser
beutermoser@kslaw.com

Russell Blythe
rblthe@kslaw.com

Mikaela Stone
Mikaela.stone@kslaw.com