Exhibit 2021

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

BRITISH TELECOMMUNICATIONS PLC and BT AMERICAS, INC.,	)	
Plaintiffs,	)	C.A. No. 22-01538-CJB
v.	)	**JURY TRIAL DEMANDED**
PALO ALTO NETWORKS, INC.,	)	
Defendant.	)	

JOINT CLAIM CONSTRUCTION BRIEF

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Plaintiffs British Telecommunications plc and BT Americas, Inc. (collectively, "Plaintiffs") and Palo Alto Networks, Inc. ("PAN"), by and through their undersigned counsel, hereby submit this Joint Claim Construction Brief. At issue are five[1] disputed terms of U.S. Patent No. 7,159,237 ("'237 Patent").

I. AGREED UPON CONSTRUCTIONS

No.	Term for Construction	Agreed Construction
1.	"dynamically" Claim(s): 1, 18, 26	During actual operation, rather than offline.
2.	"status data" Claim(s): 1-2, 6, 10, 14, 16, 18, 24-26	data extracted from or generated about the traffic or system processing it that is informative as to the status of the network and its components
3.	"probe" Claim(s): 1, 6, 10, 14, 18, 24-26	a component that collects data from one or more network components to which it is attached, filters or otherwise analyzes the data that has been collected, transmits noteworthy information, and receives feedback in order to update its capabilities of analysis
4.	"A method of operating a probe as part of a security monitoring system for a computer network, comprising:" Claim(s): 1	Preamble is limiting.
5.	"an analyst associated with said [security monitoring system] / [secure operations center]" Claim(s): 1, 18, 26	Personnel specializing in the analysis of network attacks.

[1] Per the Court's Oral Order (D.I. 128) on May 2, 2024, certain terms have been excluded from this briefing as the Court ordered that they "will not be briefed as part of the upcoming Markman process, and that any disputes about claim construction and definiteness as to those terms will be deferred until a later point in the case."

II. DISPUTED CONSTRUCTIONS

A. The Filtering-Related Claim Terms

#	Term	Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction
1	post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering	Claims 1, 18, 26	status data that undergoes negative and positive filtering, but is neither discarded by such negative filtering nor selected by such positive filtering	Plain and ordinary meaning, which is[2] "data that does not match any filter (*i.e.*, discarding (negative) filter and/or selecting (positive) filter)"
2	analysis includes filtering	Claims 1, 18, 26	analysis includes positive filtering to select interesting information and negative filtering to discard uninteresting information	N/A
3	filtering	Claims 1, 18, 26	N/A	discarding data that matches a filter rule (negative filtering) and/or selecting data that matches a filter rule (positive filtering)

1. BT's Opening Position

U.S. Patent No. 7,159,237 (the "'237 Patent") claims a novel system of dynamically responding to and protecting against new and constantly evolving malware and potential network attacks while simultaneously generating fewer false positive alerts that could strain resources and impede a computer network's performance. *See generally* '237 Patent, D.I.122, Ex. A. The architecture achieves these results through an innovative tiered structure that weeds out known security threats and benign traffic (through filtering related status data) to locate and analyze

[2] The Court Ordered the parties on February 26, 2024 (D.I. 124) to provide a proposed construction for any terms where the parties argued "plain and ordinary meaning." Thus, PAN identified proposed constructions for this term for the first time in its Answering Brief.

residual status data that may be malicious, then confirms whether the data is actually malicious with a second-tier process, and then updates the system with the results of the analysis. *Id.*

The patented invention begins by collecting "status data" via a probe or sensor at the security monitoring system. '237 Patent at 4:48-63. The probe then positively and negatively filters the status data to determine whether it corresponds to information that is already known and categorized, such as existing security threats or known legitimate traffic. *Id.* at 8:41-53. Any residual data leftover after filtering is further analyzed: first at the probe, which makes an initial assessment as to whether the residual status data reflects a possible malicious event (*id.*, 35:43-48 (claim 1(b))), and second after transmission to an analyst or analyst system (*id.*, 35:49-51 (claim 1(c)), 8:53-57). Thereafter, feedback is received after a further determination has been made.

The '237 Patent's inventive aspects are tied directly to its claims. It is the claimed series of steps—taken by specific components within the claimed structural architecture with a specific sequence—that allows the system to not only detect new, unknown, and evolving attacks, but also dynamically respond to and continually improve the system's ability to detect those threats, all while maximizing system performance and efficiency. The steps in the recited claims reflect the innovation of the '237 Patent's invention that improves network security. *Id.* at 1:7-9.

The first three claim terms designated for construction are: (1) "post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering"; (2) "analysis includes filtering"; and (3) "filtering." They are intertwined as they all relate to the same clause: "analyzing status data to identify potentially security-related events represented in the status data, wherein the analysis includes filtering followed by an analysis of post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering." '237 Patent, 35:43-47 (claim 1); *see also id.*, 36:48-54 (claim 18), 37:30-34 (claim 26).

The express language of this clause demonstrates a relationship between the claimed "filtering" and "post-filtering residue." Status data is first subjected to positive and negative filtering ("analysis includes filtering"). Status data that is known to require additional analysis (*i.e.*, because it relates to a known malicious event) is selected. And status data that is known to not require further analysis (because it relates to benign activity) is discarded. Anything that is "neither discarded nor selected"—*i.e.*, the post-filtering residue—is then analyzed to "reduce the immense volume of raw data into core information worthy of further analysis." '237 Patent, 3:10-19. This is consistent not only with the plain language of the claims and the specification, but also with the Examiner's conclusion during prosecution, where he noted that the relevant prior art failed to disclose "post-filtering residue [that] is data neither discarded nor selected by filtering" because the prior art only disclosed "that if the filter does not match the criteria the data is discarded." '237 Patent File History, D.I. 122, Ex. C ("'237 File History"), JA-0000126 (Notice of Allowability at 2 (July 12, 2006)); *see also id.* at 3-4 (noting all other cited prior art references also fail to disclose or suggest "post-filtering residue"). Of course, the benefit of reducing the amount of data worthy of further analysis is to make the second tiered analysis technically practicable. *See*, *e.g.*, '237 Patent, 1:62-67 (explaining security products "generate millions of lines of audit information each day").

The specification, through its sole embodiment, further illustrates the filtering process that is claimed in the '237 Patent. For example, as depicted in Figures 1 and 2, the probe/sentry system 2000 is a "filtering system" that consists of a "Negative (Data Rejection) Filtering Subsystem 2020," a "Positive (Data Selection) Filtering Subsystem 2030," and an "Anomalous Event Detection Subsystem (Anomaly Engine) 2050." '237 Patent, Figs. 1, 2. The patent explains:

> Once collated, the data is first filtered by negative filtering subsystem 2020, which discards uninteresting information, and then by positive filtering subsystem 2030,

> which selects possibly interesting information and forwards it to communications and resource coordinator 2060. Data neither discarded by negative filtering subsystem 2020 nor selected out as interesting by positive filtering subsystem 2030 form the 'residue,' which is sent to anomaly engine 2050 for further analysis.

Id., 8:45-53. Thus, the '237 Patent describes two filtering subsystems—positive and negative—that select and discard information. It is these subsystems that are embodied in the claimed "filtering." What is left is the post-filtering residue, which is then analyzed. It is within this context that the terms of this clause must be construed. In doing so, BT's proposed constructions align with the claim language, specification, and the prosecution history.

PAN wants to define each of the three filtering-related terms in a manner entirely divorced from the other. The result is a purported claim scope that has nothing to do with what is claimed and described anywhere in the patent. More specifically, PAN wants to construe "filtering" to require the application of a single filter of any type (not the combination of the application of both positive and negative filters) so that it can try to argue that the post-filtering residue is any data that remains after the application of that single filter.

Indeed, PAN's claim constructions are intended to ensnare prior art by distorting the claimed invention to allow a system that has only two filters of the same exact type—*e.g.*, only two negative filters or only two positive filters—to be artificially divided, with the first selecting filter being argued to be the required "filtering," and the second identical-performing filter being (incorrectly) argued to analyze the "post-filtering" residue. PAN's construction would also improperly allow post-filtering residue to be created without even an attempt at both selecting and discarding status data. Neither of these results are consistent with the claims and disclosure of the '237 Patent, and collectively illustrate the problem with PAN's approach to claim construction.

i. <u>Term No. 1: "post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering"</u>

Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction[3]
Claims 1, 18, 26	status data that undergoes negative and positive filtering, but is neither discarded by such negative filtering nor selected by such positive filtering	Plain and ordinary meaning

BT's proposed construction of "post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected" comports with the claims and specification of the '237 Patent. The '237 Patent teaches that the referenced "data" which comprises the post-filtering residue must be "status data." The independent claims specifically recite analyzing "status data" and it is that analysis that "includes filtering followed by an analysis of post-filtering residue . . . ." '237 Patent, 35:45-46 (claim 1), 36:51-52 (claim 18), 37:32-33 (claim 26). The specification also confirms that post-filtering residue is "status data." *Id.*, 4:58-63 (explaining that the information being monitored and collected by probe/sentry filtering system 2000 is "status data (including audit log data and other audit information) concerning the status of network 1000 and its components"); 5:19-21 ("Probe/sentry 2000 collects and filters . . . updated status data.").

In fact, the term "residue" is explicitly defined in the specification: "Data neither discarded by negative filtering subsystem 2020 nor selected out as interesting by positive filtering subsystem 2030 form 'residue,' which is sent to anomaly engine 2050 for further analysis." '237 Patent, 8:55-59. Here, the patentee effectively acted as his own lexicographer in explaining the precise meaning of this term in both the specification and claim language. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (holding the specification "is the single best guide to the meaning of a disputed term" and "the inventor's lexicography governs"). "When the specification explains and defines a term used in the claims, without ambiguity or incompleteness, there is no

[3] This chart represents PAN's proposed constructions at the time when BT's opening brief was served.

need to search further for the meaning of the term." *Schering Corp. v. Amgen Inc.*, 18 F. Supp. 2d 372, 380 (D. Del. 1998).

The definition from the specification is directly incorporated into the claim language, reciting "an analysis of post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering." *Id.*, 35:45-47 (claim 1). In fact, the patentee himself believed the claim language to be definitional: "The term 'post-filtering residue' is clearly defined, in the claim language itself, as data that is neither discarded nor selected by filtering." '237 File History at JA-0000121 (Applicant Arguments and Remarks at 8 (Feb. 7, 2006)). BT's proposed construction directly tracks this definition, and no other construction is plausible. *See Integra LifeSciences Corp. v. HyperBranch Med. Tech., Inc.*, No. 15-819-LPS-CJB, 2017 WL 3336274, *21 (D. Del. July 27, 2017) (agreeing with plaintiffs' proposed construction that "mimics the explicit definition of [the claim term] taught in the specification").

Thus, it follows that "post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected" is "status data that undergoes negative and positive filtering but is neither discarded by such negative filtering nor selected by such positive filtering."

ii. Term Nos. 2 and 3: "analysis includes filtering" / "filtering"

Term	Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction[4]
analysis includes filtering	Claims 1, 18, 26	analysis includes positive filtering to select interesting information and negative filtering to discard uninteresting information	N/A
filtering	Claims 1, 18, 26	N/A	discarding data that matches a filter rule and/or selecting data that matches a filter rule

[4] This chart represents PAN's proposed constructions at the time when BT's opening brief was served.

Here, the parties have proposed slightly different terms for construction. BT proposes construing "analysis includes filtering" to avoid construing "filtering" in the abstract. PAN, however, proposes construing "filtering" by itself so it can present an overly broad construction in the hopes of ensnaring prior art. Such an approach is legally improper and unnecessarily confusing. *Hockerson-Halberstadt, Inc. v. Converse, Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999) ("Proper claim construction . . . demands interpretation of the entire claim in context, not a single element in isolation."). The Federal Circuit has found it " is not always appropriate" to break up claim phrases and does not analyze claim terms in isolation. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 791 (Fed. Cir. 2021).

When construing claim terms, the terms are read within the context of the entire claim, as well as the patent specification. *See Phillips*, 415 F.3d at 1313. Here, the entirety of the relevant claim limitations recite analyzing status data "wherein the analysis includes filtering followed by an analysis of post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering." '237 Patent, 35:44-47 (claim 1), 36:50-54 (claim 18), 37:31-34 (claim 26). The "analysis includes filtering" referred to in these claims, then, must be positive and negative filtering because status data that is neither selected nor discarded cannot become post-filtering residue without first being positively and negatively filtered. *See also* Section II.A.1, *supra*. This is bolstered by the specification which elaborates on the negative and positive filtering subsystems that are first applied to the status data. *See* '237 Patent, 8:45-53. Construing only the term "filtering," while ignoring the rest of the clause, however, results in an overbroad construction detached from the claim language and patented invention. *See IGT v. Bally Gaming Int'l, Inc.*, 659 F.3d 1109, 1117 (Fed. Cir. 2011) ("Extracting a single word from a claim divorced from the surrounding limitations can lead construction astray."); *ACTV, Inc. v. Walt Disney, Co.*, 346 F.3d

1082, 1088 (Fed. Cir. 2003) ("the context of the surrounding words of the claim . . . must be considered in determining the ordinary and customary meaning of those terms"); *Rex Medical, L.P. v. Intuitive Surgical, Inc.*, No. 19-005-MN, 2020 WL 2128795, *2 (D. Del. May 5, 2020) (similar).

Even if the Court were to choose to construe the term "filtering" alone, BT's proposed construction should be adopted because it is in-line with the intrinsic evidence. First, BT's construction corresponds with the remainder of the claim language that immediately follows "filtering": "post-filtering residue is data neither discarded nor selected by filtering." *Compare*, '237 Patent, 35:46-47 (claim 1), 36:52-54 (claim 18), 37:33-34 (claim 26), *with*, BT's proposed construction: "analysis includes positive filtering to select interesting information and negative filtering to discard uninteresting information."

Second, BT's construction tracks the specification which explains that status data which is discarded by negative filtering subsystem 2020 is "uninteresting information" and status data which is selected by positive filtering subsystem is "interesting information." *Id.*, 8:45-53. Indeed, the sole embodiment described in the specification supports BT's construction. *See Baxter Healthcare Corp. v. Nevakar Injectables*, No. 21-1184-CJB, Mem. Order at 9 (June 26, 2023) ("considered together with the clear language of the claims themselves, the fact that every single embodiment in the specification illustrates" the same meaning supports that construction).

On the other hand, PAN's proposed construction of "filtering" is entirely divorced from the intrinsic record. PAN inexplicably injects the phrase "filter rule" into its proposed construction, a phrase that does not appear in the claim language nor anywhere in the specification.

It is entirely unclear what PAN means by a "filter rule."[5]. Indeed, when the specification does use the term "rule" it does so in a way that teaches that "filters" and "rules" are different things. See '237 Patent, 8:57-59 ("otherwise analyzes the constantly updated status data . . . using a set of rules and/or filters looking for evidence").

Even more problematic, though, is PAN's rewriting of the claimed "filtering" to only require *either* negative filtering *or* positive filtering to obtain the claimed post-filtering residue. The plain language of the claims makes clear that "post-filtering residue is data ***neither*** discarded ***nor*** selected by filtering." '237 Patent, 35:46-47 (claim 1) (emphasis added); *see also id.*, 36:52-54 (claim 18), 37:33-34 (claim 26) The plain and ordinary meaning of the terms "neither" and "nor" within the claim language require that the data must have gone through both negative and positive filtering and was neither selected nor discarded as a result. *See, e.g., Certain Digital Video Receivers and Hardware and Software Components Thereof*, No. 337-TA-1001, Initial Determination at 437 (U.S.I.T.C. June 27, 2017) (construing a "neither/nor" clause to be read in the conjunctive requiring both events to not have occurred); *see also Cross Atlantic Capital Partners, Inc. v. Facebook, Inc.*, No. 07-2768, 2008 WL 5743721, *1 n.1 (E.D. Pa. Apr. 3, 2008) (noting that interpreting a disjunctive claim to be a conjunctive claim "would be a dramatic departure"). The specification confirms that both negative and positive filtering must be applied to the received status data before whatever is left over can be deemed "post-filtering residue." *See* '237 Patent, 8:45-53 (explaining the status data is "first filtered by negative filtering subsystem

[5] During the *inter partes* review proceeding regarding the '237 Patent, the parties agreed that a person of skill in the art at the time of invention of the '237 Patent "would have had a B.S. degree in Computer Science, Computer Engineering, or an equivalent field, as well as 2-3 years of academic or industry experience in the design, analysis, and monitoring of computer networks, including issues of network security and network administration, or comparable industry experience." *Palo Alto Networks, Inc. v. BT Americas Inc.*, IPR2023-00888, Petition at 12.

2020 . . . and then by positive filtering subsystem 2030" before becoming "residue"); *id.*, Figs. 1 and 2.

Importantly, the requirement that status data undergo both positive *and* negative filtering is further borne out in the '237 Patent's prosecution history. During prosecution, the patentee amended the original claims to traverse a prior art rejection, adding the relevant claim language: "analyzing status data to identify potentially security-related events represented in the status data, wherein the analysis includes filtering followed by an analysis of post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering." '237 File History at JA-0000072. In distinguishing the purported prior art, the patentee explained that in the prior art reference "no mention is made of analyzing data that was not discarded and that ***was not also*** selected by the filtering process." *Id*. at JA-0000096 (Arguments and Remarks Made in an Amendment at 11 (Apr. 13, 2005)) (emphasis added). Patentee further argued: "to anticipate or render obvious claim 1, there at least needs to be some teaching or suggestion of three kinds of data: 1) data selected by filtering, 2) data discarded by filtering ***and*** 3) post-filtering residue that is neither of the first two." *Id.* at JA-0000122-123 (Arguments Made in an Amendment at 9-10 (Feb. 7, 2006)) (emphasis added).

The patentee's statements and amendments during prosecution demonstrate how the inventors understood their own invention and how the terms should be construed. *See Phillips*, 415 F.3d at 1317 ("the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the court of prosecution"); *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998) (claims should be construed in accordance with "what the inventors actually invented and intended to envelop with the claim"). Accordingly, the proper construction

of "analysis includes filtering" (or "filtering" alone) requires both positive filtering, to select interesting information, and negative filtering, to discard uninteresting information. *See id.*; *see also Integra LifeSciences*, 2017 WL 3336274, at *11 (relying on the patentees' arguments during prosecution to inform a claim term's ultimate construction).

Unlike BT's proposed construction, PAN impermissibly seeks to broaden the claims[6] to require only one filtering rule (positive *or* negative filtering). PAN's construction impermissibly rewrites the "neither" / "nor" clause in the relevant claim limitation to an "either" / "or" clause, allowing for positive or negative filtering. *See K-2 Corp. v. Saloman, S.A.*, 191 F.3d 1356, 1364 (Fed. Cir. 1999) ("Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee").

Additionally, PAN's proposed construction is inconsistent with the prosecution history. *See* '237 File History at JA-0000122 (arguing the patented claims require data selected by filtering and data discarded by filtering, not one or the other); '237 Patent, 8:45-57 (explaining that in the only-described embodiment, status data is first filtered by the negative filtering subsystem, and then filtered by the positive filtering subsystem, and the leftover post-filtered residue is sent to the anomaly engine). The proper meaning of a claim term cannot be broader than the meaning ascribed to it in the intrinsic record. *See Chimie and Phodia, Inc. v. PPG Indus. Inc.*, 402 F.3d 1371, 1379 (Fed. Cir. 2005) ("when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment"); *On Demand Machine Corp. v. Ingram Indus. Inc.*, 442 F.3d 1331, 1340 (Fed. Cir.

[6] PAN previously attempted to broaden the claims of the '237 Patent to include prior art. In PAN's IPR petition regarding the '237 Patent, which the PTAB denied, PAN attempted to argue that only one type of filtering was required to establish an alleged prior art reference disclosed "post-filtering residue". *See Palo Alto Networks, Inc. v. BT Americas Inc.*, No. IPR2023-00888, Petition for *Inter Partes* Review of U.S. Patent No. 7,159,237 (Apr. 28, 2023) at 30-36.

2006) ("the claims cannot be of broader scope than the invention that is set forth in the specification").

PAN's proposed construction is also inconsistent with the dependent claims. For example, dependent claims 4 and 5 allow for an additional round of positive *or* negative filtering as part of the multi-stage analysis done after the status data has already undergone positive *and* negative filtering. *See id.*; *see also id.*, cls. 20-21, 28-29. PAN's proposed construction of the term "filtering" alone to mean discarding or selecting data based on a filter rule would be nonsensical in light of these dependent claims. Under PAN's construction, claims 4 and 5 would be read to require positive discarding or selecting of data (claim 4) and negative discarding or selecting of data (claim 5)—which is both redundant and inconsistent. As the intrinsic evidence makes clear, positive filtering involves selecting data and negative filtering involves discarding data. PAN's construction cannot be correct and further underscores why it is necessary to construe the entire phrase ("analysis includes filtering") in independent claim 1.

BT's proposed construction is supported by the claim language, specification, and prosecution history of the '237 Patent. As such, the term "analysis includes filtering"—or "filtering" in the context of the independent claims—should be construed to mean "analysis includes positive filtering to select interesting information and negative filtering to discard uninteresting information."

2. PAN's Answering Position

i. The "Filtering" Terms (Nos. 1-3)

The key dispute for the filtering terms is whether "filtering" as recited in Term Nos. 1-3 includes positive filtering, negative filtering, ***or*** both as PAN contends, or instead requires ***both*** positive ***and*** negative filtering as BT contends. Understanding the various types of filtering and how they function is foundational to that dispute. As explained below, PAN's position is

consistent with the plain and ordinary meaning of "filtering," as well as how filtering is claimed and described in the '237 Patent. In contrast, BT's position conflicts with the claim language and the specification, and is also contrary to how the term "filtering" is used in the prior art.

a. Technical Background on Filtering

In the context of "network security," a person of skill in the art ("POSA") would have understood "filtering" to mean comparing data with a known criterion, and, if the data matches that criterion, taking a specified action. *See* Ex. Y[7] (Dr. John Villasenor Decl.) ¶¶ 26-31. A POSA would further have understood such specified actions may include: (1) blocking/discarding the data, and (2) selecting/forwarding the data. *Id.* ¶¶ 26-27 (citing '237 Patent at 8:45-59).

This is exactly how the '237 Patent describes filtering—a negative filter discards data that matches a criterion and/or a positive filter selects data that matches another criterion. '237 Patent at 8:45-59. Specifically, the '237 Patent explains that, in an exemplary embodiment, "the data is first filtered by negative filtering . . . , which ***discards uninteresting information***," meaning that the negative filter blocks information because that information matches a criterion (and is therefore "uninteresting"). *Id.* at 8:45-47 (emphasis added). The data is then filtered "by positive filtering …, which ***selects possibly interesting information and forwards it*** to communications and resource coordinator," meaning that the positive filter selects and forwards information because that information matches another criterion (and is therefore "possibly interesting"). *Id.* at 8:53-55 (emphasis added). The patent expressly contemplates that not all data will match a filter criterion. That is, some data may be neither blocked nor selected. The '237 Patent calls this "residue" data,

[7] Given the Court's Oral Order (D.I. 128), PAN does not include this expert report for the purposes of arguing indefiniteness for Term Nos. 8 and 9 at this time. Instead, it directs the Court to paragraphs cited herein that provide background and extrinsic evidence supporting PAN's proposed constructions for the filtering terms.

which is data "neither discarded by negative filtering [] nor selected out as interesting by positive filtering." *Id.* at 8:55-57.

The '237 Patent acknowledges that this understanding of positive and negative "filtering" was "well-known to those skilled in the art." *Id.* at 8:59. Indeed, it is consistent with prior art definitions of filtering. For example, a September 2000 reference provides that a "filtering device compares the values of these fields to ***rules that have been defined***[, *i.e.*, criteria], and based upon the values and the rules the packet[,] is ***either*** passed ***or*** discarded." *See* Ex. Y ¶ 28 (citing Ex. BB at 1-3) (emphasis added); *see also* Ex. Z at 20 ("A firewall may act as a packet filter. It can operate as a positive filter, allowing to pass only packets that meet specific criteria, or as a negative filter, rejecting any packet that meets certain criteria."); Ex. AA at 6 ("Positive [] filter: Allow [] packets that meet a criteria" and "[] (negative) filter: [] (reject) packets that meet a criteria") Ex. CC at 65 ("filtering rules are expressed as a table of ***conditions and actions***") (emphasis added); Ex. DD at 754 (defining filter as "A device or program that separates data or signals in accordance with ***specified criteria***") (emphasis added).

BT's usage of the terms "positive filter," "negative filter," "select," and "discard" in its preliminary infringement contentions are inconsistent with how those terms are used in the '237 Patent and in the prior art. ***First***, BT's contentions state:

> The following representative excerpt describes the Security Policy actions, which includes the ***"deny" action (positive filtering)***. The "deny" action ***selects*** the filtered status data and takes the default Deny Action defined for the related application.

Ex. EE (Plaintiff's Preliminary Infringement Contentions) at 32 (emphasis added). Here, BT incorrectly asserts that positive filtering denies (*i.e.*, discards) incoming data. As explained above, the '237 Patent is clear that positive filtering means selecting data and negative filtering means discarding data. '237 Patent at 8:45-50.

Additionally, BT uses the term "select" to refer to data *matching* the filter criterion. Ex. EE at 25. But in the '237 Patent, "select" refers to the *action* taken by a positive filter *after* the data matches the filter criterion. '237 Patent at 8:45-50; Claims 1, 18, 26.

BT's contentions further state:

> PAN negatively filters the status data at least through exception lists. As explained by PAN below, 'threat exception[s] for specific IP addresses' can be added, which 'will add a threat exception with the IP addresses added as a filter on the threat exception.' This ***negatively filters the IP address status data by discarding IP addresses that match this filter*** so that it is ignored.

Ex. EE at 36 (emphasis added). Here, BT correctly uses the word "match" to refer to data meeting a filter criterion, and also correctly identifies a negative filter as a filter that discards incoming data upon a match. But this highlights BT's inconsistent usage of positive and negative filtering between these two examples.

BT's contentions also state that:

> Security profile ***filter rules that are configured to block data based on a match represent positive filtering***, and ***security policy rules that allow data represent negative filtering***.

Ex. EE at 39 (emphasis added). Here, BT correctly uses the term "match" again, but incorrectly asserts that a positive filter blocks/discards while a negative filter allows/selects.

BT's confusing and inconsistent contentions highlight the need for claim construction of the filtering terms.

b. Term No. 1: "post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering"

Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction
Claims 1, 18, 26	Status data that undergoes negative and positive filtering, but is neither discarded by such negative filtering nor selected by such positive filtering	Plain and ordinary meaning, which is "data that does not match any filter (*i.e.*, discarding (negative) filter and/or selecting (positive) filter)"

The parties dispute whether post-filtering residue must undergo ***both*** positive ***and*** negative filtering. As explained below: (1) the plain language does not require both positive and negative filtering, (2) the dependent claims support that the independent claims do not require both negative filtering and positive filtering, and (3) the specification includes embodiments that do not require both positive and negative filtering. Therefore, the Court should adopt the plain and ordinary meaning of "post-filtering residue," which is "data that does not match any filter (*i.e.*, discarding (negative) filter and/or selecting (positive) filter)."

(1) The Claim Language Does Not Require Both Positive Filtering And Negative Filtering

In the patentee's own words, the "term 'post-filtering residue' is clearly defined, ***in the claim language itself***, as data that is neither discarded nor selected by filtering." '237 Patent File History, D.I. 122, Ex. C ("'237 File History"), JA-0000121 (Applicant's Arguments and Remarks at 8 (Feb. 3, 2006)) (emphasis added). The relevant claim language broadly covers residue that undergoes any type of filtering—positive and/or negative filtering. Claim 1, for example, recites "analyzing status data . . . wherein the analysis includes filtering followed by an analysis of post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering." '237 Patent at Claim 1. This language requires only that analyzing status data: (1) "includes filtering," and (2) a further analysis of any status data that was "neither discarded nor selected by filtering." *Id.* at Claims 1, 18, 26. The claim language does not require positive ***and*** negative filtering. It simply recites "filtering"—any type of filtering. Contrary to BT's position, this means positive filtering, negative filtering, or both. And any data that was neither discarded nor selected (*i.e.*, post-filtering residue) undergoes further analysis.

Three hypotheticals are helpful in demonstrating the plain language of the claims:

- **Hypothetical #1:** The filtering system has at least one positive filter. Incoming data is compared to the positive filter(s). If there is a match, then the data is selected by filtering and there is no residue. If there is no match on at least one positive filter, then that data is "post-filtering residue" because it was neither selected nor discarded by the filtering system.
- **Hypothetical #2:** The filtering system has at least one negative filter. Incoming data is compared to the negative filter(s). If there is a match, then the data is discarded by filtering and there is no residue. If there is no match on at least one negative filter, then that data is "post-filtering residue" because it was neither selected nor discarded by the filtering system.
- **Hypothetical #3:** The filtering system has both positive and negative filters. Incoming data is compared to the positive filter(s). If there is a match, then the data is selected by filtering. The data is also compared to the negative filter(s). If there is a match, then the data is discarded by filtering. Data that does not match any positive filter and any negative filter is "post-filtering residue" because it was neither selected nor discarded by the filtering system.

In all three hypotheticals above, there can be leftover data (*i.e.*, post-filtering residue) that does not match on a filtering criterion, and is therefore data that was neither discarded nor selected by filtering.

Nonetheless, despite the plain language of the claims, BT contends that "the terms '***neither***' and '***nor***' within the claim language require that the data must have gone through both negative and positive filtering." *Supra* Section II.A.1.ii at 10 (emphasis added). Yet the terms "neither" and "nor" precede and modify the words "discarded" and "selected," respectively. '237 Patent at

Claims 1, 18, 26. They do not modify "positive filtering" and "negative filtering," which phrases do not even appear in the independent claims. BT's cited cases are irrelevant because PAN agrees that, for data to be "post-filtering residue," it must go through filtering, and during that filtering it is neither selected nor discarded. This does not mean, however, that the filtering must include both a positive filter and a negative filter. As demonstrated by the hypotheticals, data can be "neither selected nor discarded" without undergoing both positive and negative filtering.

(2) The Dependent Claims Demonstrate That Positive Filtering And Negative Filtering Are Not Both Required.

BT argues that "PAN's proposed construction is also inconsistent with the dependent claims." *Supra* Section II.A.1.ii at 13. BT's argument is without merit. The dependent claims do ***not*** impose an "additional round of positive *or* negative filtering." *Id.* On the contrary, the dependent claims support PAN's proposed construction. The independent claims require "analyzing status data to identify potentially security-related events represented in the status data, wherein the analysis includes filtering followed by an analysis of post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering." '237 Patent at Claims 1, 18, 26. Dependent claims 2 and 27 narrow the independent claims by requiring that the "analysis" be a "multi-stage analysis."[8] Dependent claims 3 and 28, further narrow claims 2 and 27, by requiring that "said multi-stage analysis includes performing a discrimination analysis of said status data."[9] Dependent claims 4 and 29, further narrow claims 3 and 28, by requiring that

[8] Dependent claims 2 and 27 do not add anything to the independent claims, which already recite that the identifying step includes a multi-stage analysis, *i.e.*, "wherein the analysis includes filtering followed by an analysis of post-filtering residue." The specification confirms that filtering is a type of analysis. '237 Patent at 8:57-59.

[9] Dependent claims 3 and 28 do not add anything to the claims from which they depend. The independent claims already recite multi-stage analysis (filtering and post-residue analysis), and the

"the discrimination analysis includes positive filtering." And dependent claims 5 and 30, further narrow claims 3 and 28, to require "the discrimination analysis includes negative filtering." Accordingly, BT's proposed construction cannot be correct, because it renders dependent claims 4, 5, 29, and 30 moot. That is, if the independent claim already requires ***both*** positive and negative filtering, the addition of positive filtering and negative filtering in claims 4, 5, 29, and 30 does not further narrow the independent claims.

In contrast to BT's position, PAN's position gives meaning to dependent claims 4, 5, 29 and 30. *Merck & Co., Inc. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (holding that "claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."); *see also Sprint Spectrum L.P. v. Gen. Access Sols., Ltd.*, 812 Fed. App'x 999, 1003 (Fed. Cir. 2020). That is, dependent claims 4 and 29 require positive filtering (which is only optional in the independent claims) and dependent claims 5 and 30 required negative filtering (which is only optional in the independent claims).

(3) The Specification Describes A Probe With Only Negative Filters, Only Positive Filters, Or Both.

PAN's proposed construction is also supported by embodiments in the specification that contemplate that the data may pass through only a positive filter or only a negative filter. For example, the "Detailed Description of the Invention" states:

> Probe/sentry system 2000 collects and filters (**positively and/or negatively**) or otherwise analyzes the constantly updated status data it receives from sensors, using a set of rules and/or filters looking for evidence or 'footprints' of unauthorized intrusions.

specification confirms that filtering and post-residue analysis are examples of data discrimination analyses. '237 Patent at 8:57-59.

'237 Patent at 5:19-23 (emphasis added). The specification's use of "and/or" demonstrates, consistent with PAN's proposed construction, that "filtering" includes either positive filtering, negative filtering, or both. But BT's construction improperly excludes this embodiment. *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1311 (Fed. Cir. 2014) ("[W]here claims can reasonably [be] interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary."). Moreover, numerous other embodiments describe the claimed filtering without requiring both positive and negative filtering. '237 Patent at Abstract ("The probe filters and analyzes the collected data to identify potentially security-related events happening on the network."); 1:49-54 ("In an exemplary implementation . . . using a probe or 'sentry' system, collects status data from monitored components, filters or otherwise analyzes the collected data . . . "); 3:10-13 ("Once the probe/sentry system collects the data, it then filters or otherwise analyzes such data and then transmits noteworthy information . . . ").

BT contends that "the term 'residue' is explicitly ***defined*** in the specification" at column 8, lines 55-59—"Data neither discarded by negative filtering subsystem 2020 nor selected out as interesting by positive filtering subsystem 2030 form 'residue,' which is sent to anomaly engine 2050 for further analysis." *Supra* Section II.A.1.i at 6 (emphasis added). But BT fails to meet the high threshold to establish that it "acted as his own lexicographer" by "clearly express[ing] intent in the written description" to define terms and act with "reasonable clarity, deliberateness, and precision." *Merck & Co., Inc.*, 395 F.3d at 1370; *see also In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). There is no clearly expressed intent in the specification to support BT's construction requiring both positive and negative filtering.

The sole passage from the specification that BT cites does not meet the threshold for lexicography. The cited passage is part of a paragraph relating to Figure 2, which is plainly described as "an ***exemplary*** embodiment." '237 Patent at 8:35-59 (emphasis added). As explained above, the specification describes other embodiments that contemplate either positive filtering and/or negative filtering. *Id.* at 5:19-23 ("Probe/sentry system 2000 collects and filters (***positively and/or negatively***) or otherwise analyzes the constantly updated status data…") (emphasis added). Accordingly, BT's cited passage does not clearly express an intent to limit the claims as BT proposes, and reading it as such would amount to improperly "importing limitations from the specification into the claims." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 905 (Fed. Cir. 2004); *see also Cont'l Cirs. LLC v. Intel Corp.*, 915 F.3d 788, 798 (Fed. Cir. 2019); *Comark Commc'n Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998); *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988).

Indeed, the patentee represented to the Patent Office that the "term 'post-filtering residue' is clearly defined, ***in the claim language itself***, as data that is neither discarded nor selected by filtering." '237 File History at JA-0000121 (emphasis added). BT cannot now contend that this term is "explicitly defined in the specification" by reference to an exemplary embodiment that includes both a positive filtering subsystem and a negative filtering subsystem. The claim language requires only that the residue result from "an analysis including filtering"—it does not specify or require both a positive filtering subsystem and a negative filtering subsystem. The patentee could have drafted the independent claims to recite that "the analysis includes ***positive and negative filtering*** followed by an analysis of post-filtering residue"—but they did not. Instead, positive and negative filtering are recited in the dependent claims.

BT further contends that ***both*** positive and negative filtering are required by "the sole embodiment describe in the specification." *Supra* Section II.A.1.ii at 9. That is simply incorrect. BT ignores the additional embodiments described above that ***do not*** require both positive and negative filtering. '237 Patent at 5:19-23; *see also id.* at Abstract, 1:49-54, 3:10-12. And, the embodiment BT relies on is described as an "exemplary embodiment." *Id*. at 8:35-53. Moreover, even if BT's embodiment was the "sole embodiment" as it contends, as explained above, it "is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim*, 358 F.3d at 913.

(4) The Prosecution History Does Not Require The Claimed Filtering To Include Both Positive Filtering And Negative Filtering.

BT contends that the prosecution history supports its construction, but BT mischaracterizes a variety of disjointed quotes without context. For example, BT points to the applicant's argument when distinguishing the prior art because "no mention is made of analyzing data that was not discarded and that was not also [*sic*] selected by the filtering process." *Supra* Section II.A1.ii at 11 (citing '237 File History at JA-0000096 (Applicant's Arguments and Remarks at 11 (Apr. 13, 2005))). BT, however, omits the next line, which illuminates the true focus of the applicant's argument: "Any analysis performed by [the prior art reference] is clearly done on alerts that were **selected** by the filtering process." *Id.* (emphasis added). Thus, the key distinction that the applicant made to differentiate the prior art reference from the claims was that the "post-filtering residue" must ***not*** have been selected or discarded by filtering. In contrast, the prior art reference analyzed data that was selected (*i.e.*, matched a positive filter). The applicant's argument did not require both positive filtering and negative filtering.

Similarly, BT mischaracterizes a separate argument within the '237 File History from nearly a year later where the applicant distinguishes prior art that "discloses data that is selected by filtering" and data that "is discarded in the filtering process." *See* '237 File History at JA-0000122-23 (Applicant's Arguments and Remarks at 9-10 (Feb. 7, 2006)). Again, the crux of the applicant's distinction is whether the prior art had "post-filtering residue" – data neither selected nor discarded. The applicant argued that prior art did not have post-filtering residue as it only analyzed data that ***was*** selected or discarded. *Id.* Thus, the '237 File History and the distinctions that applicant relies upon further demonstrate that there is no requirement to ***both*** negatively filter and positively filter data, as proposed by PAN. Because PAN's construction is consistent with the prosecution history, the plain language of the claims, and the specification, the Court should adopt PAN's construction.

(5) The Plain And Ordinary Meaning Of "post-filtering residue," Is "data that does not match any filter (*i.e.*, discarding (negative) filter or selecting (positive) filter)."

The plain and ordinary meaning of "post-filtering residue" that should be adopted is "data that does not match any filter (*i.e.*, discarding (negative) filter and/or selecting (positive) filter)." This plain and ordinary meaning is consistent with the claim language and specification, and eliminates any confusion from the inconsistent usage of these terms in BT's infringement contentions. *See supra* Section II.A.2.i.a (describing BT's inconsistent usage of "positive filter" as one that discards and "negative filter" as one that selects").

The language of the independent claims provides that "post-filtering residue is data neither discarded nor selected by filtering." '237 Patent at Claims 1, 18, 26. PAN's proposed construction of the plain and ordinary meaning simply mirrors the claim language. *See E.I. Du Pont de Nemours & Co. v. Unifrax I, LLC*, 921 F.3d 1060, 1079 (Fed. Cir. 2019) ("[c]laims mean precisely what they say."); *see also Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) ("[W]e look to

the words of the claims themselves...to define the scope of the patented invention.") (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). The claimed language "data neither discarded nor selected" is equivalent to "data that does not match any filter (*i.e.*, discarding (negative) filter and/or selecting (positive) filter)." And as explained above, "filtering" does not require ***both*** positive and negative filtering. Further, the specification's description of the terms "positive filtering" and "negative filtering" also corresponds to the plain and ordinary meaning of "post-filtering residue." '237 Patent at 8:35-59 (describing "negative filtering . . . which discards" and "positive filtering . . . which selects."). Thus, PAN's proposed construction of the plain and ordinary meaning is consistent with the claims and specification.

c. Term Nos. 2-3: "analysis includes filtering" / "filtering"

Term	Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction
analysis includes filtering	Claims 1, 18, 26	Analysis includes positive filtering to select interesting information and negative filtering to discard uninteresting information	N/A[10]
filtering	Claims 1, 18, 26	N/A	Discarding data that matches a filter rule (negative filtering) and/or selecting data that matches a filter rule (positive filtering)

Term Nos. 2 and 3 present the same dispute as Term No. 1 regarding whether "filtering" requires both positive and negative filtering. For the same reasons described above, the Court should find that these terms do not require both positive and negative filtering. Additionally, as

[10] The parties have proposed different terms for construction. BT proposes construing "analysis including filtering" and PAN proposes construing "filtering." Thus, "N/A" corresponds to the terms for which each party is not proposing a construction.

explained below, PAN's proposed constructions for Term Nos. 2 and 3 provide a necessary clarification and BT's arguments to the contrary are unavailing.

PAN's construction is consistent with the plain language of the claims and adds clarity to the meaning of "filtering." "Filtering" involves either discarding or selecting data when that data matches a filter criteria. As described above, this clarification is necessary because BT's infringement contentions confuse and conflate "selecting" with "matching." The specification states that "selecting" or forwarding is an action taken by a filter on "interesting information" after incoming data matches a criterion of the filter. '237 Patent at 8:45-50; Claims 1, 18, 26. PAN's proposed construction adds this necessary clarification from the specification to the meaning of "filtering."

To the extent BT complains that PAN's construction "injects the phrase 'filter rule,'" PAN is amenable to substituting an alternative such as "filter criterion"—*i.e.*, discarding data that matches a filter criterion and/or selecting data that matches a filter criterion. *See supra* Section II.A1.ii at 9-10. BT does not dispute, and cannot dispute, that "filtering" involves comparing incoming data to a rule or criterion, and then taking a specified action if the data matches the filter rule/criterion. Ex. Y ¶¶ 26-31.

BT's construction requires "positive filtering to select ***interesting information***" and "negative filtering to discard ***uninteresting information***," but does not inform the jury what constitutes "interesting information" and "uninteresting information." Thus, BT's construction will not help a jury understand the "filtering" terms because it provides no guidance on how filters actually function in the claimed invention. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) ("The terms, as construed by the court, must 'ensure that the jury fully understands the court's claim construction rulings and what the patentee covered by the claims.'");

see also Funai Elec. Co. v. Daewoo Elecs. Corp., 616 F.3d 1357, 1366 (Fed. Cir. 2010) ("The criterion is whether the explanation aids the court and the jury in understanding the term as it is used in the claimed invention."). The addition of such subjective terms such as "interesting" and "uninteresting" to a construction does nothing but adds ambiguity and uncertainty as to how the filters are selecting and discarding information. As such, the Court should not adopt BT's unhelpful construction.

3. BT's Reply Position

Term No. 1 and Term Nos. 2 and 3 are two sides of the same coin, and the presence of this set of terms in the same claim clause makes clear that each informs the meaning of the other. The key dispute regarding these terms is whether the claims require both positive and negative filtering to occur. This dispute manifests itself in two sub-questions: 1) whether the claimed "filtering" process requires only a single filter or both positive and negative filtering, and 2) whether "post-filtering residue is data neither discarded nor selected by filtering" requires the system to actually try to both discard and select (*i.e.*, apply both positive and negative filters to the status data). As explained below, the plain language of the claims, when read in light of the '237 Patent's disclosure, requires both positive and negative filtering to occur.

PAN also disputes whether BT's use of the terms "interesting information" and "uninteresting information" in relation to Terms Nos. 2 and 3 are helpful. BT's use of the terms "interesting information" and "uninteresting information" serves to help avoid the same type of mistake that PAN made: conflating selecting and discarding status data (which is what is claimed) with blocking and allowing network traffic. *See*, *e.g.*, *supra*, Section II.A.2.i.a at 15-17.

i. The "filtering" terms require both positive and negative filtering.

The disputed clause containing the "filtering" terms reads as follows: "wherein the analysis includes filtering followed by an analysis of post-filtering residue, wherein the post-filtering

residue is data neither discarded nor selected by filtering." *See* '237 Patent, 35:46-48 (claim 1); *see also id*., 36:50-54 (claim 18). BT's proposed constructions correspond to the '237 Patent's sole disclosure of this feature. Nevertheless, PAN attempts to argue that the claims do not require both positive and negative filtering. But PAN is wrong for four reasons: (1) PAN ignores the sole described embodiment and manufactures new embodiments that do not exist; (2) PAN fails to properly consider the plain language of the claims in the context of the '237 Patent; (3) PAN misreads the dependent claims; and (4) PAN misunderstands the '237 Patent's discussion of filtering. As discussed below, each of PAN's arguments are unavailing.

a. PAN Ignores the Sole Disclosed Embodiment

The claimed "analysis…" element is described in only a single embodiment of the '237 Patent, which, as discussed in reference to Fig. 2, contains both positive and negative filtering subsystems. Indeed, the text corresponding to this figure makes clear that status data always flows through ***both*** subsystems. *See* '237 Patent, 8:45-59 ("the data is first filtered by negative filtering subsystem 2020, which discards uninteresting information, and then by positive filtering subsystem 2030, which selects possibly interesting information.").

The '237 Patent teaches a combination of positive and negative filtering to first filter out the status data that is easily discernable. *See* '237 Patent, 8:50-52. The easily discernable data necessarily includes what is already known to be interesting (*i.e.*, malicious) and what is already known to be uninteresting (*i.e.*, benign). The goal of the '237 Patent is to transmit only that which has been identified by the probe as a potential security event for a further confirmation step. *See*, *e.g.*, '237 Patent, 3:18-19 (explaining goal of "reduc[ing] the immense volume of raw data into core information worthy of further analysis"); *see generally* '237 Patent, 8:35-59. This therefore necessarily requires both positive and negative filtering. This filtering process and the further analysis of what is left over from it enables the system to "reduce the immense volume of raw data

into core information worthy of further analysis." '237 Patent, 3:18-19. Removing any one of these steps (i.e., positive filtering, negative filtering, analysis of post-filtering residue) would run counter to this disclosed purpose.

The features claimed by the disputed filtering terms are clearly depicted in Figure 2, below.

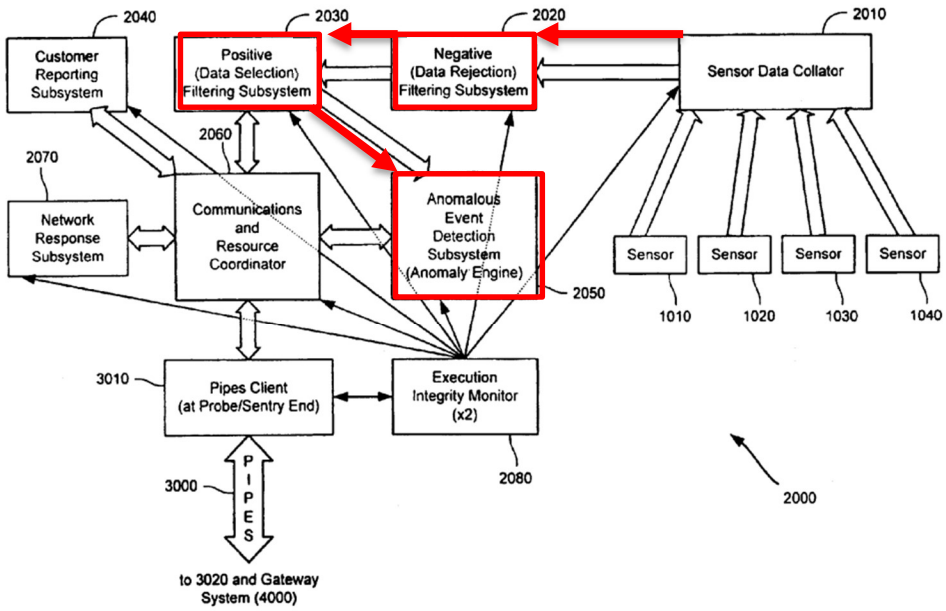


FIG. 2

'237 Patent, Fig. 2 (annotations added). As seen above, the anomaly engine, 2050, only receives status data from the sensor that has first passed through both the negative and positive filtering subsystems (2020 and 2030). A review of the arrows makes clear that there is not a path that would allow the status data to go through only one filtering subsystem. No status data is shown entering the Anomalous Event Detection Subsystem (where the analysis of residue takes place) without first passing through ***both*** filtering subsystems. And, not surprisingly, this sole disclosed embodiment aligns exactly with what is described in the claims ("wherein the analysis includes filtering followed by an analysis of post-filtering residue, wherein the post-filtering residue is data neither discarded nor selected by filtering."). Therefore, it is clear from the claim language and both from the '237 Patent's textual description of the claimed feature as well as its

figures that: 1) the status data undergoes both positive and negative filtering; and 2) the post-filtering "residue" analyzed by the anomaly engine must have first undergone both positive and negative filtering.

In contrast, PAN concocts entirely new and undisclosed embodiments. The crux of PAN's argument is that the '237 Patent discloses alternative embodiments that require only either positive *or* negative filtering. *See* Answer, §II.A.2(c).[11] The portion of the specification PAN relies on is provided below:

> Probe/sentry system 2000 collects and filters (positively and/or negatively) or otherwise analyzes the constantly updated status data it receives from sensors, using a set of rules and/or filters looking for evidence or "footprints" of unauthorized intrusions.

'237 Patent, 5:19-23.

But PAN misreads this portion of the '237 Patent. Rather, the use of 'positively and/or negatively' merely recognizes that individual status data can be filtered in three different ways: only positively filtered (because it was something known to be interesting), only negatively filtered (because it was something known to be uninteresting), and both positively and negatively filtered (*i.e.*, the residue, which was neither discarded by the negative filtering nor selected by the positive filtering). The '237 Patent's recognition that certain individual status data might only be positively or negatively filtered because they were selected or discarded does not mean that the probe's "filtering" process can only perform either positive or negative filtering. Rather, the word "filters" is being used as a verb here, as opposed to disclosing separate embodiments of the probe that are

[11] BT notes that although PAN never discusses this point in its Answer, PAN's proposed constructions are also ambiguous as to the "data" that is being filtered and analyzed. The '237 Patent and BT's constructions are clear that it must be "status data." Indeed, even the portion of the specification that PAN relies upon specifies that it is "status data" that is "collect[ed] and filter[ed]." *See* '237 Patent, 5:19-21.

each only capable of either positive or negative filtering. *See* '237 Patent, 5:19-23. Indeed, under PAN's reading, this portion of the '237 Patent has nothing at all to do with the key issue—whether "post-filtering residue" requires the application of both positive and negative filtering.

Moreover, this understanding is wholly consistent with the remainder of the '237 Patent's more detailed disclosure of the probe. *See* '237 Patent, 8:35-59 (providing "a system overview of an exemplary embodiment of a probe/sentry system" that includes both a "negative filtering subsystem" and a "positive filtering subsystem"); *see also id.*, Fig. 2. Indeed, it would be nonsensical to suggest that the probe "look[s] for evidence or 'footprints' of unauthorized intrusions" by only performing, for example, negative filtering (*e.g.*, only discarding status data that clearly does not reflect a potential security event). *See* '237 Patent, 5:22-23. Arguing that filtering only known benign events is the same as identifying potential security-related events—as PAN does—cannot be how a person of ordinary skill would understand these claims.

Moreover, even if PAN was correct that Column 5, Lines 19-23 could be understood to describe an alternative single-filter embodiment, that portion of the reference says nothing about residue, or any further analysis of that residue, as required by the disputed claim language. Therefore, even assuming that Column 5, Lines 19-23 are read (incorrectly) to describe broader embodiments (requiring only either positive or negative filtering), the claims of the '237 Patent are clearly not directed to those embodiments. *See Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 708 (Fed. Cir. 2020) ("As we have held, when the patent describes multiple embodiments, every claim does not need to cover every embodiment. This is particularly true when the plain language of a limitation of the claim does not appear to cover that embodiment." (quotation marks and alterations omitted)). Thus, given the lack of any discussion of residue, Column 5, Lines 19-

23, is generally unhelpful for understanding what "residue" is and what the scope of the term "post-filtering residue" should be.

PAN's attempt at fabricating new embodiments from the '237 Patent runs counter to both the '237 Patent's sole disclosed embodiment as well as the '237 Patent's disclosed purpose for the filtering and residue analysis. PAN's proposed constructions are thus wholly unsupported by the '237 Patent.

b. PAN fails to properly consider the plain language of the claims as understood in the context of the '237 Patent's specification.

Besides fabricating embodiments, PAN's proposed constructions do not rely on the '237 Patent's intrinsic evidence. Rather, PAN's proposed constructions contradict and ignore the '237 Patent. PAN begins its analysis for its constructions by defining the term "filtering" in the abstract using extrinsic evidence. *But see Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (noting it is "well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record"). As the Federal Circuit has explained, although "extrinsic evidence may sometimes illuminate a well-understood technical meaning, that does not mean that litigants can introduce ambiguity in a way that disregards the language usage in the patent itself." *Immunex Corp. v. Sanofi-Aventis U.S. LLC*, 977 F.3d 1212, 1221 (Fed. Cir. 2020).

Indeed, PAN's technical definition of "filtering," which only describes the application of a single filter, is far broader than how the term is used in the '237 Patent. *See supra*, Section II.A.2.i.a, at 14 ("comparing data with a known criterion, and, if the data matches that criterion, taking a specified action"). This dissonance between PAN's definition of "filtering" in the abstract and how the '237 Patent actually uses the term introduces unnecessary ambiguity and ignores the teachings of the '237 Patent.

(1) PAN's proposed construction of the "filtering" terms contradicts both the '237 Patent and itself.

Contrary to PAN's arguments that "the claim language broadly covers residue that undergoes any type of filtering"[12] (*see supra,* Section II.A.2.i.b(1) at 17), the '237 Patent specification specifies that residue must have undergone both positive and negative filtering. *See* '237 Patent, 8:45-53. The claims, viewed in light of the specification, thus recite a type of "filtering" process that can both select and discard data (*i.e.*, performs positive and negative filtering). *See*, *e.g.*, '237 Patent, 35:48 (claim 1) ("neither discarded nor selected by filtering" (emphasis added)). Indeed, it is the plain language of the claims, viewed in light of the specification, that informs what the claimed "filtering"[13] actually requires. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) ("the specification necessarily informs the proper construction of the claims").

The '237 Patent's use of "neither" and "nor" when describing this exact feature requires the "residue" to both not be discarded by negative filtering and not be selected by positive filtering. *See* '237 Patent, 8:50-52 ("Data neither discarded by negative filtering subsystem 2020 nor selected out as interesting by positive filtering subsystem 2030 form the 'residue' …." (emphasis added)). Likewise, the claim's use of "neither" and "nor" should also be understood in the same manner. *See*, *e.g.*, '237 Patent, 35:48 (claim 1). By specifying that the "post-filtering residue is

[12] PAN's construction of "post-filtering residue" as "data that does not match any filter" (*supra*, Section II.A.2.i.b at 16-17 (emphasis added)) results in a construction that directly conflicts with the '237 Patent's disclosure. *See supra,* Section II.A.2.i.b at 17. For example, the '237 Patent discloses that the anomaly engine can use filters as part of its analysis. Under PAN's construction, status data that is part of the post-filtering residue apparently can lose that designation during the analysis step if it matches a filter applied at that point.

[13] BT notes that PAN's improper focus on the definition of "filtering" in the abstract is part of the reason why BT proposed construing "analysis includes filtering" rather than just "filtering." BT recognizes that the term filtering in the abstract could have a far broader meaning in other contexts, but when filtering is discussed by the '237 Patent in the context of the claimed features, the "include[d] filtering" is far more specific.

data neither discarded nor selected by filtering," the plain language of the claims also explains exactly what is required by the claimed filtering process: it must be capable of both selecting and discarding data throughout positive and negative filtering. *See* '237 Patent, 35:47-48 (claim 1). If the clause "data neither discarded nor selected by filtering" did not limit the claimed "filtering," then data that never underwent any positive or negative filtering, but was filtered for some other reason, would always constitute "residue." Indeed, under PAN's proposed construction such data underwent "any type of filtering" and also "[did] not match any filter." *See*, *e.g.*, *supra*, Section II.A.2.i.b at 16-17. Such an interpretation is inconsistent with the '237 Patent and cannot be correct. PAN's proposed constructions should therefore be rejected.

(2) The scope of PAN's proposed construction for the "filtering" terms are ambiguous.

Likewise, PAN's own hypotheticals only serve to inject further ambiguity. For example, PAN's Hypothetical #1 suggests that data not matching "at least one positive filter" is "'post-filtering residue' because it was neither selected nor discarded by the filtering system," even though negative filtering was never applied to that data. *See supra*, Section II.A.2.i.b(1) at 18. But applying that same logic to PAN's Hypothetical #3, data not matching "at least one positive filter" should likewise be "post-filtering residue," even before the data is compared to the negative filters. *See id*. However, PAN concedes that, in this hypothetical, the application of both types of filters are part of the filtering step. PAN's proposed construction makes it difficult to determine at what point the claimed "filtering" process ends and when the "post-filtering residue" is created. PAN thus introduces unnecessary ambiguity to these terms and its proposed constructions should be rejected.

(3) PAN ignores the '237 Patent's intrinsic evidence regarding the "filtering" terms.

PAN also ignores the intrinsic evidence of the '237 Patent. First, PAN completely ignores the '237 Patent's definition of the term "residue". Second, PAN tries to draw attention away from the prosecution history, including clear arguments made by the applicant during prosecution.

First, contrary to what PAN suggests, the '237 Patent clearly defines the term "residue." *See supra*, Section II.A.2.i.b(3) at 20-23. Indeed, the '237 Patent explicitly states that "[d]ata neither discarded by negative filtering subsystem 2020 nor selected out as interesting by positive filtering subsystem 2030 form the 'residue.'" '237 Patent, 8:50-52. Importantly, the word residue is "set off by quotation marks—[which is] often a strong indication that what follows is a definition." *Sinorgchem Co. v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007). Thus, there is "clearly expressed intent in the written description" that the patentee intended to "act[] as his own lexicographer." *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1370 (Fed. Cir. 2005).

Moreover, even if it disputes whether the term was explicitly defined, PAN cannot just ignore how the term "residue" is used and described by the '237 Patent. *See Phillips*, 415 F.3d, at 1316 ("the specification necessarily informs the proper construction of the claims"). Indeed, the only use of the term "residue" or discussion of the analysis of that residue is contained in the '237 Patent's discussion of the embodiment shown in Figure 2. Likewise, the only embodiment that mentions "residue" includes both negative and positive filtering subsystems. *See* '237 Patent, 8:50-52; *see also id.*, Fig. 2 (depicting both positive and negative filtering subsystems). Furthermore, the claim language used in relation to "post-filtering residue" also largely mirrors this language used by the specification when describing this feature. *Compare, e.g.,* '237 Patent, 35:47-48 (Claim 1) ("wherein the post-filtering residue is data neither discarded nor selected by filtering"), *with,* '237 Patent, 8:50-52 ("Data neither discarded by negative filtering subsystem

2020 nor selected out as interesting by positive filtering subsystem 2030 form the 'residue'"). The patent's disclosure of "residue" cannot be ignored. *See Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1320 (Fed. Cir. 2016) ("A party is, therefore, not entitled to a claim construction divorced from the context of the written description and prosecution history." (citation and quotation marks omitted)).

Second, PAN's attempt at dismissing the prosecution history misses the point. During prosecution, the applicant clearly explained how it understood the claim limitations that are currently in dispute. For example, the applicant explicitly characterized the claims as requiring "data that was not discarded and that was also not selected by the filtering process." '237 File History at JA-0000096 (Applicant's Arguments and Remarks at 11 (Apr. 13, 2005)) (emphasis added). Although the applicant's distinction over prior art was not dependent on whether the prior art had only positive or only negative filtering, the applicant clearly indicated that it understood the claims to require both types of filtering. Indeed, the applicant unambiguously stated that "to anticipate or render obvious claim 1, there at least needs to be some teaching or suggestion of three kinds of data: 1) data selected by filtering, 2) data discarded by filtering and 3) post-filtering residue that is neither of the first two." *Id*. at JA-0000122-123 (Feb. 7, 2006) (emphasis added). The fact that the applicant proceeded to distinguish the prior art by showing how only one of those three kinds of data was missing, does not change the fact that the applicant clearly and unequivocally stated that all three kinds of data were required by claim 1. And indeed, these statements are in full accord with both the specification and the actual claim language. *See*, *e.g.*, '237 Patent, 8:41-53.

PAN's proposed constructions should be rejected because they contradict the '237 Patent's intrinsic evidence and are only supported by unhelpful extrinsic evidence. In contrast, BT's

proposed constructions are supported by the intrinsic evidence. The Court should therefore adopt BT's proposed constructions of "post-filtering residue" and "analysis includes filtering."

c. PAN misreads the dependent claims, rendering them moot, in order to attack BT's proposed constructions.

PAN contends that BT's proposed construction of the "filtering" terms cannot be correct because it would render dependent claims 4, 5, 29, and 30 moot. *See supra*, Section II.A.2.i.b(3) at 20. But PAN misreads these dependent claims. PAN's misreading of the dependent claims begins with claims 2 and 27, from which dependent claims 3-5 and 28-30 all depend. PAN argues that claims 2 and 27 "require[s] that the 'analysis' be a 'multi-stage analysis.'" *Supra*, Section II.A.2.i.b(2) at 19 (emphasis added). But that is not what is recited by claims 2 and 27. Rather, claims 2 and 27 recite that the claimed analysis "includes performing a multi-stage analysis." '237 Patent, 35:59 (claim 2) (emphasis added); *see also id*., 37:45 (claim 27). Therefore, Claims 2 and 27 require the analysis recited in the independent claims to include both "filtering followed by an analysis of post-filtering residue" (claims 1 and 26) as well as "a multi-stage analysis" (claims 2 and 27). *Compare*, *e.g.*, '237 Patent, 35:44-48 (claim 1), *with*, *id.*, 35:58-60 (claim 2). In this way, claims 2 and 27, actually narrow the independent claims by further requiring the inclusion of a multi-stage analysis on top of what was already claimed.

Likewise, claims 3 and 28 further narrow claims 2 and 27, respectively, by requiring additional "discrimination analysis" within the "multi-stage analysis" of claims 2 and 27, rather than just recapturing the existing filtering and residue-analysis steps already recited by the independent claims. *See* '237 Patent, 35:61-63 (claim 3); *see also id*., 37:47-49. Finally, claims 4, 5, 29, and 30 further narrow claims 3 and 28 by requiring the "discrimination analysis" to include "positive filtering" (claims 4 and 29) or "negative filtering" (claims 5 and 30), separate and apart from the "include[d] filtering" process previously recited in the independent claims (which already

selects data (positive filtering) and discards data (negative filtering)). *See* '237 Patent, 35:64-65 (claim 4), 35:66-67 (claim 5), 38:1-2 (claim 29), 38:3-4 (claim 30). Thus, for example, Claim 4 would further require the claimed analysis of Claim 1 to both "include[] filtering followed by an analysis of post-filtering residue," in addition to "a multi-stage analysis," (claim 2) which itself includes "a discrimination analysis," (claim 3) in the form of "positive filtering" (claim 4).

Ironically, PAN's own reading of the dependent claims render dependent claims 2-3 and 27-28 moot. Although PAN purports to argue that "claims 2 and 27 narrow the independent claims" and that "claims 3 and 28, further narrow claims 2 and 27," PAN's footnotes reveal that PAN is actually arguing for the opposite. *Supra*, Section II.A.2.i.b(2) at 19. PAN contends that those dependent claims "do not add anything to the claims from which they depend." *Supra*, 19 n.8-9. PAN suggests that the independent claim's recitation of "analysis includes filtering followed by an analysis of post-filtering residue" is already a multi-stage analysis and that filtering and residue analyses are already "examples of data discrimination analyses." *See id.*; *see also*, *e.g.*, '237 Patent, 35:58-60 (claim 2) ("wherein said identifying step includes performing a multi-stage analysis of said status data"), 35:61-63 (claim 3) ("wherein said multi-stage analysis includes performing a discrimination analysis on said status data"). Thus, under PAN's reading of claims 2-3 and 27-28, those dependent claims are moot and do not actually narrow the claims from which they depend. *See id.* Thus, PAN's interpretation of the dependent claims cannot be correct.

In sum, PAN's arguments regarding the dependent claims are without merit. PAN concocts an interpretation of the dependent claims that moots claims 2-3 and 27-28 just to arrive at its argument. But BT's interpretation of the dependent claims gives meaning to each and every claim. *See Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP,* 616 F.3d 1249, 1257 (Fed. Cir. 2010) ("Claims must be interpreted with an eye toward giving effect to all terms in the claim." (citation

and quotation marks omitted)). Under a proper interpretation of the dependent claims, BT's proposed constructions are wholly consistent with those claims. Accordingly, the Court should adopt BT's proposed constructions.

d. The alleged inconsistency between BT's proposed constructions and infringement contentions are only the result of PAN's own misunderstanding of the technology.

PAN's understanding of the '237 Patent's disclosure is flawed. PAN fails to appreciate that the "analysis…" step applies to status data and not network traffic. Indeed, PAN appears to repeatedly conflate status data and network traffic through its use of the generic term "data." *See*, *e.g.*, *supra*, Section II.A.2.i.b at 16-17 (conflating policies that deny/block traffic, with discarding status data). The claimed security system operates on status data to identify potential security threats. Network traffic corresponding to this status data may ultimately be blocked as a result of this analysis, but such blocking is not a focus of, nor required by, the claims. To the extent BT's contentions (or other disclosures) refer to blocking or allowing network traffic, it is merely as strong inferential evidence that the claimed selecting and discarding has been performed by the accused devices.

PAN fails to recognize that blocking (which applies to network traffic) is entirely different than discarding (which applies to status data). *Cf. supra*, Section II.A.2.i.a at 14 (implying "blocking/discarding" are the same). Notably, the '237 Patent never even uses the term "blocking" or "denying." Nor does PAN provide any rationale for equating those terms with discarding. *See generally id.* at 1-4. Rather, in the context of the '237 Patent, blocking/denying network traffic is clearly opposite from discarding status data that is associated with network traffic.

Indeed, the '237 Patent discloses "discard[ing] uninteresting information," while "select[ing] possibly interesting information." *See* '237 Patent, 8:46-49. The '237 Patent uses "filtering" to select status data related to harmful and unwanted traffic (which is interesting) and

discards status data related to benign and harmless traffic (which is uninteresting). *See id.* Thus, the status data *discarded* by the '237 Patent's "filtering" is associated with network traffic that is the exact opposite of the type of network traffic that is typically *blocked*/*denied* in the realm of network security. *See id*.

Accordingly, BT's infringement contentions are entirely consistent with the '237 Patent whereas PAN has shown that it lacks a proper understanding of the '237 Patent. The Court should therefore adopt BT's proposed constructions.

ii. BT's proposed construction for Term No. 2 clarifies what it means for "filtering" to select and discard.

PAN contends that BT's proposed construction for "analysis includes filtering" does not inform the jury what constitutes "interesting information" and "uninteresting information." *Supra*, Section II.A.2.i.c at 25. BT submits that the remainder of the claim informs the jury about what would constitute interesting and uninteresting information. The term being construed here is only "analysis includes filtering." But the remainder of the claim specifies the purpose of that analysis is to "identify potentially security-related events." This purpose clarifies what is considered interesting and uninteresting.

Moreover, BT uses the terms "interesting" and "uninteresting" to clarify what the remainder of the claim means when read in conjunction with its recitation of "discard[ing]" and "select[ing]" data. *See*, *e.g.*, '237 Patent, 35:48 (claim 1). Indeed, as evidenced by PAN's own mistake when discussing the selecting/discarding actions, those terms may potentially be conflated with other types of actions when read without the context of the '237 Patent. *See supra*, Section II.A.2.i at 13-16. But the '237 Patent is clear that "select[ing]" data is referring to the use of positive filtering to select interesting status information, while "discard[ing]" data is the use of negative filtering to discard uninteresting status information. *See* '237 Patent, 8:45-50. The

purpose of the filtering step is to select status data that clearly corresponds to a potential security event and discard status data that clearly does not correspond to a potential security event. '237 Patent, 8:45-57. The '237 Patent says nothing about using filtering to block or allow network traffic. By relating the terms interesting/uninteresting to positive/negative filtering—as the '237 Patent itself does—BT's proposed construction helps the jury avoid the same mistake that PAN made when conflating *discarding* with *blocking/denying*. *See*, *supra,* §II.A(1)(iv). ("positive filtering to select interesting information and negative filtering to discard uninteresting information"); *cf.*, *supra*, Section II.A.2.i at 13-16. Indeed, it is the uninteresting status data (*i.e.*, not security-related events) that is discarded through negative filtering. '237 Patent, 8:45-47. But traffic related to such uninteresting status data would not be blocked by a network security system as a result of this claimed "filtering" process.

BT's use of "interesting" and "uninteresting" in its proposed construction thus serves to clarify this potential confusion and would ultimately be helpful to the jury. The Court should therefore adopt BT's proposed construction of "analysis includes filtering."

4. PAN's Sur-Reply Position

i. The "Filtering" Terms (Nos. 1-3)

The main dispute for these terms is whether "filtering" as recited in Term Nos. 1-3 includes positive filtering, negative filtering, ***or*** both as PAN contends, or instead requires ***both*** positive ***and*** negative filtering as BT contends.

PAN's position is that the Court should adopt the plain and ordinary meanings of "filtering" and "post-filtering residue," both of which are consistent with the claim language and specification of the '237 Patent. BT, in contrast, argues that the '237 Patent discloses a sole embodiment and the claim terms must be narrowly construed to limit the claims to that embodiment.

a. The Intrinsic Evidence As A Whole Supports PAN's Constructions For The "Filtering" Terms.

(1) BT Incorrectly Concludes That The '237 Patents Discloses A "Sole Disclosed Embodiment."

BT does not dispute that the plain meaning of the term "filtering" is "discarding data that matches a filter rule (negative filtering) and/or selecting data that matches a filter rule (positive filtering)." Instead, BT argues that "filtering" has a different meaning in the context of the '237 Patent because the '237 Patent recites a "sole embodiment," depicted at Figure 2. *Supra* Section II.A.3. BT argues that this embodiment is controlling and limits "filtering" to require both a positive filtering step and a negative filtering step. *Supra* Section II.A.3. BT's argument is unavailing.

First, Figure 2 is an exemplary embodiment, not the sole embodiment. '237 Patent at 3:62-64, 8:35-36 (Figure 2 is "a system overview of **an exemplary embodiment** of a probe/sentry system.") (emphasis added). Moreover, the '237 Patent includes a section titled "Modifications, Enhancements And Alternate Embodiments," which recites that the "present invention is usable **generally for** . . . (ii) filtering the data from the monitoring for noteworthy events." '237 Patent at 15:67-16:2 (emphasis added). Nothing in the '237 Patent suggests that the term "filtering" has anything other than its plain and ordinary meaning. Nor is there anything in the '237 Patent to suggest that its invention is limited to an exemplary embodiment. *See, e.g.*, *GE Lighting Sols.,* 750 F.3d at 1309 ("while the specifications only disclose a single embodiment … they do not disavow or disclaim the plain meaning … or otherwise limit it to that embodiment. A patent that discloses only one embodiment is not necessarily limited to that embodiment."); *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1358 (Fed. Cir. 2012) ("The specification does not limit the term … and this court will not import limitations from the sole embodiment described in the specification."); *Saunders Grp., Inc. v. Comfortrac, Inc.*, 492 F.3d 1326, 1332 (Fed. Cir. 2007) ("Even where a

patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope."); *Liebel-Flarsheim,* 358 F.3d at 906 ("[T]his court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment."); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1326 (Fed. Cir. 2002) ("Ficosa argues that where only one embodiment is disclosed in the specification, claim terms are limited to the embodiment disclosed …. A review of these cases and others demonstrates that our precedent establishes no such rule.").

Second, the '237 Patent very clearly recites an embodiment beyond positive and negative filtering. It also recites positive ***or*** negative filtering:

> Probe/sentry system 2000 collects and filters (positively **and/or** negatively) . . . . Noteworthy data possibly indicating an unauthorized intrusion or other security-related event are formatted by probe/sentry system 2000 into "sentry messages," which are then sent . . . to gateway system 4000 at the SOC.

'237 Patent at 5:19-43 (emphasis added).

BT attempts to explain away this "and/or" language by trying to twist "or" to fit the exemplary embodiment. Specifically, BT argues that the exemplary embodiment only positively filters when data is selected ***or*** only negatively filters when data is discarded. BT argues that if data is selected or discarded, further filtering is unneeded. *Supra* Section II.A.3. But BT's contorted reading of "or" does not fit the exemplary embodiment. The exemplary embodiment, as depicted in Figure 2, only does positive filtering ***following*** negative filtering. Thus, contrary to BT's contention, there is never a case when the exemplary embodiment only does positive filtering. Thus, BT's characterization of "or" cannot possibly be correct.

Third, notwithstanding that: (1) Figure 2 is an exemplary embodiment, and (2) the specification clearly discloses "and/or" positive/negative filtering, BT argues that the Court must

adopt its construction because "the '237 Patent clearly defines the term 'residue.'" *Supra* Section II.A.3. But BT does not propose for its construction the "definition" provided by the '237 specification, which is: "[d]ata neither discarded by negative filtering subsystem 2020 nor selected out as interesting by positive filtering subsystem 2030 form the 'residue.'" '237 Patent at 8:50-53. BT conveniently omits "subsystem 2020" and "subsystem 2030" from its construction. As reflected in Figure 2, the '237 Patent discloses a first subsystem 2020 for negative filtering ***followed by*** a second subsystem 2030. This is a specific way of filtering— *e.g.,* it does not contemplate that positive and negative filtering is done concurrently, but are distinct, sequential processes. If the Court is persuaded that the '237 specification defines "residue," the proper construction should be the complete phrase, not the "tailored" construction proposed by BT.

Fourth, "post-filtering residue" needs no construction because the claim itself provides a definition: "data neither discarded nor selected by filtering." The applicant confirmed this definition during prosecution. '237 Patent File History, JA-0000121 (Applicant's Arguments and Remarks at 8 (Feb. 3, 2006)). But if the Court chooses to construe this term to make it more understandable to a jury, "post-filtering residue" is simply data that did not match any filter.

(2) PAN Properly Considered The Specification And Dependent Claims.

BT argues that PAN's construction is inconsistent with the claim language because the claim recites that residue data is "data neither discarded nor selected by filtering." *Supra* Section II.A.3. BT contends that "neither" and "nor" must be read to mean that the data must have been filtered for discarding (negative filtering) and must have been filtered for selecting (positive filtering). *Id*. at 10. But the claim language preceding this clause only recites that "the analysis includes filtering"—nothing more. It does not specify what type of or how much filtering must occur. It is only the dependent claims which specify the type of filtering. Dependent claim 4

requires positive filtering and dependent claim 5 requires negative filtering. Neither of these dependent claims would narrow the independent claim if the independent claim already required both positive and negative filtering.

BT disputes the import of dependent claims 4 and 5, arguing that intervening claims 2 and 3 add a further step (a multi-stage analysis) to the independent claim and dependent claims 4 and 5 require positive and negative filtering of that further step. PAN's position is that these claims, claims 2, 3, 4, and 5, are indefinite because the independent claim already recites a multi-stage analysis. But even assuming BT is correct concerning claims 2 and 3, dependent claims 4 and 5 still confirm that BT's position is nonsensical. If the "identifying step" in independent claim 1 requires both positive and negative filtering, why do claims 4 and 5 add positive and negative filtering to that very same step? Claims 4 and 5 are redundant of claims 2 and 3 under BT's interpretation.

BT further argues that PAN has failed to consider the claim language in the context of the '237 specification – that the '237 Patent makes clear that "neither" and "nor" require positive and negative filtering. But as discussed above, that is not correct. Figure 2 is only an exemplary embodiment and the specification clearly recites positive "and/or" negative filtering.

(3) PAN Properly Considered The File History.

BT criticizes PAN's use of the prosecution history. *Supra* Section II.A.3. But PAN relies on a statement in the file history that unequivocally recites the "term 'post-filtering residue' is clearly defined, **in the claim language itself**, as data that is neither discarded nor selected by filtering." '237 File History, JA-0000121 (Applicant's Arguments and Remarks at 8 (Feb. 3, 2006)) (emphasis added).

In contrast, BT is asking the Court to narrowly construe the plain language based on an exemplary embodiment. This is improper. Alternatively, BT also asks the Court to narrowly

interpret the claim language based on other portions of the file history. For instance, BT provides that the applicant described the claims as requiring "data that was not discarded and that was also not selected by the filtering process." *Supra* Section II.A.3. BT also points to a statement from the applicant that the prior art is not invalidating unless the prior art reference discloses: "1) data selected by filtering, 2) data discarded by filtering and 3) post-filtering residue that is neither of the first two." *Id.* at 13. Yet ***none of the claims*** require data selected by a filter or data discarded by a filter. Instead, the claimed post-filtering residue is framed in the negative, *i.e.,* "neither" and "nor." BT cannot meet the "clear and unmistakable" standard required to invoke the "doctrine of prosecution history disclaimer [to] narrow[] the meaning of the claim." *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1359 (Fed. Cir. 2017).

(4) PAN's Construction Does Not Add Ambiguity To The Claim.

BT argues that "PAN's proposed construction makes it difficult to determine at what point the claimed 'filtering' process ends and when the 'post-filtering residue' is created." *Supra* Section II.A.3. But the claim makes clear that analysis of post-filtering residue occurs *after* filtering— the term literally includes "***post***-filtering." And indeed, in its Preliminary Patent Owner Response ("POPR") for the IPR filed by PAN, BT argued that:

> First, the limitation's plain language requires the residue to be "post-filtering," which means the residue produced after filtering is complete. *See* EX1001, claims 1, 18, 26. Indeed, this is consistent with the rest of the language requiring that the "analysis includes filtering followed by an analysis of post-filtering residue." *Id*. Clearly, the claims not only require the filtering process to produce the residue, but that it be "followed by" a separate analysis performed on the **post**-filtering residue. *Id*. Only if the filtering process is completed can it be "followed by" analysis of the post-filtering data. *Id.*

POPR at 30 (emphasis in original).

There is no ambiguity created by PAN's construction. By BT's own argument in the POPR, post-filtering analysis occurs after the filtering is complete – whether that filtering is positive filtering, negative filtering, or both.

(5) PAN Does Not Misunderstand The Technology.

BT argues that PAN somehow misunderstands the technology because "PAN fails to recognize that blocking (which applies to network traffic) is entirely different than discarding (which applies to status data)." *Supra* Section II.A.3. Yet throughout its infringement contentions, BT confusingly uses "deny" and "block" to assert that PAN practices the '237 Patent's claims. In some cases, BT uses "block" to correspond to "select." *See* Ans. Br., Ex. EE (Plaintiff's Preliminary Infringement Contentions) at 34 ("Another example of positive filtering is a Security Policy that **blocks** 'applications that are using non-standard ports.'") (emphasis added); *id.* at 39 ("Security profile filter rules that are configured to **block** data based on a match represent positive filtering.") (emphasis added). While in other cases, BT uses "block" to correspond to "discard." *See id.* at 24 ("PAN utilizes a series of filters to positively and negatively filter status data. . . . Specifically, '[w]hen a packet enters a firewall interface, the firewall matches the attributes in the packet against the Security Policy rule to determine whether to **block** or allow the session'") (emphasis added); *id.* at 36 ("PAN negatively filters the status data at least through **exception** lists …. This negatively filters the IP address status data by discarding IP addresses that match this filter so that it is ignored.") (emphasis added). And in other cases, BT uses "allow" to correspond with "discard." *See id.* at 39 ("security policy rules that **allow** data represent negative filtering.") (emphasis added).

What is clear from this discourse, however, is the confusing nature of the constructions proposed by BT and the distinctions they seemingly want to build into their constructions. This is not complicated technology— status data is filtered and any status data that does not match a filter

is "post-filtering residue." BT, in contrast, wants to debate nuances concerning positive and negative filtering when what is relevant is whether the status data matched any filter (positive, negative, or otherwise).

b. The Subjective Terms "Interesting" And "Uninteresting" Adds Ambiguity And Confusion To Term No. 2.

BT imports into the term "analysis includes filtering" that positive filtering selects "interesting information" and negative filtering discards "uninteresting information." This is wrong for several reasons.

First, the '237 Patent recites, in reference to one embodiment, that "positive filtering subsystem 2030 [] selects **possibly** interesting information." '237 Patent at 8:45-50 (emphasis added). BT's construction omits the term "possibly." But regardless, limiting "analysis includes filtering" to an exemplary embodiment is inappropriate. *See* discussion *supra* Section II.A.4.i.a.1.

Second, the terms "interesting" and "uninteresting" add nothing to BT's construction and create ambiguity. If the data is possibly "interesting"/"uninteresting" only because it was selected/discarded, then the terms are superfluous to selecting/discarding. If the data is possibly "interesting"/"uninteresting" before being selected/discarded, then the construction is indefinite because there is no clarity as to when the data rises to the level of possibly "interesting." Moreover, under this construction, post-filtering residue would be data that is ***neither*** possibly "interesting data" ***nor*** "uninteresting data." This would be confusing to the jury.

BT argues that the claim itself gives meaning to "interesting"/"uninteresting" because the "analysis includes filtering" is performed in the context of "identifying potentially security-related events." *Supra* Section II.A.3. But this just compounds the confusion. Post-filtering residue data analysis would then seek to identify "possibly interesting" "potentially security-related events." Compounding that, as discussed in the next section, the '237 Patent equates "potentially" with

"possibly"— *i.e.,* post-filtering residue data analysis identifies "possibly interesting" "possibly security-related events."

BT's construction needlessly complicates what should be straightforward. Status data is filtered. Post-filtering residue is data that does not match any filter. This is consistent with the specification and the claim language and would not be confusing to a jury.

B. Term No. 6: "security-related events"

Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction
Claims 1, 18, 24, 26	an attack or intrusion against the computer network	**PAN's *Original*[14] Proposed Construction**: potentially intrusive activity happening on a network **PAN's *New* Proposed Construction**: Attacks or intrusions against the computer network

1. BT's Opening Position

Both parties seem to generally agree to the meaning of this term with one distinction. But BT's proposed construction honors the patent's teachings and the inventors' lexicography. PAN's proposed construction renders the word "potentially"[15] in the independent claims superfluous.

First, the '237 Patent explains that an "attack or intrusion [is] referred to more generally as an 'incident' or 'event.'" '237 Patent, 2:3-4.[16] BT's proposed construction reflects this

[14] PAN's Original Proposed construction is PAN's proposed construction at the time BT served its opening brief, which BT's opening brief discusses. PAN provided a new construction for the first time in its Answering brief.

[15] The proper construction of the term "potentially" is discussed in Section I.C (construction of "identify *potentially* security-related events represented in the status data").

[16] Notably, not all attacks against a network or intrusive activity results in an intrusion. For example, a denial-of-service attack could temporarily overload the network making it unusable

lexicography which "govern[s] the claim construction analysis." *Braintree Labs., Inc. v. Novel Labs., Inc.*, 794 F.3d 1348, 1356 (Fed. Cir. 2014). The specification discloses that the patented system "filter[s] and analyze[s] . . . to detect [] *attacks or intrusions*." '237 Patent, 1:67-2:2 (emphasis added). Likewise, the '237 Patent's specification provides examples of security-related events throughout its disclosure by discussing attacks or intrusions. *See*, *e.g.*, *id.*, 9:28-30 (discussing a "transient attack, such as someone repeatedly trying to log in to the customer's network"). BT's proposed construction is, therefore, the proper construction of this term because it comports with the '237 Patent's own lexicography from its specification. *See Braintree Labs., Inc.*, 794 F.3d at 1356.; *see also Integra LifeSciences*, 2017 WL 3336274 at *21 (construing a term in a way that "mimics" the definition from the specification).

Second, BT's proposed construction helps the jury's understanding of the term. *See Promptu Sys. Corp. v. Comcast Corp.*, 92 F.4th 1372, 1381 (Fed. Cir. 2024) (explaining "a claim construction . . . should help resolve, not add to, uncertainty in the understanding the finder of fact is to use in applying a claim term"). As BT understands PAN's proposed construction, "intrusive activity happening on a network" is not materially different than "an attack or intrusion against the computer network," except that BT's proposed construction is more precise with respect to (a) the type of network and (b) what constitutes intrusive activity.

With respect to (a) the type of network, BT does not understand PAN's use of the term "network" in its proposed construction to be any broader than a "computer network." Indeed, each of the independent claims explicitly recites "a computer network" in its preamble. '237 Patent, 35:40 (claim 1), 36:38 (claim 18), 37:26 (claim 26). And the term "network," throughout the '237

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and thus would be considered intrusive activity. However, such an attack does not result in an intrusion on the network.

Patent, is only ever used to refer to a computer network. *See generally, e.g., id.*, 1:47-2:20 (using the term "network" to refer to a computer network). There is no support from the '237 Patent to cover a network broader than a computer network. Unless PAN contends that the "network" in its proposed construction is materially different than a "computer network," the parties actually agree that a "security-related event" relates to a *computer* network.

With respect to (b) what constitutes intrusive activity, PAN's proposed construction is unclear and adds uncertainty. But based on the '237 Patent, BT understands that "intrusive activity" would also include "an attack or intrusion." Indeed, the '237 Patent itself equates "intrusive activity happening on a customer's network" with a "security-related event," to describe a "problem ticket." *See* '237 Patent, 3:41-43. But the '237 Patent itself also describes a "problem ticket" as a "consolidation of information regarding a specific set of happenings that may indicate an attack." *See*, *e.g.*, *id.*, Table 1 (description of "Problem Ticket") (emphasis added). The '237 Patent thus clearly contemplates "intrusive activity happening on the network" to include both attacks and intrusions. Indeed, a construction of "security-related event" that omits attacks would run counter to the '237 Patent's extensive discussion of "attacks."[17] *See*, *e.g.*, *id.*, 1:13-2:55 (discussing "attacks" eight times in just the background and summary of the invention), Tables 1, 5, 6, 10 (referring to "attack[s]" in relation to identified security-related events). Under PAN's proposed construction, a jury is unlikely to appreciate that "intrusive activity" includes both "intrusions" and "attacks." BT's proposed construction "resolves uncertainty" for the finder of fact because it specifically clarifies what a "security-related event" is and what constitutes

[17] BT does not assume that PAN's construction of "security-related events" excludes "attacks" given the '237 Patent's clear indication that attacks are included and because the plain meaning of "intrusive activity" is broad enough to encompass attacks. However, we are concerned at a minimum because PAN's construction could potentially be interpreted that way.

"intrusive activity" under PAN's proposed construction. *See Promptu Sys. Corp.*, 92 F.4th at 1381 (explaining "a claim construction . . . should help resolve, not add to, uncertainty in the understanding the finder of fact is to use in applying a claim term"). Therefore, the Court should adopt BT's more precise construction of this term.

Third, PAN's proposed construction is unnecessarily redundant as each of the independent claims already modifies the term "security-related event" with the word "potentially." '237 Patent, 35:43-44 (claim 1), 36:49-50 (claim 18), 37:30-31 (claim 26). Thus, PAN's proposed construction would render the word "*potentially*" in "*potentially* security-related event" superfluous, resulting in claim language reciting "analyzing status data to identify ***potentially*** '***potentially*** intrusive activity happening on a network'". *Compare*, '237 Patent, 35:43-44 (claim 1), 36:49-50 (claim 18), 37:30-31 (claim 26), *with*, PAN's construction of "security-related events." Such a construction cannot be correct. "[C]laims are interpreted with an eye toward giving effect to all terms in the claim." *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006). PAN's proposed construction improperly renders the term "potentially" superfluous. The Court should adopt BT's proposed construction of "security-related events," which comports with the remainder of the '237 Patent's claim language and the specification.

2. PAN's Answering Position

BT is correct that both parties seem to generally agree as to the meaning of this term. It is PAN's position, however, that this term is better understood within the context of the broader limitation that includes this term—*see* Term No. 7. *Intel Corp.*, 21 F.4th at 791 ("it is not always appropriate to break down a phrase and give it an interpretation that is merely the sum of its parts."); s*ee* '237 Patent at Claims 1, 18, 26 ("analyzing status data to identify potentially security-related events represented in the status data"); *see also id.* at Abstract ("The probe filters and

analyzes the collected data to identify potentially security-related events happening on the network. Identified events are transmitted to a human analyst for problem resolution.").

Notably, for Term Nos. 2 and 3, BT demands construing "filtering" with the two preceding words, "analysis includes filtering"; and BT utilized over a page of its opening brief to argue the importance of construing "the entirety of the relevant claim limitations" and that failure to do so is "legally improper and unnecessarily confusing." *Supra* Section II.A1.ii at 8. In that same vein, PAN's position is that, whatever the construction of "security related-events," the claim limitation as a whole requires identification of ***potentially*** security-related events and not identification of actual security-related events. *See infra* Section II.C.2, Term No. 7.

Further, PAN proposes the plural version of BT's proposed construction to align with the rules of grammar.

3. BT's Reply Position

There no longer appears to be any dispute over this claim term. Instead, PAN appears to have adopted BT's proposed construction without flagging that it was doing so. Notably, PAN's proposed construction from the jointly submitted Claim Construction Chart (D.I. 119) was originally "potentially intrusive activity happening on a network." BT is fine adopting the plural form of its own proposed construction as now proposed by PAN.[18]

4. PAN's Sur-Reply Position

See infra Section II.C.4.

C. Term No. 7: "identify potentially security-related events represented in the status data"

[18] If PAN did not intend to dispute BT's proffered claim construction, it should have informed BT during the meet and confer process. Instead, PAN waited until *after* BT fully briefed this term, and only informed BT for the first time through its Answering Brief.

Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction
Claims 1, 18, 26	determine what status data is believed to be footprints (evidence) of "security-related events"	**PAN's Original Proposed Construction** No construction required. **PAN's New[19] Proposed Construction** No construction required. Alternatively, "identify potential attacks or intrusions against the computer network represented in the status data"

1. BT's Opening Position

The term "identify potentially security-related events represented in the status data" requires an actual determination as to what status data is believed to be footprints of "security-related events." Construction of this term is necessary to avoid any ambiguity between how the term "potentially" could be used in the abstract and how the term is actually used in the context of the entire phrase—"identify potentially security-related events represented in the status data"—and the '237 Patent. *See Evolusion Concepts, Inc. v. HOC Events, Inc.*, 22 F.4th 1361, 1365 (Fed. Cir. 2022) ("A relevant artisan is not deemed to read a term in a vacuum, but instead is deemed to read the claim term in the context of the particular claim in which the disputed term appears, and in the context of the entire patent, including the specification.") (quotations and alterations omitted). Notably, in the context of the '237 Patent, "*potentially* security-related events" are "*identified*" by the system as "footprints" or "evidence" of a "security-related event." *See*, *e.g.*, '237 Patent, 5:20-23 (explaining how the probe "analyzes the constantly updated status data it receives from sensors, using a set of rules and/or filters looking for evidence of 'footprints' of unauthorized intrusions"). Thus, as it is used in the claims, the term "potentially" signifies that

[19] The Court Ordered the parties on February 26, 2024 (D.I. 124) to provide a proposed construction for any terms where the parties argued no construction was required. Thus, PAN identified its proposed constructions for this term for the first time in its Answering Brief.

the determination requires subsequent confirmation to identify false positives. Indeed, if "identify[ing] potentially security-related events" could be satisfied without an affirmative determination that something is believed to be footprints of a security-related event, then that would not reflect what is actually disclosed by the '237 Patent. *See Regeneron Pharms., Inc. v. Merus N.V.*, 864 F.3d 1343, 1352 (Fed. Cir. 2017) (rejecting a "construction that is unreasonably broad and which does not reasonably reflect the plain language and disclosure").

As the specification explains, "footprints of ongoing network attacks or intrusions" may be "[b]uried in all [the] information" generated by security products. '237 Patent, 1:65-67. And the patented invention "can help filter and analyze all of that audit information in effectively real time to detect such attacks or intrusions." *Id.*, 1:67-2:2. In other words, the patented invention "filters or otherwise analyzes [] collected [status] data for activity possibly implicating security concerns." *Id.*, 1:54-55. "Once a possible attack or intrusion . . . is detected, its characteristics and particulars may then be examined and analyzed by trained security analysts . . . to further understand the incident and eliminate false positives." *Id.*, 2:3-8. Therefore, the system clearly *believes* it has detected an "attack or intrusion" and then seeks confirmation. *See id.* In other words, the system determines that something is evidence of a "security-related event," while recognizing that this determination cannot be perfect. Indeed, the specification explains that an identified event should be "noteworthy," which in the context of the '237 Patent's network monitoring system is a "potentially security-related event." *Compare*, *id.,* 3:10-13 ("Once the probe/sentry system collects the data, it then filters or otherwise analyzes such data and then *transmits noteworthy information*." (emphasis added)), *with*, *e.g.*, *id.*, 35:43-49 (claim 1) ("b) analyzing status data to identify potentially security-related events represented in the status data…; c) transmitting information about said identified events…"). *See also id.*, 8:53-55 ("Anomaly engine 2050

determines what residue information may be *worthy of additional analysis*") (emphasis added). Any broader construction of this term would not comport with the '237 Patent's goal of "reduc[ing] the immense volume of raw data into core information worthy of further analysis." *Id.*, 3:18-19. Thus, to align with "what the inventors actually invented and intended to envelop with the claim," the Court should adopt BT's proposed construction. *See Renishaw PLC*, 158 F.3d at 1250.

The remainder of the term specifies that such identified events are "represented in the status data." '237 Patent, 35:44 (claim 1), 36:50 (claim 18), 37:31 (claim 26). Thus, based on the plain language of the claim, the full term is properly construed to require a determination of what status data is believed to be footprints (evidence) of "security-related events." This construction is also in accordance with the specification's description of the claimed feature. *Compare*, *id.,* 5:19-23 ("Probe/sentry system 2000 collects and filters . . . or otherwise analyzes the constantly updated status data it receives from sensors . . . *looking for evidence or 'footprints'* of unauthorized intrusions." (emphasis added)), *with*, *e.g.*, *id.*, 35:43-49 (claim 1) ("b) analyzing status data to identify potentially security-related events represented in the status data…; c) transmitting information about said identified events…"). *See also id.*, 8:53-55 ("Anomaly engine 2050 determines what residue information may be *worthy of additional analysis*") (emphasis added).

Although PAN has not provided a proposed construction, at minimum, it is clear that "identify[ing] potentially security-related events" requires more than merely determining that something *could* contain a security-related event. In other words, just because a system has not ruled out certain data from being a "security-related event," does not mean it has *identified* a *potentially* security-related event. Indeed, being uncertain about whether a piece of data is or is not a security-related event is not the same as "*identify[ing]* a *potentially* security-related event." '237 Patent, 35:43-44 (claim 1) (emphasis added); *see also id.*, 36:49-50 (claim 18), 37:30-31

(claim 26). Such an over-broad construction[20] would not comport with the '237 Patent's disclosed purpose for this limitation—to "reduce the immense volume of raw data into core information worthy of further analysis." '237 Patent, 3:18-19. Rather, according to the '237 Patent, "identifying potentially security-related events" requires an actual determination that something is or is not a "footprint" or "evidence" of a "security-related event." *See, e.g.*, *id.*, 1:65-2:2 ("Buried in all that information may be the footprints of ongoing network attacks or intrusions. The MSM service can help . . . detect such attacks or intrusions."), 5:19-23 ("Probe/sentry system 2000 collects and filters (positively and/or negatively) or otherwise analyzes the constantly updated status data it receives . . . looking for evidence or 'footprints' of unauthorized intrusions.").

Thus, BT's proposed construction is supported by the intrinsic evidence and aligns with the patented invention.

2. PAN's Answering Position

PAN does not believe a construction is necessary for this term because the claim language is clear—"analyzing status data to identify potentially security-related events represented in the status data." '237 Patent at Claims 1, 18, 26. The Court should reject BT's construction as it would confuse the jury and erases the import of the word "potentially."

First, BT contends that "[t]he term 'identify potentially security-related events represented in the status data' requires an ***actual determination*** as to what status data is ***believed to be footprints*** of security-related events." *Supra* Section II.C.1 at 54 (emphasis added). BT's position

[20] BT's concern about over-broadening this term is not hypothetical. In PAN's *inter partes* review petition regarding the '237 Patent, PAN attempted to argue that identification of indecent material identified potentially security-related events because such indecent material *could* also contain security-related events. *See* IPR2023-00888, Petition at 25-26, 36-38. Relying on this over-broad construction, PAN effectively suggested that a system could identify potentially security-related events by simply not ruling out certain data as a security-related event. *See id*.

is nonsensical. It requires an "actual determination," yet it is a "belie[f]" based on "footprints." This construction would be confusing for the jury and should be rejected.

Second, BT's construction is an improper attempt to erase the word "potentially." BT states in its opening brief that "identify[ing] potentially security-related events requires more than merely determining that something *could* contain a security-related event," and that "being uncertain about whether a piece of data is or is not a security-related event is not the same as 'identify[ing] a potentially security-related event.'" *Supra* Section II.C.1 at 56 (emphasis added). But that uncertainty is all that is claimed. BT would erase any import to the term "potentially."

The claims require that the "potentially security-related events" are identified by an analysis that includes "filtering followed by an analysis of post-filtering residue." '237 Patent at Claims 1, 18, 26. Any data that is not discarded or selected by that filtering is "post-filtering residue." *Id.* The crux of the issue here is that post-filtering residue is inherently ***not known*** to the system because it did not match a filtering criterion. The probe merely "analyzes the collected data for activity ***possibly*** implicating security concerns." '237 Patent at 1:54-55 (emphasis added). Indeed, the next claimed step is "transmitting information about said identified events to an analyst." '237 Patent at Claims 1, 18, 26. The analyst, not the probe, makes the actual determination whether there is a security-related event. "Once a ***possible*** attack or intrusion . . . is detected, its characteristics and particulars may then be examined and analyzed by trained security analysts . . . to further understand the incident and eliminate false positives." *Id.* at 2:3-8 (emphasis added). There would not be a need to send data along to the security analyst if the probe was capable of making a determination on its own.

3. BT's Reply Position

PAN contends that this term does not need to be construed and yet provides no response as to how to resolve the potential ambiguity with how the term "potentially" could be understood

in the abstract and how the term is used in the context of the '237 Patent. *See supra*, Section II.C at 58. Certainly, in the context of the '237 Patent, merely determining that something is unknown does not make it a "potentially security-related event." *See* '237 Patent, 1:65-2:8 (explaining how "footprints of ongoing network attacks or intrusions" may be buried in the "millions of lines of audit information" and must be "analyze[d] … to detect such attacks and intrusions"). BT submits that construction of this clause is necessary to avoid this uncertainty and because PAN has previously relied on such an improperly broad construction of the term "potentially."

PAN attacks BT's construction as nonsensical because it requires an "actual determination" about what is "believed to be" footprints of security-related events. *See supra*, Section II.C at 57-58. But PAN ignores that the '237 Patent itself describes this claimed feature as "looking for evidence or 'footprints' of unauthorized intrusions." '237 Patent, 5:22-23.

Further, the claims recite "identify," which necessarily requires an ***actual determination***. *See, e.g.,* '237 Patent, 35:44 (claim 1). And, as PAN has recognized, the claim language necessarily denotes some level of uncertainty through its use of the word "potentially." *See supra,* Section II.C at 57-58 (noting that "uncertainty … is claimed"). But rather than erase the word "potentially," BT provides a construction of "potentially" that comports with the level of uncertainty the '237 Patent uses to describes this feature. Indeed, although "potentially" inherently carries some level of uncertainty—in the context of the '237 Patent—that uncertainty only relates to the potential for false positives. *See* '237 Patent, 2:5-9 ("Once a possible attack or intrusion … is detected, its characteristics and particulars may then be examined and analyzed by trained security analysts … to further understand the incident and eliminate false positives.").

Thus, BT's inclusion of the term "is believed" is meant to signal that same level of uncertainty that the '237 Patent itself refers to. Indeed, false positives were previously events that

were ***actually determined*** to be "footprints (evidence) of 'security-related events'" by the probe, but later determined by the analysts to be false positives. *See, e.g.*, '237 Patent, 2:3-8. Hence, such events were "believed to be footprints (evidence) of 'security-related events'" at the time they were identified, even if they are later determined to be false positives. To the extent that BT's use of "believed to be" is confusing in this context, BT alternatively proposes construing the term as "determine what status data is footprints (evidence) of 'security-related events,' recognizing that there could be false positives."

Moreover, contrary to PAN's argument, the '237 Patent never discloses that the "analyst, not the probe, makes the actual determination whether there is a security-related event." *Supra*, Section II.C at 58. Rather, the '237 Patent discloses that the probe *detects* a possible attack or intrusion, and the analyst confirms that determination. *See* '237 Patent, 2:3-8 ("Once a possible attack or intrusion … is detected, its characteristics and particulars may then be examined and analyzed by trained security analysts … to further understand the incident and eliminate false positives."). The probe does not send everything that has a non-zero potential of being a security-related event, only to leave it to the analyst to figure out what actually is or is not a security-related event. Rather, one of the goals of the '237 Patent is to "reduce the immense volume of raw data into core information worthy of further analysis" before it is sent to an analyst. '237 Patent, 3:18-19. Therefore, what the probe identifies as a "potentially security-related event" is presumed to be a security-related event until and unless the analyst later determines that it is merely a false positive. Accordingly, BT's proposed construction best conveys the proper construction of this term.

4. PAN's Sur-Reply Position

BT agrees to adopt PAN's proposed construction for "security-related events," but the parties continue to dispute what it means to identify ***potentially*** security-related events.

PAN's position is that "potentially" is a term the jury will readily understand. BT, in contrast, wants to replace this easily understood term with "determine what status data is believed to be footprints (evidence) of 'security-related events'" on the basis that "PAN has previously relied on [] an improperly broad construction of the term 'potentially.'" *Supra* Section II.C.3. But BT never actually states what improperly broad construction PAN has previously taken.

Regardless, the phrase "believed to be footprints (evidence)" is not helpful to a jury. It is not clear how software "believes" anything. BT nonetheless latches onto this terminology, despite the specification providing clear guidance as to how the term "potentially" should be understood. The '237 specification, in multiple places, equates "potentially" with "possibly." *See, e.g.,* '237 Patent at 1:54-55 ("analyzes the collected data for activity **possibly implicating** security concerns") (emphasis added); 2:3-8 ("Once a **possible** attack or intrusion . . . is detected, its characteristics and particulars may then be examined and analyzed by trained security analysts . . . to further understand the incident and eliminate false positives.") (emphasis added); 3:38-42 ("The SOCRATES system, among other things, collects and formats gateway messages into 'problem tickets' (each of which represents a discrete security-related event or incident of **possible intrusive** activity happening on a customer's network)") (emphasis added); 5:38-40 ("Noteworthy data **possibly indicating** an unauthorized intrusion or other security-related event are formatted by probe/sentry system 2000 into 'sentry messages'") (emphasis added).

The '237 Patent goes even broader, stating that the anomaly engine, which is responsible for the post-filtering residue analysis, "determines what residue information may be **worthy of additional analysis** and sends such information to communications and resource coordinator 2060 for forwarding to the SOC." '237 Patent at 8:53-57 (emphasis added). This description is in the context of Figure 2, which BT purports is the sole embodiment described by the '237 Patent.

BT concludes its argument with the statement that, "what the probe identifies as a 'potentially security-related event' is ***presumed*** to be a security-related event"—evincing that BT is reading out "potentially" altogether. *Supra* Section II.C.3 (emphasis added). The plain language of the claim recites that post-filter residue analysis determines that status data ***may possibly be*** a security-related event, not that it is presumed to be a security-related event. PAN does not believe "potentially" needs construction, but if the Court chooses to construe the term, it should mean "possibly."

III. TERMS PAN IDENTIFIES AS INDEFINITE

Term	Claim Nos.	BT's Proposed Construction	PAN's Proposed Construction
feedback . . . based on empirically-derived information[21]	Claims 1, 18, 26	The information that is received was derived from an empirical analysis of the information previously transmitted	Indefinite
empirically-derived information reflecting operation of said security monitoring system	Claims 1, 18, 26	Not indefinite	Indefinite
wherein said identifying step includes performing a multi-stage analysis of said status data	Claim 2	Not invalid or indefinite.	Either invalid under 35 U.S.C. § 112(4) or indefinite.

[21] BT originally proposed a construction for this term, while PAN finds this term and related term "empirically-derived information reflecting operation of said security monitoring system" as indefinite. As such, PAN briefed these terms (Term Nos. 8 and 9) in its Answering Brief. Per the Court's Oral Order (D.I. 128) on May 2, 2024, briefing for these terms have been excluded from this Joint Claim Construction Brief as the Court ordered that they "will not be briefed as part of the upcoming Markman process, and that any disputes about claim construction and definiteness as to those terms will be deferred until a later point in the case."

wherein said multi-stage analysis includes analysis at the probe and analysis at a secure operations center configured to receive data from said probe	Claim 6	Not invalid or indefinite.	Either invalid under 35 U.S.C. § 112(4) or indefinite.
wherein said identifying step includes cross-correlating data across said monitored components	Claims 8, 12	Not indefinite.	Indefinite.
further comprising after said step (c), performing further computer based analysis at a secure operations center configured to receive data from said probe	Claim 10	Not invalid or indefinite.	Either invalid under 35 U.S.C § 112(4) or indefinite.
instantaneously self-tuning	Claim 15	Not indefinite.	Indefinite.
wherein said dynamic modifying step includes consideration of non-real-time information from ongoing security research efforts	Claim 16	Not indefinite.	Indefinite.
substantially real time	Claim 17	Not indefinite.	Indefinite.

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