

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

JUNIPER NETWORKS, INC.,
Appellant

v.

SWARM TECHNOLOGY LLC,
Appellee

2023-1980, 2023-2076

Appeals from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in Nos. IPR2021-
01445, IPR2022-00141.

Decided: June 30, 2025

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Before TARANTO, STOLL, and STARK, *Circuit Judges*.

STARK, *Circuit Judge*.

Juniper Network Inc. (“Juniper”) sought inter partes review (“IPR”) of claims 1-12 of U.S. Patent No. 9,852,004 (“’004 patent”) and claims 1-7 and 9-17 of U.S. Patent No. 10,592,275 (“’275 patent”), both of which belong to Swarm Technologies, LLC (“Swarm”). The Patent Trial and Appeal Board (“Board”) found that Juniper failed to demonstrate that the challenged claims were unpatentable as obvious under 35 U.S.C. § 103. Juniper appeals, arguing that the Board erred in its construction of the claim term “any communication” and in its reading of the prior art. For the following reasons, we affirm the Board’s findings with respect to the ’275 patent. We dismiss as moot Juniper’s appeal with respect to the ’004 patent because, in a companion case decided by this same panel in a separate opinion issued this same day, we have affirmed the Board’s finding in another IPR that all claims of the ’004 patent have been proven unpatentable. *See Swarm Tech. LLC v. Amazon.com, Inc.*, Nos. 23-2323, 24-1095 (Fed. Cir. June 30, 2025) (nonprecedential).¹

I

Swarm’s ’004 patent is entitled “System and Method for Parallel Processing Using Dynamically Configurable Proactive Co-Processing Cells.” J.A. 77. Its ’275 patent is entitled “System and Method for Swarm Collaborative

¹ This does not moot any of the issues argued by Juniper that apply to both the ’004 patent and the ’275 patent. *See generally* J.A. 58 (Board noting “[t]he record in this proceeding is essentially the same as the record in IPR2021-01445 [related to the ’004 patent] and, therefore, justifies the same outcome”). It does mean, however, that our affirmation here only impacts the challenged claims of the ’275 patent.

Intelligence Using Dynamically Configurable Proactive Autonomous Agents.” J.A. 93. Both the ’004 and ’275 patents share a nearly identical specification and claim priority to U.S. Patent No. 9,146,777, which was filed in 2013. The patents are generally directed to parallel multiprocessing computer architecture used for completing computing tasks, including “a processing architecture which involves autonomous co-processors (such as robotic vehicles, Internet of Things (IoT) components, and networked devices) configured to proactively retrieve tasks from a task pool populated by a central processing unit[, i.e., a ‘CPU’]”. J.A. 101 (’275 patent 1:19-23), *see also* J.A. 85 (’004 patent 1:14-18).

In parallel or multi-core processing, a CPU breaks down large computational tasks into individual blocks of computations; the CPU then distributes the tasks among two or more processors. The ’004 and ’275 patents teach reducing the demands on the CPU in such systems by having the CPU and co-processors communicate through a task pool. The CPU first places tasks into a task pool. Co-processors then retrieve a task, complete it, notify the task pool the task was completed, and then “ping[] the task pool until another task becomes available.” J.A. 101 (’275 patent 2:24-25). Each co-processor can include “an agent that interrogates the task pool to seek a task to perform.” J.A. 101 (’275 patent 2:30-31). “[T]he term agent refers to a software module, analogous to a network packet, associated with a co-processor that interacts with the task pool to thereby obtain available tasks which are appropriate for that co-processor cell.” J.A. 102 (’275 patent 3:22-25).

Claims 1 and 3 of the ’004 and claims 1, 6, and 11 of the ’275 patents are independent. Independent claim 1 of the ’275 patent, which is illustrative, recites:

A collaborative intelligence system, comprising:
a task pool;

a controller configured to populate the task pool with a plurality of first tasks and a plurality of second tasks;

a first co-processor configured to successively: proactively retrieve a first task from the task pool; process the first task; generate first resulting data; and update the task pool to reflect completion of the first task, all without any communication between the first co-processor and the controller; and

a second co-processor configured to successively: proactively retrieve a second task from the task pool; process the second task; generate second resulting data; and update the task pool to reflect completion of the second task, all without any communication between the second co-processor and the controller;

wherein the collaborative intelligence system is configured to dynamically accept the first co-processor, the second co-processor, and an additional co-processor into the processing system *on a plug-and-play basis without any communication with the controller*;

the plurality of first tasks and the plurality of second tasks are associated with a common objective;

the first and second co-processors autonomously work together in solidarity with the task pool to complete the common objective.

J.A. 107 ('275 patent 14:24-49) (emphasis added).

Juniper filed IPRs challenging claims 1-12 of the '004 patent and 1-7 and 9-17 of the '275 patent. In the petition relating to the '004 patent, Juniper argued that all claim terms should be given their ordinary and customary meaning; in response, Swarm did not address the construction of "communication." The Board decided not to expressly

construe any undisputed claim term, as allowed by our precedents.

Similarly, in the IPR relating to the '275 patent, Juniper asked that all claim terms be given their ordinary and customary meaning, while Swarm identified sixteen claim terms in dispute, including “without communication between the first co-processor and the controller.” Swarm did not propose a construction of this term. Juniper expressly requested that the Board construe “communication,” but without providing a specific construction, in order to prevent Swarm “from arguing one way here to salvage validity, and another way in district court to foster its infringement assertions.” J.A. 9840. The Board determined it was unnecessary to construe any claim term in order to resolve the IPR, although it did state that “[i]n our obviousness analysis below, we address the scope and meaning of the claim term ‘communication,’ as this term pertains to the combined teachings of [the asserted prior art, which is] contested by the parties.” J.A. 47.

In the final written decisions (“FWDs”), the Board analyzed the claim limitations addressing accepting a co-processor into the system “without any communication with the controller” and found that “the use of ‘any’ before communication in the claims implies a broad interpretation of communication that encompasses a one-way communication that does not require a response.” J.A. 26.² In the '275 patent IPR, which had “essentially the same record” as the '004 proceeding, “justif[ying] the same outcome” in both, J.A. 58, the Board found that “the '275 patent does not limit ‘communication’ to two-way messaging,” J.A. 63. The Board reasoned that the plain language of the claims led to

² The Board “expressly adopt[ed] and incorporate[ed] by reference our analysis from the ['004 FWD]” . . . and do not repeat it here.” J.A. 57. The Board’s analysis in the '004 FWD applies equally to the '275 FWD.

this conclusion, as the word “any” in the term “without any communication” clearly “precludes both communication with a response and communication without a response.” J.A. 63. The Board found further support for its construction in the specification. J.A. 64. In the ’275 FWD, the Board confirmed that its “intent was to broadly construe the claim term ‘communication’” to include “one-way messaging that does not require a response.” J.A. 66.

The Board then applied this understanding of the term to the two prior art references at issue in this appeal. First is United States Patent No. 6,006,249 (“Leong”), entitled “Method and Apparatus for Concurrent Data Processing,” which claims a system with a plurality of micro-processing units and a bulletin board containing tasks for the micro-processing units to perform. J.A. 677. Leong’s system is decentralized, so each micro-processing unit is “self-controlled using a software application running on its own operating system.” J.A. 688. Each micro-processing unit, some of which can only perform certain types of tasks, reads the tasks on the bulletin board, determines if it can execute a posted task, and – if it can – then executes the task and updates the bulletin board to show the task has been completed.

The second pertinent prior art reference is a 1989 book by Mike Rogers and Virginia Bare, *Hands On AppleTalk* (“AppleTalkBook”), which details “the foundation for a [Local Area Network]” for networking devices together. J.A. 711. AppleTalkBook describes protocols to enable machines on a network to communicate. Devices in an AppleTalk network use broadcast packets when joining a network, to identify themselves and other devices. These broadcast packets are sent to “every node on the network” to see if the information in the packet is relevant to any node. J.A. 802-03. This process “allows for simple configuration and reconfiguration of the network without complicated administrative tasks.” J.A. 803. AppleTalkBook also teaches the use of zones “to divide devices on an

internetwork into logical groups, and to limit internetwork traffic.” *See* J.A. 914; *see also id.* (“A zone may consist of many networks, but all devices in a single network will belong to the same zone.”).

Juniper’s petitions contended that the combination of Leong and AppleTalkBook rendered the challenged claims of the ’004 and ’275 patents unpatentable as obvious under 35 U.S.C. § 103(a). Specifically, Juniper argued it would have been obvious to a person of ordinary skill in the art to modify the Leong system by using AppleTalkBook’s sending of broadcast packets to all networking nodes to “identify the available types of resources on the . . . network,” allowing the addition of new processing units without any central management. J.A. 241. The Board disagreed, finding instead that the Leong-AppleTalkBook combination failed to teach accepting a co-processor into a system “without any communication.” AppleTalkBook, the Board concluded, teaches using one-way communication – sending broadcast packets to all network nodes to determine which nodes (i.e., devices) could be configured into the network – meaning that AppleTalkBook does not teach adding a co-processor without any communication.

In its reply brief, Juniper argued that AppleTalkBook’s teaching of zones – that is, using zones to divide groups of devices – would limit broadcast packets to devices already “working closely together” and eliminate the need for broadcast packets reaching the controller. J.A. 6868. The Board rejected this as a new argument not raised in the petition. In the alternative, the Board also found the zone theory lacked merit because AppleTalkBook discloses that “all devices on a single network will belong to the same zone” and, similarly, Leong teaches that “its processing units are part of a single network” and, thus, would be in the same zone. J.A. 70-71. The Board concluded that none of the challenged claims were unpatentable under the grounds proposed by Juniper.

Juniper timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

II

“The Board’s claim constructions . . . are determinations of law reviewed de novo where based on intrinsic evidence, with any Board findings about facts extrinsic to the patent record reviewed for substantial-evidence support.” *St. Jude Med., LLC v. Snyders Heart Valve LLC*, 977 F.3d 1232, 1238 (Fed. Cir. 2020). “The ultimate question of obviousness is a legal question that we review de novo with underlying factual findings that we review for substantial evidence.” *Roku, Inc. v. Universal Elecs., Inc.*, 63 F.4th 1319, 1324 (Fed. Cir. 2023). “What the prior art discloses and whether a person of ordinary skill would have been motivated to combine prior art references are both fact questions that we review for substantial evidence.” *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1378 (Fed. Cir. 2023). “Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *Id.* (internal quotation marks omitted). “[T]he possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency’s finding from being supported by substantial evidence.” *Consolo v. Fed. Mar. Comm’n*, 383 U.S. 607, 620 (1966).

III

Juniper presses three issues on appeal. First, it argues that the Board erred when it construed “without any communication” to preclude one-way communication. Second, it contends that even under that erroneous construction substantial evidence does not support the Board’s finding that Leong and AppleTalkBook failed to render the challenged claims obvious. Third, Juniper disagrees with the Board’s finding that its zone theory was untimely and lacked merit. We agree with the Board on all these issues and therefore affirm.

A

In construing “without any communication with the controller,” the Board determined that the “use of ‘any’ before ‘communication’ in the claims implie[d] a broad interpretation of communication that encompasses a one-way communication that does not require a response.” J.A. 66. Thus, the Board construed “communication” to include “one-way messaging that does not require a response.” J.A. 66. Because this is a negative limitation, the Board’s construction required Juniper to show that the prior art made it obvious to allow a co-processor to be added into the system without any communication, including without any one-way messaging to or from the controller.

In challenging the Board’s construction, Juniper first emphasizes that the actual claim language being construed is “communication *with* the controller” (emphasis added), which in its view indicates that the communication must go back and forth between the co-processor and the controller, otherwise the controller is not communicating *with* the co-processor. One-way communications would instead be described as “communication *to* the controller,” but not *with*. But Juniper points to nothing in the intrinsic evidence that would require us to conclude that a person of ordinary skill in the art would make this distinction between “with” and “to.” Juniper principally relies on a non-binding opinion interpreting the term “goods received for shipment among the several States or *with* foreign nations,” in the Federal Bill of Lading Act, 41 U.S.C. § 121 (emphasis added),³ as covering imports as well as exports. *See* Open. Br. at 29 & n.105 (citing *United States v. Castro*, 837 F.2d 441, 445 n.6 (11th Cir. 1988)). The court there held that “the preposition ‘with’ signals the reciprocity envisioned by Congress,” such that “the issuance of false bills

³ Amended by Pub. L. 103–272, § 7(b), 108 Stat. 1380.

of lading covering imports as well as exports is subject to punishment.” *Castro*, 837 F.2d at 445 n.6. That interpretation of “with” in the context of this statute, which is not binding on the present appeal and comes with its own legislative history, extended to the “to and fro” of imports and exports but does not persuade us that “with” in the very different context of the claim language we are construing here is limited to two-way communications.

Juniper next argues that the specification requires that “communication” be limited to two-way communication, but this is incorrect. Juniper merely points to examples in the specification, such as a communication channel phase, but even its examples are limited to continuing the operation of an existing network, *see* J.A. 103 (’275 patent 6:42-48), not the pertinent situation of adding a new processor to a network on a plug and play basis “without any communication with a controller.” Moreover, it is well settled that claims are not limited to the expressly disclosed embodiments in a specification. *See Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1381 (Fed. Cir. 2014) (noting “the scope of the claims is not generally limited to the embodiments disclosed in the patent”).

Finally, Juniper claims to find support for its construction in cross-examination testimony from Swarm’s own expert, Dr. Brent Nelson, who said when a “broadcast is sent but a particular processor does not respond” then he “would classify that as not a communication.” J.A. 6969. As even Swarm concedes, J.A. 9314, Dr. Nelson’s testimony on this point contradicted his earlier declaration, in which he had stated that a broadcast message received by a device was a communication, even if the device did not respond. J.A. 4374 (“In either case, whether the surveying unit reads the broadcast packet or whether the surveying unit reads and responds to the broadcast packet, a communication between the newly added processing unit and the surveying unit will occur.”). The Board recognized that “Dr. Nelson appears to have changed his testimony without

prompting,” described the situation as “unusual,” and decided it would not “credit Dr. Nelson’s cross-examination testimony as providing sufficient support for Juniper’s” position regarding communication. J.A. 61-62 & n.3. We generally must “defer to the Board’s findings concerning the credibility of expert witnesses,” *Incept LLC v. Palette Life Scis.*, 77 F.4th 1366, 1377 (Fed. Cir. 2023), and Swarm has given us no meritorious reason to do otherwise here. Expert testimony, even when uncontroverted, cannot result in a claim construction that contradicts the intrinsic evidence.

Thus, we agree with the Board’s construction of “without any communication” as meaning without any two-way communication as well as without any one-way communication.

B

The Board next concluded that Juniper failed to prove that the combination of Leong and AppleTalkBook render the challenged claims of Swarm’s patents obvious. Substantial evidence supports this finding.

The Board found that AppleTalkBook teaches that “a broadcast packet is sent to every node on the network, which, in turn, results in every node receiving a broadcast and, if appropriate, responding to it.” J.A. 52 (internal alterations omitted). Juniper’s proposed combination of AppleTalkBook and Leong relied on this feature as the mechanism by which the embodiment of the combination would add additional co-processors to the system. But since AppleTalkBook adds co-processors by transmitting a broadcast packet to all devices, and this broadcast (despite being one way), is a “communication,” the Leong-AppleTalkBook combination fails to teach, or even render obvious, a processing system that can accept “an additional co-processor into the processing system on a plug-and-play basis without any communication with the controller.”

Juniper's attacks on the Board's findings all fail. Juniper argues there is a lack of evidence that any information was imparted or communicated to the controller in the AppleTalkBook system, and thus, there cannot be a communication. But this is simply a repetition of Juniper's refusal to accept that the correct construction of communication includes one-way communications; that is, the controller receives the broadcast packet but does nothing with it, including never responding back to the co-processor. Under the Board's construction, which we too adopt, there is a communication as long as the controller receives the broadcast packet, regardless of what (if anything) the controller does with it. The Board declined to credit the expert testimony of Swarm's expert, Dr. Nelson, "as providing sufficient support for Juniper's position that 'communication' in the context of the '275 patent requires two-way messaging." J.A. 61.

Accordingly, substantial evidence supports the Board's finding that Juniper failed to prove the combination of Leong and AppleTalkBook render the challenged claims unpatentable.

C

Lastly, Juniper argues that the Board erred when it found that the zone-based theory Juniper articulated in its reply to the patent owner response was a new theory of unpatentability. Before the Board, Juniper argued in reply that AppleTalkBook taught using zones to divide devices into logical groups, and that a person having ordinary skill in the art would have been motivated "to avoid any communication with Leong's controller and co-processors by applying AppleTalkBook's zone teachings to group devices that work closely together," thus placing the controller in a separate zone from – and therefore not in communication with – the co-processors. J.A. 6398 (internal quotation marks omitted).

“It is for the Board to determine what grounds are being articulated in a petition and what arguments and evidence are being referred to in the responses and any replies.” *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1002 (Fed. Cir. 2023). We consider de novo whether the Board erred in determining that a ground presented in a reply is improperly “new” because it was not presented in the petition. *See id.* at 1008 (“The newness restriction stems from the statutory mandate that the petition govern the IPR proceeding, so whether a ground the Board relied on [i]s ‘new’ . . . is a question of law we review de novo.”) (internal quotation marks omitted; alterations in original).

We agree with the Board that Juniper’s zones theory was new to the reply and had not been presented in the petition. There is no discussion of “zones” in the petition. To the contrary, as the Board explained, while the petition discusses AppleTalkBook in detail, it nowhere even references “the pages in AppleTalkBook (i.e., pages 2020 and 2021) that explain how a zone operates.” J.A. 70. And “at no point in its Petition d[id] Juniper explain how Leong’s surveying unit and processing units may be separated into different zones to limit the reach of broadcast packets.” J.A. 70.

In any event, the Board continued its analysis by considering, and rejecting, the zone theory on the merits. Substantial evidence supports the Board’s finding. As the Board noted, AppleTalkBook discloses that “all devices in a single network will belong to the same zone.” J.A. 71 (citing J.A. 914) (emphasis omitted). The Board found that the petition “does not reconcile how its zone theory applies to Leong’s multi-tasking computing system, especially when each of Leong’s processing units are part of a single network and, therefore, would all belong to the same zone in Juniper’s proposed combination.” J.A. 71. Therefore, the processing units, including the one that acts as a controller, would be in the same network and would all receive the

broadcast packet. *Id.* Juniper has given us no reason to disturb the Board's conclusion.

IV

We have considered Juniper's remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm the decision of the Board with respect to the challenged claims of the '275 patent and dismiss as moot Juniper's challenge to the Board's decision with respect to the challenged claims of the '004 patent.

AFFIRMED-IN-PART, DISMISSED-IN-PART

COSTS

No costs.