

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PALO ALTO NETWORKS, INC.,
Petitioner

v.

BT AMERICAS INC.,
Patent Owner

Case No. IPR2023-00889
U.S. Patent No. 7,895,641

PETITIONER’S REPLY TO PATENT OWNER RESPONSE

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PETITIONER'S UPDATED EXHIBIT LIST

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1001	U.S. Patent No. 7,895,641 to Schneier <i>et al.</i> (“’641 patent”)
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1004	U.S. Patent No. 5,884,033 to Duvall <i>et al.</i> (“Duvall”)
1005	Yang-hua Chu, “Trust Management for the World Wide Web, M.I.T. (June 13, 1997) (“Chu”)
1006	U.S. Patent No. 5,970,149 to Johnson (“Johnson”)
1007	U.S. Patent No. 6,088,804 to Hill <i>et al.</i> (“Hill”)
1008	Lane B. Warshaw <i>et al.</i> , “VenusIDS: An Active Database Component for Intrusion Detection,” Applied Research Laboratories / Department of Computer Sciences, The University of Texas at Austin, Annual Computer Security Application Conference (1999) (“Warshaw”)
1009	U.S. Patent No. 6,704,874 to Porras <i>et al.</i> (“Porras”)
1010	U.S. Patent No. 7,159,237 to Schneier <i>et al.</i> (“237 patent”)
1011	<i>Fortinet Inc. v. BT Americas, Inc.</i> , IPR2019-01324, Paper 9 (Institution Decision) (P.T.A.B. Jan. 7, 2020)
1012	<i>British Telecommunications PLC v. Fortinet, Inc.</i> , Civil Action No. 18-1018, Memorandum Order re: Claim Construction (D. Del. Aug. 5, 2021)
1013	<i>British Telecommunications PLC v. Fortinet, Inc.</i> , Civil Action No. 18-1018, Claim Construction Order (Aug. 18, 2021 D. Del.)
1014	U.S. Patent Pub. No. 2001/0039579 to Treka <i>et al.</i> (“Treka”)
1015	U.S. Patent No. 6,484,315 to Ziese (“Ziese”)
1016	<i>British Telecommunications PLC v. Fortinet, Inc.</i> , Civil Action No. 18-1018, Dkt. No. 161 (D. Del. Dec. 31, 2021)
1017	Prosecution History of U.S. Patent No. 7,159,237 (“’237 Prosecution History”)

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1018	Declaration of Dr. James L. Mullins regarding the authenticity and public accessibility of Chu
1019	Curriculum Vitae of Dr. James L. Mullins
1020	DSpace@MIT Listing for Chu, available at https://dspace.mit.edu/handle/1721.1/43534
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1022	MARC Record for Chu
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1024	WorldCat Listing for Chu, available at https://www.worldcat.org/title/trust-management-for-the-world-wide-web/oclc/38271519&referer=brief_results
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1026	Sinrod et al., “ <i>Cyber-Crimes: A Practical Approach to the Application of Federal Computer Crime Laws</i> ,” Santa Clara High Technology Law Journal (January 2000)
1027	Guttman et al., “ <i>Implementing Internet Firewall Security Policy</i> ,” National Institute of Standards and Technology (April 13, 1998)
1028	Rothfuss et al., “ <i>Go Ahead, Visit Those Websites, You Can’t Get Hurt ... Can You?</i> ,” Lawrence Livermore National Laboratory (June 3, 1997)
1029	Capture of Merriam Webster definition of “empirical,” www.merriam-webster.com/dictionary/empirical
1030	Coates, et al., “ <i>Melissa Virus Exposes High-Tech Vulnerability</i> ,” Chicago Tribune (March 30, 1999)
1031	Abie, “ <i>An Overview of Firewall Technologies</i> ,” Norwegian Computing Center (January 2000)
1032	Curriculum Vitae of Kevin Jeffay, Ph.D.

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1033	U.S. Patent No. 6,859,783 to Cogger <i>et al.</i> (“Cogger”)
1034	<i>British Telecommunications PLC v. Fortinet, Inc.</i> , Civil Action No. 18-1018, Claim Construction Report and Recommendation (Apr. 15, 2021 D. Del.)
1035	<i>British Telecommunications PLC & BT Americas, Inc. v. Palo Alto Networks, Inc.</i> , 1:22-cv-01538, Complaint (Nov. 28, 2022 D. Del.)
1036	U.S Patent No. 6,775,657 to Baker (“Baker”)
1037	Escamilla, T., “ <i>Intrusion Detection: Network Security Beyond the Firewall</i> ,” Wiley Press, 263-281 (1998) (excerpt)
1038	U.S. Patent No. 5,261,044 to Dev <i>et al.</i> (“Dev”)
1039	U.S. Patent No. 5,768,501 to Lewis (“Lewis”)
1040	Declaration of Dr. Kevin Jeffay in Support of Petitioner’s Reply
1041	Bernstein, P.A. and Goodman, N., “Concurrency Control in Distributed Database Systems,” <i>Computing Surveys</i> , 13(2):185-221 (June 1981) (“Bernstein81”)
1042	Bernstein, P.A. and Goodman, N., “Multiversion Concurrency Control—Theory and Algorithms,” <i>ACM Transactions on Database Systems</i> , 8(4):465-483 (December 1983) (“Bernstein83”)
1043	Reed, David P., “Naming and Synchronization in a Decentralized Computer System,” Thesis—Massachusetts Institute of Technology (1978)
1044	“Oracle 8i Concepts – Release 2 (8.1.6)” (December 1999)
1045	“List of databases using MVCC,” Wikipedia, accessed at https://en.wikipedia.org/wiki/List_of_databases_using_MVCC
1046	Deposition Transcript of Dr. Wenke Lee (April 4, 2024)
1047	“IP Datagram Encapsulation,” The TCP/IP Guide, available at http://www.tcpipguide.com/free/t_IPDatagramEncapsulation.htm
1048	IPR2019-01324, EX2001 (Lee Declaration)
1049	NetRanger Guide V. 1.3.1
1050	“Sun, Cisco & Pilot Form Marketing/Development Alliance” (1999)

<i>Exhibit #</i>	<i>Description</i>
1051	Ullman, J.D., “Principals of Database Systems,” <i>Computer Science Press, Inc.</i> , 2nd Ed. (1982)

I. INTRODUCTION

The '641 patent is directed to operating a security monitoring system, but such systems and services were known well before the '641 patent. EX1048, ¶60. In fact, Patent Owner's (PO) own cited evidence states that "the market for . . . network-monitoring services" was "*dominated* by companies like IBM" and others. EX2010, 3 (emphasis added); *see also* EX1037, 277 (describing IBM's "fee-based service with NetRanger"). To distinguish these other previously known network-monitoring services, the '641 patent's purported advantage is supposedly the ability to "filter and analyze all" audit information "in effectively real time" to detect "attacks or intrusions." EX1001, 2:10-12. In particular, PO secured allowance of the claimed invention by arguing that, unlike the prior art, the claimed invention has "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." EX1017, 0300-0301. The Petition shows, however, that systems for analyzing all three kinds of data were known. Pet., 1-2 (citing Duvall and Chu). Thus, the claims of the '641 patent would have been obvious. *See generally* Pet.

PO's responsive arguments focus on the motivations to combine and attack the references individually, rather than grappling with the prior-art combinations actually set forth in the Petition. PO's overly-rigid readings of the prior art and claims should be rejected, and all challenged claims should be found unpatentable.

II. THE PRIOR ART RENDERS OBVIOUS EVERY ELEMENT OF INDEPENDENT CLAIM 1.

PO presents numerous arguments directed to independent claim 1. POR, 6-38. As discussed in the following sections, each of those arguments fails.¹

A. The prior art is directed to and useful in the context of “security.”

PO complains that “Petitioner’s expert[’s] first error is to assume that Duvall would be used for security.” POR, 7-9. PO is wrong for two reasons.

First, as the Board already found, the claimed “potentially security-related events” are broad enough to encompass Duvall’s monitoring of objectionable material. DI, 28; *see also* Pet., 35-36. Indeed, PO’s expert, Dr. Lee, agrees that a person of ordinary skill in the art (POSA) would have understood the term “security” broadly. When asked whether “information from a porn site is a potentially security-related event,” Dr. Lee responded, “I would think *everything* is potentially related to security, including your email, including PDF documents.” EX1046, 177:17-178:2². Notably, PO does not propose any construction for the terms “security” or “*potentially* security-related event,” POR, 5-6, nor does the patent define these terms such to exclude the type of material monitored by Duvall

¹ To the extent PO’s arguments apply to independent claim 18 as well, claim 18 is also unpatentable for the reasons discussed for claim 1.

² All emphasis added unless otherwise noted.

or Chu, Pet., 1, 24-25. Instead, the '641 patent describes the claimed techniques broadly as being directed to “monitoring of *any* system,” “filtering the data from the monitoring for noteworthy events happening in or affecting *any* system,” and “alerting human beings to any such noteworthy events.” EX1001, 15:59-67; Pet., 1, 24-25.

Second, even under PO’s narrow interpretation of “security,” the Petition shows that Duvall’s objectionable materials are correlated with potential security threats. Pet., 24. For example, Petitioner’s expert, Dr. Jeffay explained, “it was common for computer viruses to use objectionable materials to lure users into downloading the virus.” EX1003, ¶117 (citing EX1026, 218; EX1030, 4; EX1028, 5). Thus, a POSA would have been motivated to use Duvall and Chu’s techniques to block “data transmissions from unknown or questionable sources [that] can carry viruses or malware.” Pet., 24 (citing EX1003, ¶118; EX1005, 23).

B. A POSA would have recognized that Chu’s techniques are useful in Duvall’s system.

PO asserts that Petitioner’s motivation to combine Duvall with Chu is premised on “an unresolved problem with ‘filtering too much or too little.’” POR, 9 (citing EX1003, ¶107; EX1004, 8:6-7). PO’s assertion misses the point. The motivations provided in the Petition do not propose a new filter-editing mechanism in Duvall; rather, they are directed to improving the process for determining when to edit filters. *See* Pet., 19-23.

Moreover, that Duvall itself does not disclose an “unresolved problem” is irrelevant. The Federal Circuit “has previously held that a challenger need not prove that there was a known problem with the prior art in order to demonstrate that there was a motivation to combine prior art references.” *Arctic Cat Inc. v. Polaris Indus., Inc.*, 795 F. App’x 827, 833 (Fed. Cir. 2019). “The important inquiry is whether an ordinarily skilled artisan is able to recognize, based on her background knowledge, a technique’s potential to improve the device and be able to apply the technique.” *Id.* (cleaned up). Here, the Duvall-Chu combination provides a “suitable” improvement to Duvall’s default “block or allow” operation. *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023) (“It’s not necessary to show that a combination is the *best* option, only that it be a *suitable* option.”) (emphasis in original).

PO further argues that “Chu’s prompted user likely has less expertise than whoever has the authority to edit Duvall’s filters.” POR, 10-11. But the Petition never relies on Chu for its prompted user. Instead, the Petition explains, “a POSA would have understood that the person making the changes to [Duvall’s] filters would be a person trained in network administration and security, not each individual employee at their own computer.” Pet., 21-22 (citing EX1004, 8:18-26; EX1003, ¶112); *see also* DI, 46. PO’s attack on the expertise of Chu’s prompted user is thus misplaced. *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1050 (Fed.

Cir. 2019) (“A finding of obviousness, however, cannot be overcome by attacking references individually where the rejection is based upon the teachings of a combination of references.”) (cleaned up).

C. Duvall teaches the “post-filtering residue” limitations (element [1B]).

1. Duvall teaches “analysis of post-filtering residue.”

PO argues that Duvall does not teach “analysis of post-filtering residue” because “Duvall’s direct and deferred actions filters look at different transmissions.” POR, 12-25. That argument misinterprets the claims and Duvall.

a. Claim 1 of the ’641 patent does not require analysis of a single data transmission.

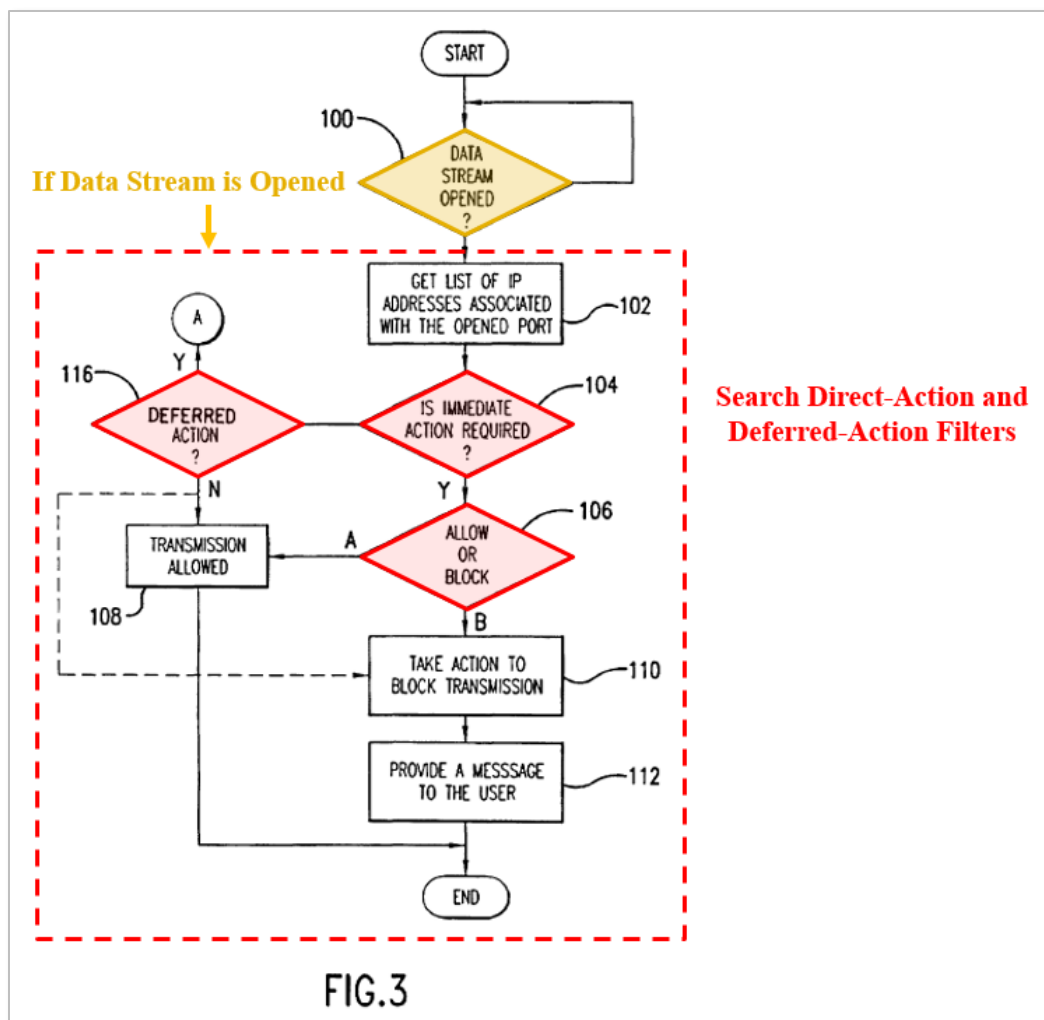
Over approximately 14 pages, PO contends that Duvall’s operation cannot satisfy the “analysis of post-filtering residue,” because Duvall’s direct-action filters are allegedly “never disclosed as being applied to the same transmission that the deferred-action filters later analyze.” POR, 13-14; *see also id.* at 12-25. But there is no requirement that claim 1’s “filtering” and “analysis of post-filtering residue” must operate on the *same* “data.” Rather, claim 1 merely requires “analyz[ing] *status* data” and states that “the post-filtering residue is *data* neither discarded nor selected by filtering.” Duvall satisfies this claim language. Pet., 31-35.

b. Regardless of PO’s interpretation, Duvall’s direct- and deferred-action filters apply to the *same* data transmissions.

PO’s arguments ignore Duvall’s express disclosure. PO asserts that Duvall’s

“process shown in Figure 3 applies to transmissions opening a TCP stream, . . . while the process shown in Figure 4 applies to different transmissions sent *through* the opened stream.” POR, 14 (emphasis in original); *see also id.* at 17. But PO’s argument seeks to redraft Duvall’s Figures 3 and 4.

Those figures are part of the *same* process, which only executes *after* determining that a data stream is opened. EX1004, FIGs. 3, 4; EX1040, ¶¶8-10. Duvall’s Figure 300 begins at step 100 where “[t]he filtering system detects *when the client opens the data stream* for a particular port and IP address.” EX1004, 4:40-43.



EX1004, FIG. 3 (annotated).

Then, for a message transmitted through the data stream, “retrieved filters are checked to determine if any require immediate action” at step 104, and “[i]f, at step 104, it is determined that no immediate action must be taken, it is determined whether a deferred action must be taken with respect to any of the retrieved filter[s] (step 116).” EX1004, 4:48-55, 4:65-5:1. In other words, both direct- and deferred-action filters are searched for the *same* message transmitted through the

data stream. EX1040, ¶11.

PO also asserts, “Duvall’s direct-action filters only operate on transmissions for opening a TCP stream.” POR, 17-18 (citing EX1004, 4:57-58). That assertion, however, simply ignores the scenario illustrated in Figure 3 in which a data stream *is* opened and a message is transmitted through the stream. EX1040, ¶12. In that scenario, Duvall expressly discloses, “[w]hen a message is transmitted, . . . the filtering system compares the IP address and/or other *information in the data stream* to the filter entries stored in the database,” including *both* direct- and deferred-action filters. EX1004, 4:23-37; EX1040, ¶12; *see also* Pet., 31-35. That Duvall discloses one way to block transmissions by “not executing the open command,” EX1004, 4:56-58, does not negate Duvall’s disclosed process for evaluating messages transmitted through opened data streams. EX1040, ¶12.

Finally, PO asserts, “Petitioner is relying on an imaginary implementation of Duvall . . . that performs deep packet inspection to filter *packets* rather than the application-level transmissions as actually disclosed.” POR, 21-23 (emphasis in original). PO’s assertion is irrelevant to both the combination presented in the Petition and the ’641 patent claims.

Particularly, the Petition explained that Duvall’s filtering system analyzes transmission of a “message” to determine an action to be taken. *See* Pet., 29-31 (citing EX1004, 4:22-27). PO does not dispute that messages transmitted in

Duvall's system are "application-level transmissions." POR, 21. Nevertheless, as Dr. Jeffay explains, network packets include application-level data (e.g., message content). EX1040, ¶¶13-14. And when using TCP/IP, as in Duvall, EX1004, 2:42-44, data is transmitted in the form of packets. EX1040, ¶14. Therefore, PO's assertion ignores Duvall's teachings. Moreover, PO's supposed distinction between "packets" and "application-level transmissions" is irrelevant to the claim language. The claims merely recite analyzing "status data" and "post-filtering residue," regardless of how that information is derived from a data transmission. *See, e.g.*, EX1001, Claim 1; EX1040, ¶15.

2. PO's additional construction of "post-filtering residue" contradicts the language of claim 1.

PO argues, "[a] proper construction of 'post-filtering residue' requires the filtering that creates the 'post-filtering residue' to be distinct from the 'analysis of post-filtering residue.'" POR, 25. That argument is contradicted by claim 1's express language, which recites a *single* "filtering subsystem": "*a filtering subsystem coupled to analyze 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.*" EX1001, Claim 1.

PO attempts to support its argument with citations to the '641 patent specification, which distinguishes the "positive and negative filtering subsystems" from an "anomaly engine." POR, 27 (citing EX1001, 8:55-59). But claim 1 does

not recite such an “anomaly engine,” and it would be “improper to read a limitation from the specification into the claims.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 904 (Fed. Cir. 2004).

Regardless, Duvall discloses this limitation even under Patent Owner’s flawed interpretation. Specifically, Duvall includes direct-action filters, Pet., 29-31 (relying primarily on Duvall’s Figure 3), which filter status data, and deferred-action filters, which analyze the post-filtering residue, *id.* at 31-35 (relying primarily on Duvall’s Figure 4). Clear from Figures 3 and 4, Duvall’s deferred-action filters are not a continuation of the direct-action filters but come afterwards as their own discrete set of analyses.

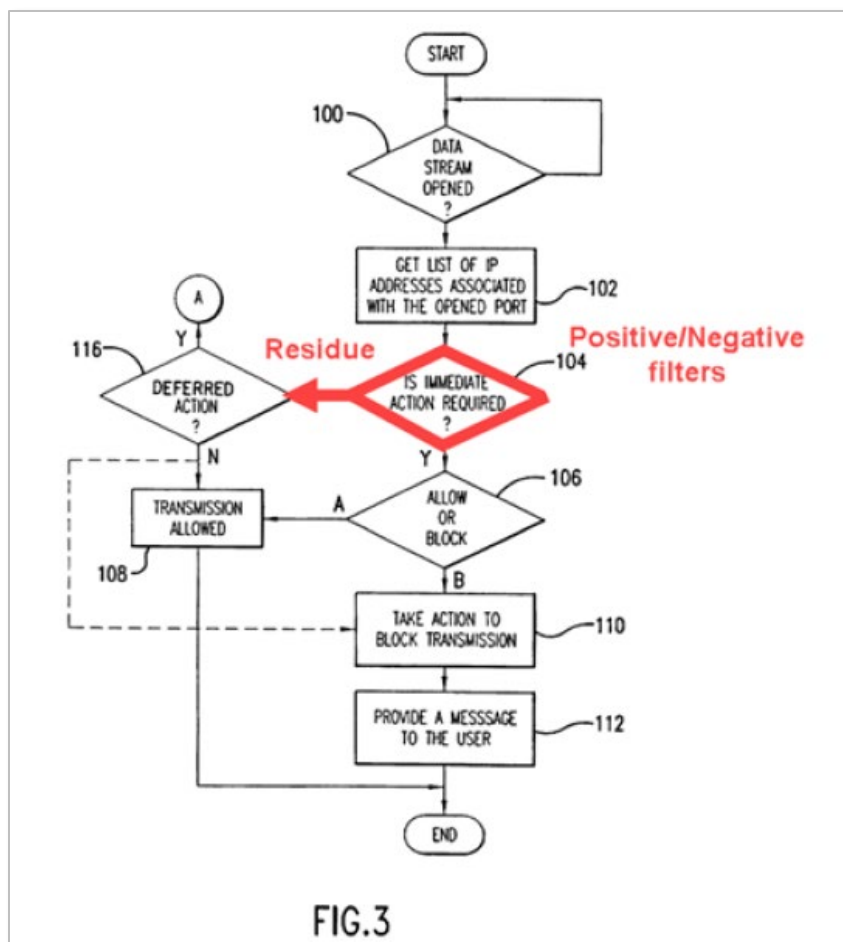
3. Duvall-Chu teaches the “status data” of claim 1.

PO contends that the “agreed-upon construction of ‘post-filtering residue . . .’ clearly requires ‘status data’ to be selected and discarded.”³ POR, 29. PO then argues that “Petitioner’s expert never explains how selecting and discarding traffic is the same as selecting or discarding the status data.” POR, 30. PO is wrong because the transmissions that Duvall blocks or allows include “status data.”

³ The “agreed-upon construction” is the construction that PO and Fortinet agreed to in a prior litigation. Petitioner did not agree to this construction.

Duvall's filtering operations are based on "the IP address and/or other information in the data stream." EX1004, 4:23-28; Pet., 29-30. And IP addresses were previously found to be examples of "status data," which PO does not dispute. EX1034, 13 n.47 ("[I]tems listed in Table 6 [of the patent], including an IP address, are examples of 'status data.'"); Pet., 29; *see also* EX1048, ¶¶65-66.

PO further asserts that "Petitioner's expert also never even attempts to identify any 'status data' that is being further analyzed by Duvall's deferred-action filters." POR, 30. But the Petition explains that Duvall's "residue data is status data that underwent negative and positive filtering." Pet., 31-35. For example, Duvall discloses that, after "the IP address and/or other information in the data stream" is compared to direct-action filters, that data becomes "post-filtering residue," which is compared to deferred-action filters. EX1004, 4:23-31; Pet., 33-34 ("If immediate action is not required (i.e., data is neither blocked nor allowed at block 104 (i.e., the data is residue data)), the data is passed for further analysis.").



EX1004, FIG. 3 (annotated); Pet., 33.

Moreover, Duvall analyzes other forms of “status data” in addition to IP addresses. These other forms of “status data,” the Petition explains, include “protocol information, URLs, and associated commands (e.g., an HTTP ‘GET command’).” Pet., 28-29 (citing EX1004, 4:39-42, 5:66-6:27; EX1003, ¶123). Thus, contrary to PO’s assertion, Duvall’s deferred-action filters *do* analyze “status data.”

D. Duvall-Chu teaches an “analyst system” (element [1C]).

PO argues that Petitioner allegedly failed to show that Duvall-Chu’s analysts could receive and view data electronically. POR, 31-35. For example, PO contends, “rather than explain where such a[n analyst] *system* comes from what it is, Petitioner’s expert only explains why Duvall-Chu would include an *analyst*.” POR, 33 (emphasis in original). PO further contends, “Petitioner’s expert [does not] explain why it would be *obvious* to add an analyst *system* to Duvall-Chu, or how it could even be accomplished.” POR, 34 (emphasis in original). But PO ignores the explanations in the Petition and general knowledge in the art.

The Petition explains, “in the Duvall-Chu combination, information about the residue data would be sent to an analyst system having trained professionals for handling the unresolved residue data,” which would reduce the chance of the system “filter[ing] too much or too little.” Pet., 38-39 (citing EX1003, ¶¶142-143). Dr. Jeffay also explains that Duvall already discloses the hardware required to receive information about data transmissions. EX1003, ¶114; Pet., 22-23. Thus, “[a] POSA would have recognized that modifying Duvall’s system to provide information to a user about data transmissions not matching any of Duvall’s filters would require only minor changes to Duvall’s overall process.” EX1003, ¶114.

Such minor changes would have been well within the general knowledge in the art because, as PO’s own expert previously testified, “[r]emote [security]

monitoring services were known” before the ’641 patent. EX1048, ¶60. In fact, Dr. Jeffay identified several examples of such previously known remote security monitoring services. EX1003, ¶142 (citing EX1037, EX1038, and EX1039); Pet., 22. For example, EX1037 discusses IBM’s “NetRanger” that was coupled with staffed security analysts at “IBM’s Emergence Response Center.” EX1037, 277; EX1003, ¶142.

In response, PO argues, “EX1037 provides no actual disclosure of *how* such outsourcing was accomplished, nor any disclosure of the systems used by the third parties.” POR, 34 (emphasis in original). But that argument is both legally and factually wrong. *First*, as a legal matter, a proper obviousness “analysis need not seek out precise teachings directed to the specific subject matter” of the challenged claims. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Second, as a factual matter, a POSA would have understood how to use third-party security-monitoring services. For example, the 1997 NetRanger User’s Guide provides a detailed communications architecture in which a “Director provides monitoring and analysis services to NetRanger, and communicates . . . via the communication system.” EX1049, 021; *see also id.* at 020; EX1040, ¶¶16-17. The Director system “provide[s] centralized command and control of an organization’s security perimeter” through “monitoring, management, data collection, data analysis, and user-defined actions.” EX1049, 032; EX1040, ¶18.

Thus, based on the general knowledge in the art (as illustrated by these additional prior-art references), a POSA would have understood how to outsource information from Duvall-Chu's data transmissions to trained network analysts. EX1040, ¶18.

PO urges the Office to ignore the additional prior-art references (such as the NetRanger User's Guide), contending that "Petitioner's expert's rationale for including an analyst is not even based on the references that form Petitioner's statutory grounds, but instead on other references, which do not even form part of Petitioner's grounds of unpatentability." POR, 33. But those other "references constitute important evidence of the state of the art and the context in which the [prior-art] combination should be evaluated." *Randall Mfg. v. Rea*, 733 F.3d 1355, 1363 (Fed. Cir. 2013). NetRanger, for example, illustrates and provides a teaching that the use of an analyst system coupled to a computer security system was already in the prior art. Ignoring those other references, as BT urges the Board to do, would constitute legal error. *Id.* at 1362.

E. The system of Duvall-Chu is reasonably capable of dynamic modification (element [1E]).

PO argues that "any prior art reference purporting to invalidate Claims 1-17 must have some indication in its disclosure that it actually does or would perform the claimed functionality," and that "Duvall does not explicitly disclose" the claimed dynamic modification capability. POR, 36-37. PO cites no authority that

stands for the proposition it proffers. Every case cited by PO relates to proof sufficient to establish infringement, rather than requirements to establish obviousness. *POR*, 36. It is well established that obviousness does not require express disclosure in a prior-art reference. *KSR*, 550 U.S. at 418. Rather, obviousness merely requires “articulated reasoning with some rational underpinning to support” provision of the claimed capability. *Id.* Moreover, an adjudicator “can take account of the inferences and creative steps that a person of ordinary skill in the art would employ,” as well as “the background knowledge possessed by a person having ordinary skill in the art.” *Id.*; *Intel*, 61 F.4th at 1380.

Here, the Petition explains, “a POSA would have recognized that Duvall’s ‘analysis capability of said probe’ is ‘dynamically modified . . . during operation thereof’ because taking the system offline each time an update [to Duvall’s filters] was required would be disadvantageous.” *Pet.*, 41 (citing EX1003, ¶151). As Dr. Jeffay noted, “Duvall explains that the ‘implementation and use of the editing manager are generally based on known database editing techniques,’” and that “a main benefit of databases is that entries can be edited or added without taking the system offline, which prevents the filtering system from being down during updates.” EX1003, ¶153 (citing EX1004, 8:10-11); *Pet.*, 42. Such techniques allow Duvall’s software to continue “monitor[ing] a port as it does at step 100 of Figure 3” while filters are modified, as the Board properly recognized. *DI*, 40-44.

In response to these explanations in the Petition, PO argues that “Petitioner’s expert [does not] provide any evidence that a POSA would have known *how* to modify Duvall’s system for such functionality.” POR, 37. But the recited dynamic modification capability requires nothing more than use of “known database editing techniques” that have been known for decades. EX1003, ¶153 (citing EX1004, 8:10-11); EX1040, ¶¶19-22. Indeed, at the time of the ’641 patent, almost every commercially-available database-management system implemented multiversion concurrency control (MVCC), which allowed a database to be queried (i.e., remain online) while simultaneously being written to. EX1040, ¶¶23.

For example, Oracle 8i was a commercial database available before the ’641 patent that employed MVCC techniques to allow for “simultaneous access of the same data by many users.” EX1040, ¶24 (citing EX1044, 1-29, 1-30). Using these techniques allows the database to maintain “data concurrency and consistency,” ensuring “that *readers of the database do not wait for writers* or other readers of the same data,” and that “*writers of the database data do not wait for readers* of the same data.” EX1040, ¶¶24-25 (citing EX1044, xxxiv, 1-29, 1-30). This well-known database functionality would allow filters to be updated without needing to shut down (or even pause) Duvall’s monitoring software querying the filter database. EX1040, ¶¶23-25.

Accordingly, although PO’s expert believes concurrent database access was

a “super challenging problem,” EX1046, 155:10-157:8, techniques for solving this problem were well known in the art and already incorporated into commercially-available database-management systems. EX1040, ¶¶19-23. Nothing more than use of a standard commercial database system at the time of the ’641 patent would be necessary to enable the claimed dynamic modification in Duvall-Chu’s system. EX1040, ¶¶19-23.

Moreover, the ’641 patent does not provide any detail or purport to solve any problem associated with dynamic modification. Instead, it provides only a single sentence describing the claimed dynamic modification: “*The software and filters of probe/sentry system 2000, in a preferred embodiment, may be adaptive or, alternatively, may be manually updated offline or dynamically (that is, during actual operation).*” EX1001, 5:32-35. This lack of detail demonstrates that the claimed “dynamic modification” would have been well within the capability of a POSA. *See, e.g., Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1339 (Fed. Cir. 2020) (noting that, when a patent specification “is entirely silent on how to” perform a claimed feature, it “suggest[s] that a person of ordinary skill in the art was more than capable of” performing that claimed feature).

III. THE PRIOR ART RENDERS OBVIOUS THE DEPENDENT CLAIMS.

A. Claim 6 (Ground 1)

Petitioner does not dispute that the prior art renders obvious “analysis at a

secure operations center,” as recited by claim 6. POR, 38-40. Instead, PO attempts to import a temporal requirement into the claims, requiring the “identifying” step (element [1B]) to be completed *before* any information is transmitted to the claimed “analyst system” (element [1C]). *Id.* But the claims do not require such a temporal requirement, nor would it make sense in the context of claim 6.

PO’s interpretation would require “analysis at a secure operations center,” followed by transmission of information “to an analyst system” for completely separate analysis. EX1001, Claims, 1, 6. Nowhere does the ’641 patent describe such operation. Rather, the patent describes the “analyst system” *as part of* the secure operations center. EX1001, 1:59-2:2. Thus, the “analysis at a security operations center” is based on the information transmitted “to an analyst system.” EX1001, Claims 1, 6.

The Petition and Dr. Jeffay explain why analysis by the “analyst system” in the Duvall-Chu combination would be performed “at a secure operations center,” citing evidence that such operation was well known in the art. Pet., 44-46; EX1003, ¶¶169-174 (citing EX1037, EX1038, and EX1039). Claim 6 should be found unpatentable for these reasons.

B. Claim 15 (Ground 1)

PO alleges, “Petitioner’s Duvall-Chu combination requires the dynamic modification step Claim 1(e) to be performed to read on Claim 15.” POR, 41. Not

true. The Petition explains, “when filters are updated in Duvall’s system, the analysis is ‘instantaneously self-tun[ed]’ because Duvall is programmed to use the updated filters in subsequent analysis.” Pet., 47-48 (citing EX1003, ¶177). That is, the Petition’s mapping of claim 15 relies only on the ability to update and retrieve filters in Duvall-Chu’s system. *Id.* Moreover, it would be improper to require actual performance of claim 15 because the claimed system recites only capability. *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005).

C. The Combination of Duvall-Chu-Trcka (Ground 2)

PO does not dispute that the subject matter of claims 7-13 and 16 is taught by the prior art. POR, 41-50. Rather, PO argues, “a POSA would have lacked a reasonable expectation of success in combining Trcka with Duvall-Chu.” POR, 42. But PO’s argument fails to address the prior-art combination in the Petition.

The Petition explains, “Duvall already suggests that the user, such as trained professionals, should have access to past network activity to accurately update filters, EX1004, 8:2-7, and Trcka’s analysis applications would enable the user to interact with such information as part of the user’s analysis.” Pet., 51 (citing EX1003, ¶186). Thus, to the extent Duvall does not expressly disclose capturing incoming and outgoing messages transmitted through its system, Trcka provides techniques for doing so, and the Petition explains how such techniques could be incorporated using Duvall’s disclosed “storage mechanisms” and “display.” Pet.,

51-52 (citing EX1003, ¶¶187-188).

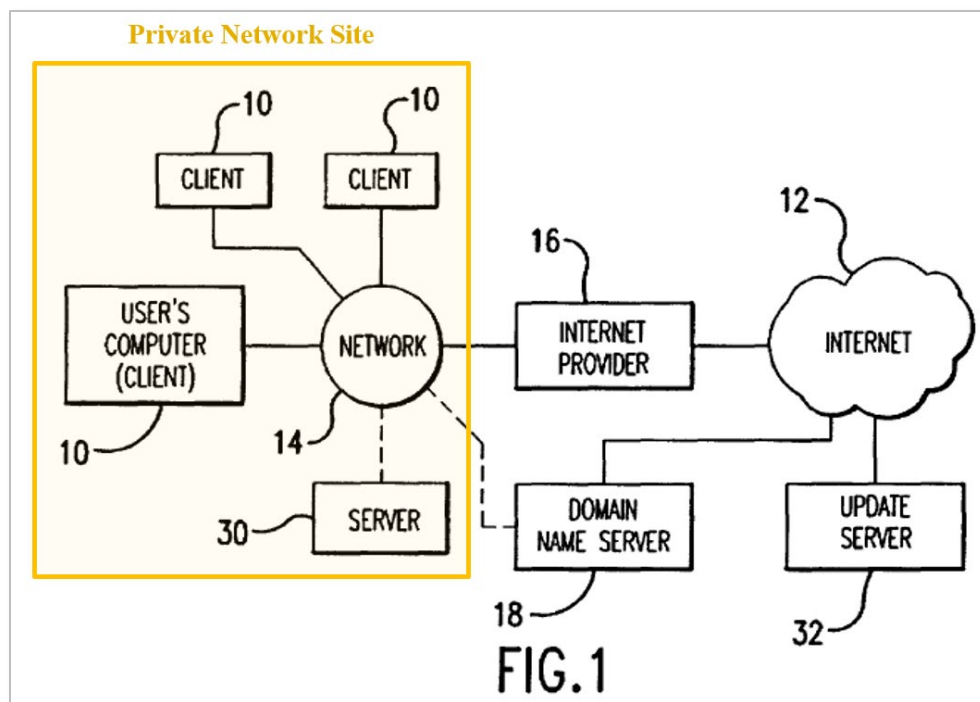
PO further argues, “Petitioner’s expert never even acknowledges that Trcka’s analysis techniques would have to be implemented in more than one part of Duvall-Chu’s system.” POR, 43. PO is incorrect. The Petition and Dr. Jeffay explain, for each specific claim, where Trcka’s techniques would be incorporated into the Duvall-Chu system. For claim 10, for example, the Petition explains that “Duvall’s ‘corporate network’ provides a ‘secure operations center,’” and Trcka’s “analysis applications” would enable the user to perform the claimed “computer-based analysis.” Pet., 54-56 (citing EX1003, ¶¶197-198). Such a technical implementation would be well within the skill of a POSA. Pet., 50-52; EX1003, ¶¶184-188.

Finally, PO argues, “Petitioner’s expert fails to consider glaring privacy and security concerns inherent to combining Trcka’s techniques into a remote SOC.” POR, 46. PO, however, cites no evidence (aside from its expert’s say-so) indicating that a POSA would have viewed access to network data by trained network analysts as an additional privacy or security concern. POR, 46-50. Duvall’s “corporate network,” the Petition explains, provides a “secure operations center” within which analysis can be performed, and any form of remote access would employ secure communications, alleviating purported security and privacy concerns. Pet., 45, 54-55; EX1003, ¶¶171, 179. Moreover, the potential concerns

raised by PO are unrelated to any “technological incompatibility” that would prevent the Duvall-Chu-Trcka combination. *See Grit Energy Sols., LLC v. Oren Techs., LLC*, 957 F.3d 1309, 1323 (Fed. Cir. 2020) (noting that only “technological incompatibility” is relevant to the obviousness inquiry; whether “businessmen” would combine two references “for economic reasons” is irrelevant).

D. The Combination of Duvall-Chu-Trcka-Ziese (Ground 3)

PO asserts, “Petitioner’s motivation to combine Ziese assumes Duvall already has *multiple servers* needing filter updates.” POR, 51 (emphasis in original). PO again misunderstands Petitioner’s combination. The Petition explains that Ziese discloses “[p]rivate networks, such as company intranets,” may be distributed over “wide area networks (WANs)” that include “disparate network sites.” EX1015, 1:26-31, 2:29-36; Pet., 58. Duvall, on the other hand, is concerned with a “corporate network” at a *single* network site, disclosing a “server 30 *that is on the client’s own network*,” as shown in Duvall’s Figure 1. EX1004, 8:18-24; Pet., 58-60.



EX1004, FIG. 1 (annotated).

Petitioner’s combination therefore addresses the case of a *distributed* corporate network, as taught by Ziese, where Duvall’s client-server architecture would be present at each disparate network site. And, as the Petition explains, Ziese’s techniques for distributing updates “to disparate network sites” would “ensure that [Duvall-Chu-Trcka’s] filtering system applies filters to data transmissions before the transmission is allowed to enter a public network, such as the Internet.” Pet., 58-60 (citing EX1003, ¶¶207-210).

Thus, contrary to PO’s assertion, the proposed combination does not require modifying Duvall to include additional servers—it merely addresses the scenario where Duvall’s architecture is implemented at multiple network sites. Pet., 58-62.

PO points to nothing in Duvall that “teach[es] away” from such an implementation.

POR, 52; *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir.

2018).

IV. THE PRIOR ART RENDERS OBVIOUS EVERY ELEMENT OF INDEPENDENT CLAIM 18.

For the Duvall-Chu-Cogger combination, the Petition explains, “[a] POSA would have been motivated to incorporate Cogger’s techniques for generating and transmitting trouble tickets in Duvall-Chu’s system for use in prompting Cogger’s network administrators to resolve residue data,” “ensur[ing] that the [third-party] service can appropriately evaluate and resolve such data transmissions.” Pet., 64-66 (citing EX1003, ¶¶220-225). PO makes two arguments: (1) “Petitioner’s expert provides no evidence that a POSA could implement Cogger’s CSM,” POR, 55; and (2) “Petitioner’s expert provides no evidence that the information in Cogger’s ‘problem tickets’ could be generated,” POR, 58. Both arguments fail.

Petitioner’s first argument amounts to an assertion that Cogger is not sufficiently enabled. This argument fails for multiple reasons. At the outset, obviousness does not require the prior art to be enabled or to disclose every minute detail. *See, e.g., Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991). The proper test is whether “the differences between the subject matter sought to be patented and the prior art are such that the *subject matter as a whole* would have been obvious at the time the invention was made *to a person having*

ordinary skill in the art.” *KSR*, 550 U.S. at 406.

Cogger also discloses significant detail associated with its “trouble ticket[s]” and the functionality of the ticketing system. *See, e.g.*, Pet., 64-74; EX1033, 17:50-26:62, FIGs. 8(a)-8(k), 9. As the Board properly identified, Cogger discloses sufficient details about its ticketing system to support a reasonable expectation of success implementing that ticketing functionality in Duvall-Chu’s system. DI, 53-54; *Keynetik, Inc. v. Samsung Elecs. Co., Ltd.*, 2023 WL 2003932, at *2 (Fed. Cir. Feb. 15, 2023) (“[O]nce the function to be performed by software has been identified, writing code to achieve that function is within the skill of the art.”). Indeed, PO does not dispute the education and experience of a POSA. POR, 5.

PO’s second argument ignores the Petition’s combination. The Petition explains, for example, “the remarks included in the trouble ticket would allow a client user or network administrator to add further commentary for use by the Duvall-Chu-Cogger’s service in determining how to resolve the received event.” Pet., 73 (citing EX1003, ¶239); *see also* Pet., 66; EX1003, ¶225. That is, contrary to PO’s assertions, the combination provides an opportunity for “customer” network administrators to assist with creation of trouble tickets before they are transmitted for resolution. Pet., 73 (citing EX1003, ¶239); *see also* Pet., 66; EX1003, ¶225.

Claim 18 should therefore be found unpatentable.

V. SECONDARY CONSIDERATIONS

A. PO fails to establish a nexus to the claims.

“[T]o accord substantial weight to secondary considerations in an obviousness analysis, the evidence of secondary considerations must have a nexus to the claims.” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (internal quotations omitted). A presumption of “nexus is appropriate when the patentee shows that the asserted objective evidence is tied to a specific product and that product *embodies the claimed features, and is coextensive with them.*” *Id.* (internal quotations omitted). PO’s evidence that the Counterpane MSM product (“Counterpane”) embodies and is coextensive with the claimed features is woefully deficient.

The totality of PO’s analysis consists of one paragraph, and neither PO nor its expert makes any attempt to map the limitations of any claim to Counterpane. POR, 61-62; EX2016, ¶214; EX1046, 35:7-20 (when asked “[h]ave you shown that the Counterpane MSM includes [element 1B],” PO’s attorney objected as “outside the scope of his opinion”). Neither PO nor its expert even identify which claims are supposedly embodied by Counterpane. POR, 61-62; EX2016, ¶214; EX1046, 18:20-20:20 (refusing to identify which claims are embodied by Counterpane). Indeed, PO does not explain how its cited evidence shows, for example, that Counterpane includes the claimed “analysis of post-filtering

residue,” or “dynamically modifying” capability, *see* POR, 61-62 (citing EX2009, EX2011, and EX2012)—two elements that PO’s expert previously alleged were “novel” features, EX1048, ¶¶17, 37. And PO’s expert adds nothing to the analysis, conceding that he never “used the Counterpane MSM before” and has never “seen the Counterpane MSM used before.” EX1046, 27:21-28:3.

B. PO’s alleged long-felt need was solved before Counterpane.

PO alleges that “[p]rior to Counterpane MSM, internet security” was “static” rather than “dynamic.” POR, 62. The alleged feature that made Counterpane “dynamic,” according to PO’s cited evidence, is the use of “trained security experts.” EX2009, 9; *see also id.* (“This is security that recognizes that *human intelligence* is vital for a strong defense.”). But the use of “trained security experts” was already known in the market. *See* EX1037, 277 (“IBM’s Emergence Response Center offers a fee-based service with NetRanger” with a “network operations center” staffing “security experts”); EX1050, 1 (discussing “Pilot Network Services” in 1999: “security experts monitor the sophisticated technology 24×7 and continually develop upgrades to detect and repel attacks aimed at Pilot customers.”).

PO, therefore, has not established that Counterpane solved any long-felt need. *Yita LLC v. MacNeil IP LLC*, 69 F.4th 1356, 1364 (Fed. Cir. 2023) (“[O]bjective evidence of nonobviousness lacks a nexus if it exclusively relates to

a feature that was *known* in the prior art—not necessarily well-known.”) (emphasis in original) (internal quotes omitted); *Regents of the Univ. of California v. Broad Inst., Inc.*, 903 F.3d 1286, 1295 (Fed. Cir. 2018) (“[S]imultaneous invention . . . constitutes objective evidence that persons of ordinary skill in the art understood the problem *and a solution to that problem.*”).

C. PO does not tie the alleged industry praise or commercial success to any claimed feature.

PO’s supposed evidence of industry praise and commercial success relates only to Counterpane as a whole and is entirely divorced from any claimed features. This evidence is thus irrelevant to the obviousness inquiry. *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311-12 (Fed. Cir. 2006) (“Evidence of commercial success, or other secondary considerations, is only significant if there is a nexus between the claimed invention and the commercial success.”).

* * *

At bottom, PO’s weak evidence of objective indicia cannot defeat the Petition’s strong showing of obviousness. *Zup, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1375 (Fed. Cir. 2018).

VI. CONCLUSION

For the foregoing reasons and the reasons set forth in the Petition, the Board should find the challenged claims unpatentable.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT (37 C.F.R. § 42.24(d))

1. This Petitioner's Reply complies with the type-volume limitation of 5,600 words, comprising 5,510 words, excluding the parts exempted by 37 C.F.R. § 42.24(c).

2. This Petitioner's Reply complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word 2016 in 14-point Times New Roman font.

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e))

I certify that the above-captioned **PETITIONER'S REPLY TO PATENT OWNER RESPONSE** and associated Exhibits 1040-1051 were served in their entirety on May 17, 2024, upon the following parties via email:

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