

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CISCO SYSTEMS, INC.

*Petitioner,*

v.

UMBRA TECHNOLOGIES LTD.

*Patent Owner.*

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Case No. IPR2024-00344

U.S. Patent No. 11,146,632

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**PATENT OWNER'S REQUEST FOR DIRECTOR REVIEW  
OF FINAL WRITTEN DECISION**

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## **I. INTRODUCTION**

Pursuant to 37 CFR §§ 42.75 and 42.71(d), Patent Owner UMBRA Technologies Ltd. (“PO”) submits this Request for Director Review of the Board’s final written decision (Paper 31; “FWD”) invalidating claims 1-7 of U.S. Patent No. 11,146,632 (“’632 patent”) as obvious over two references to which Petitioner referred to as “Agarwala” in view of a POSITA’s knowledge.<sup>1</sup> The Board’s unpatentability decision rests on erroneous findings of material fact and erroneous conclusions of law and is an abuse of discretion at least because claim 1’s preamble is limiting and this limitation is missing from the prior art. Consequently, the FWD should be reversed and claims 1-7 upheld as valid.

## **II. LEGAL STANDARD FOR DIRECTOR REVIEW**

“Requests for Director Review of a Board’s [FWDs] . . . shall be limited to decisions presenting (a) an abuse of discretion, (b) important issues of law or policy, (c) erroneous findings of material fact, or (d) erroneous conclusions of law.” USPTO, *Director Review Process*, §2.B, available at <https://www.uspto.gov/patents/ptab/decisions/director-review-process> (last updated March 18, 2025). The Board’s FWD is an abuse of discretion if it “(1) is clearly unreasonable,

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<sup>1</sup> Petitioner amalgamated two references—U.S. Prov. Pat. App. No. 61/739,685 (“’685 PPA”) and U.S. Pat. No. 9,582,421 (“’421 patent”). PO separately argued that the ’685 PPA should not be considered prior art but does not raise this point here to focus the Director’s resources on issues most amenable to Director review.

arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board could rationally base its decision.” *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1367 (Fed. Cir. 2016).

### **III. RELEVANT BACKGROUND**

#### **A. The ’632 Patent**

The ’632 patent is titled “Data Beacon Pulser(s) Powered by Information Slingshot” and relates “to the topology, configuration and operation of a data beacon pulser (DBP)[,]” which “offers fast, efficient, and dependable one-way casting/multi-casting of information globally.” (Ex-1001 at 1:30-33.) All embodiments and examples described in the specification use a data beacon, which may be pulsed, “slingshot,” or otherwise one-way cast from a sending node to a remote receiving node. (*See id.* figs. 5, 7, 8, 13, 21-24, 26 & accomp. descs.)

Notably, during prosecution, the Examiner correctly recognized that claim 1’s preamble recited the structure of “[a] network system for providing data beacons,” which supplied patentable weight to the claims. (Ex-1002 at 9-10.)

#### **B. IPR Pre-Institution Briefing**

In its POPR, PO pointed out that (1) the preamble’s recitation of a “network system for providing data beacons,” where “data beacon” is a signal delivered via one-way casting or one-way multi-casting by the network system, is limiting as evidenced by the ’632 patent’s specification and prosecution history (Paper 6 at 2-

11); and (2) Agarwala does not disclose a *data beacon* system having the features recited in the body of the claim (*id.* at 11-13).<sup>2</sup> In its Reply to POPR, Petitioner urged the Board not to construe the term “data beacon” and argued that PO’s evidence is tied to data beacon pulsers and not data beacons. (*See generally* Paper 10.) In its pre-institution Sur-Reply, PO underscored, among other things, that the Examiner relied on claim 1’s preamble to distinguish the prior art, and that the preamble recited structural elements. (Paper 11 at 3-4.)

**C. Institution Decision (“ID”)**

The Board instituted IPR and preliminarily held the language “for providing data beacons” in claim 1’s preamble to be non-limiting after finding that the limitations recited in claim 1’s body did not derive antecedent basis from “data beacons” and that “data beacons” were not essential structure. (Paper 14 at 13-16.)

**D. Post-Institution Briefing**

PO in the POR provided additional intrinsic and extrinsic evidence showing that the “network system for providing data beacons” recitation in claim 1’s preamble is limiting (and not rendered obvious) because providing the claimed “data beacon” functionality is an essential characteristic of the claimed “network system,” both recited in the preamble (Paper 24 at 22-27); as well as additional evidence that “data beacon” should be construed as a signal delivered by the

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<sup>2</sup> Unless specified otherwise, all emphasis is added in this brief.

network system via one-way casting or one-way multi-casting (*id.* at 21).

#### **E. FWD**

Similar to the ID, the Board in the FWD erroneously held claim 1's preamble non-limiting after finding no antecedent basis for the claim's limitations in the preamble and concluded that "data beacons" cannot be essential structure. (FWD at 11-12.) The Board also rejected PO's arguments that the Examiner relied on the preamble's language during prosecution for allowance and that the '632 patent's specification indicated that the preamble was limiting. (*Id.* at 13-21.)

#### **IV. ARGUMENT**

The Board's holding in the FWD that claim 1's preamble recitation of "a network system for providing data beacons" is non-limiting—leading to a second finding that a reference completely silent as to data beacon functionality nevertheless invalidates the claims—is abuse of discretion based on erroneous findings of fact and conclusions of law. Consistent with case law, a "network system for providing data beacons" is not merely a recitation of circumstance where the system *may* be useful, but is the *raison d'être* of the claimed system itself. *All* intrinsic evidence that could be used to determine whether the preamble is tied to the "write" and "read" functions of the claim body point to the conclusion that it must be so. This includes not only the specification's embodiments and examples, but the actions of the Office in examining and allowing the claims. Only by ignoring the great weight of the intrinsic evidence, while erroneously

refusing to treat the preamble as a whole, was the Board able to construe claim 1 in a manner untethered to its specification and prosecution history.

### A. The Board Went as Far as to Omit Portions of a Critical Figure in Order to Avoid Tying the Preamble’s “Data Beacons” to the Claimed “Write” and “Read” Functions

The FWD summarized the ’632 patent by meticulously explaining that the patent concerns data beacon network systems, identifying a title, advantages of the inventive data beacon approach, drawbacks of the non-data beacon prior art, one exemplary embodiment and figure, and supporting text that all point to such a network system. (FWD at 3-6.) The FWD then stressed that the intrinsic evidence is key in determining whether/how claims should be interpreted. (*Id.* at 9-10.)

Yet clear error followed in how the Board considered the specification. For instance, while citing to Figure 13 of the ’632 patent as providing support for claim 1, the Board *cropped out the portions of the figure showing the critical timing considerations for a data beacon operation:*

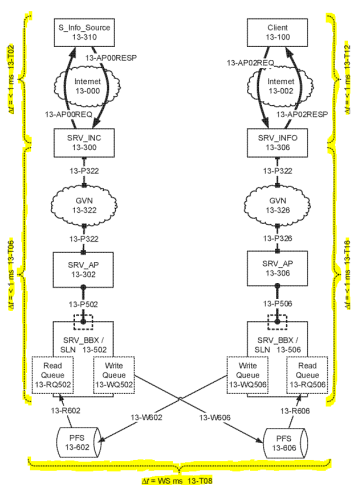
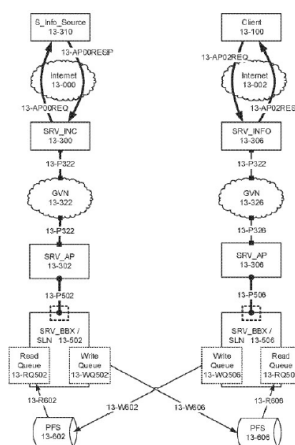


FIG. 13



An exemplary embodiment of the Data Beacon Pulser (DBP) is depicted above in Figure 13 of the ’632 patent.

(Compare Ex-1001 fig.13 (highlights added), with FWD at 5 (cropping fig.13).)

The Board *cropped the timing brackets* (other than vestiges at some ends) from the sides and bottom of Figure 13. Critically, the timing bracket at the bottom is the timing for the claimed “*write*” and “*read*” functions of the claimed “*first data*” transfer of a “*data beacon.*” According to the ’632 patent:

FIG. 13 illustrates one example of the *Data Beacon Pulser (DBP)* mechanism framework and flow. . . . *This example embodiment also demonstrates important measures of the duration of time.* For example, the duration of time  $\Delta t$  13-T08 denotes the transport phase of slingshot and is as close to wire speed as possible.

(Ex-1001 at 16:8-9 & 35-38.) The Board expressly relied on specific elements of Figure 13 as providing written description support for claim 1:

Figure 13 and the associated description in column 16 provide written description support for the ’632 patent claim [1.2] “second node” at Client 13-100 (upper right), the [1.2] “second read queue” at Read Queue 13-RQ506 (lower right), the [1.2] “second write queue” at Write Queue 13-WQ506 (lower right), and the [1.2] “second parallel file system” at PFS 13-606 (bottom right). Lower-left-to-lower-right diagonal dataflow arrow 13-W606 of Figure 13 provides written description support for “wherein” clause [1.3] “wherein the first node writes first data from the first write queue to the second parallel file system”; and lower-right diagonal (up) dataflow arrow 13-R606 of Figure 13 provides written description support for “wherein” clause [1.4] “wherein the second node reads the first data from the second

parallel file system and places the first data in the second read queue.” (FWD at 6.) But it was clear error for the Board to *physically erase* the data beacon timing brackets for the claimed “*first data*” network transfer in the replicated version of Figure 13 appearing in the FWD. It was also clear error for the Board to fail to even mention that it is a “*data beacon*” that is the object of the claimed “*write*” and “*read*” operations to transfer “*first data*” of the “*network system*.” (*Id.* at 5-6.) The specification further describes the “*data beacon*” read/write operation as follows:

The **DBP** [data beacon pulser] uses slingshot to *write* a carrier data file from *write queue* 13-WQ502 via path 13-W606 using RDMA to parallel file system device (PFS) 13-606. The *read queue* 13-RQ506 on SRV\_BBX SLN 13-506 *fetches* the file from PFS 13-606.  
(Ex-1001 at 16:23-27.)

It is inexplicable that the Board could identify written descriptive support for the claim 1 “*write*” and “*read*” operations and yet omit the portions of this same description that tie those “*read*” and “*write*” operations to a “*data beacon*” transfer operation of “*first data*,” and its timing. In fact, the specification does not contain *any* write/read within a parallel file system (PFS) embodiment that is *not* tied to a “*data beacon*.” It is both factual and legal error for the FWD to erase key parts of Figure 13 and ignore—within its own citation—that this cited evidence describes a “*data beacon*” operation.

**B. The Preamble as a Whole Breathes Life into and Completes the Claim Concept**

The Board further errs in holding the patentee to an erroneously high legal standard. (FWD at 11-12.) Even when direct antecedent reference to the preamble is missing from the claim body, “preamble language will limit the claim if it recites not merely a context in which the invention may be used, but the essence of the invention without which performance of the recited steps is nothing but an academic exercise.” *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003). Here, as in *Boehringer*, there is no explicit antecedent connecting the preamble to the rest of the claim, but “providing data beacons” “are not merely circumstances in which the method may be useful, but instead are the *raison d’être* of the claimed” first node write queue→PFS→second node read queue steps for getting first data from the first node to the second node. *See id.* This is the essence of the invention, as titled, illustrated, described, and claimed—to cast data within a network system using particular operations between particular components of that system.

Without the preamble context (which is informed by the specification), claim 1 is incomplete. The body recites a first node and a second node with particular elements. (Ex-1001 at 23:4-7.) It further recites a write of first data from the first node to a PFS on the second node, and a read of the same first data from the PFS to a read queue on the second node. (*Id.* at 23:8-12.) Without more,

the claim is divorced from the innovation identified by the applicant and Examiner.<sup>3</sup> When placed in the context of a “network system for providing data beacons,” however, this now describes the configuration and operation of a network data transfer system that casts data between sites/nodes using a PFS. (*See* FWD at 3-5).

Deleting claim 1’s preamble would impermissibly result in a structurally incomplete invention. *See, e.g., Catalina Mktg. Int’l v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002); *In re Xencor, Inc.*, 130 F.4th 1350, 1357 (Fed. Cir. 2025). The Board failed to show that the claim described an invention (in view of the intrinsic record) when divorced from its preamble, and erroneously held that the preamble did not recite essential structure. (FWD at 11-13.) And, as explained below, the Board’s position runs counter to its adoption of Petitioner’s treatment of the preamble phrase “network system” as limiting. (FWD at 50.)

Specifically, the Board noted with approval that “Petitioner contends Agarwala teaches the ‘network system’ recited in preamble [1.0]. Pet. 28–29 (citing Ex. 1004 ¶ 39; Ex. 1005, 3:59–62).” (FWD at 50.) But there was no basis for Petitioner or the Board to divorce the preamble’s “network system” from the

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<sup>3</sup> As explained further below, the Examiner’s first impression—which evolved after searching in connection with the phrase “*data beacon pulser*”—was that the claim recited “somewhat non-complex subject matter.” (Ex-1002 at 9.)

immediately following language describing the type of network system (“for providing data beacons”). *See Xencor*, 130 F.4th at 1358 (the Federal Circuit is generally disinclined to splice preambles into limiting and non-limiting parts); *Bio-Rad Labs., Inc. v. 10X Genomics Inc.*, 967 F.3d 1353, 1371 (Fed. Cir. 2020) (“We . . . are disinclined to sanction finding a preamble ‘partially’ limiting by splicing it . . .”). Indeed, claim 1’s preamble cannot be dissected into two parts because the language “for providing data beacons” is directly connected to the phrase “network system” and further defines—and limits—the type of a network system claimed. *See Xencor*, 130 F.4th at 1358 (declining to split the preamble because the phrase “treating a patient” is directly connected with the word “by” to the phrase “administering an anti-C5 antibody.”).

The Board’s treatment of “data beacon” separately from the “network system” that provides data beacons—to dismiss that language as non-structural—is not even supported by *Catalina* that it cites. (FWD at 12-13.) The Board attempts a distinction between a “data signal” that is one-way cast from a write queue to a remote PFS and “writ[ing] first data from the first write queue to the second PFS.” (*Id.*) But no evidence supports a conclusion that the claimed first data operations could be anything other than a data beacon signaling of the first data from node one to node two. Just as in *Catalina*, the fact that the claimed operations occur in a data beacon network system gives life, meaning, and vitality to the claim.

**C. Although the Board Identified the Claimed Read and Write Functions as Supported by Column 16 of the Patent, It Failed to Identify that These Functions Were Explicitly Tied in That Column to the Preamble’s Network System for Providing Data Beacons**

The Board erroneously disregarded that the specification shows that providing data beacon functionality is a fundamental characteristic of the invention. (FWD at 13-14.) Courts have uniformly looked to the entirety of the patent application to understand when a preamble term provides a claim limitation. Whether to treat a preamble as a limitation is a determination “resolved only on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.” *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989).

In *Poly-America LP v. GSE Lining Tech., Inc.*, the Federal Circuit explained: a review of the entirety of the . . . patent reveals that the preamble language relating to “blown-film” does not state a purpose or an intended use of the invention, but rather discloses a fundamental characteristic of the claimed invention that is properly construed as a limitation of the claim itself. 383 F.3d 1303, 1310 (Fed. Cir. 2004) (cleaned up); *see also Gen. Elec. Co. v. Nintendo Co.*, 179 F.3d 1350, 1361-62 (Fed. Cir. 1999); *Rotatable Techs. v. Motorola Mobility LLC*, 567 F. App’x 941, 943 (Fed. Cir. 2014).

Here, a fundamental characteristic of the claimed network system is a “data beacon” system implemented in a novel fashion using queues, parallel file systems,

and direct writes, which demonstrate that the preamble is limiting. *See Proveris Sci. Corp. v. Innovasystems, Inc.*, 739 F.3d 1367, 1373 (Fed. Cir. 2014). Under the *Corning Glass* instruction for “review of the entire patent,” it is evident that the inventor improved data beacon delivery systems and intended that the claims encompass only improved data beacon delivery systems having certain features recited in the body of the claim.

Among other things, the title of the ’632 patent expressly recites data beacons—“Data Beacon Pulser(s) Powered by Information Slingshot.” The claims, both as originally filed and as issued, recite data beacons. The Background of the Invention section explains that “[t]he present disclosure relates generally to networks, and more particularly, to the topology, configuration and operation of a data beacon pulser (DBP).” (Ex-1001 at 1:29-31.) The entirety of the Background section, spanning six columns, exclusively discusses prior art and technical issues related to data beacon pulsers (DBPs). (*Id.* at 1:25-7:27.) The patentee explained that “[t]he invention overcomes the distance issues associated with TCP/IP and UDP/IP because the underlying protocol of Slingshot powering DBP does not have the same congestion and inefficiencies problems over distance.” (*Id.* at 5:21-24.)

The first sentence of the Summary of the Disclosure section summarizes the specification as follows: “Systems and methods for providing data beacons are disclosed.” (*Id.* at 7:30-31.) The specification consistently underscores that the

invention relates solely to data beacons. (*Id.* at 10:21-27.) Further, to the best understanding of the undersigned, nothing in the specification suggests that the patentee intended the '632 patent to claim anything outside the realm of data beacons. Thus, the entirety of the preamble is fundamental to the invention and limiting.

**D. The Board Gave No Perceptible Weight to the Prosecution History, Specifically, that the Examiner Allowed the Claims Based on Reading the Body of the Claims as Limited by the Preamble**

The Board erroneously dismissed that “for providing data beacons” was identified as an element of the Examiner’s search strategy and cited in the Examiner’s stated reason for allowance, indicating it was a basis for distinguishing over the prior art. (FWD at 14-19.) The prosecution history can be highly instructive in confirming that a preamble provides a meaningful limitation. *See Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 866 (Fed. Cir. 1985). Here, the prosecution history is consistent with the specification’s focus on the data beacons recited in the preamble as being the disclosed invention. For example, in a first action Notice of Allowance, the Examiner explained that “[a]lthough independent Claim 1 appears at first to be somewhat non-complex subject matter, it was found to be novel in the art.” (Ex-1002 at 9.) The Examiner then noted that “a search for the term ‘data beacon pulser,’ which is disclosed in the specification as the *technology upon which the invention is based*, was not found in any prior art

other than that of the inventor.” (*Id.* at 10.) Similarly, the Examiner noted:

[a] broader search for “data beacon” in the same paragraph as variations of the term “pulse” yielded the reference, Crinon et al. (US 20120196646 A1) and related references by the same inventors.

However, those references deal with mobile networks, and do not disclose any information about read queues, write queues, or parallel file systems. The Examiner also reviewed the prior art references provided as being relevant in the PCT International Search Report, but did not find that the references teach the claimed subject matter with the required level of specificity.

(*Id.* at 10.) Thus, like the specification, the prosecution highlights the fact that the data beacons recited in the preamble are the basis of the invention. The Examiner’s reasoning in allowing the claims *on the basis of the preamble’s recitation of data beacons* was exactly correct. Indeed, reliance on the preamble in the Notice of Allowance is of particular importance. M.P.E.P. 1302.14 (“The examiner’s statement of reasons for allowance is an important source of prosecution file history.”). Further, in first action allowances the notice of allowance may embody the entirety of the “back-and-forth” between the applicant and the examiner. And while here it was the Examiner’s (rather than the applicant’s) reliance on the preamble that distinguished the prior art, PO respectfully submits that such reliance nonetheless indicates that the preamble is limiting.

Finally, the Board clearly erred by penalizing PO for two things that are not required in the law. First, the Board accorded less weight to the prosecution history in its analysis because the PO did not amend a claim that was in its view correctly construed by the Examiner, examined with an appropriate scope, and allowed without rejection. (FWD at 19.)

Second, the Board accorded less weight to the prosecution history because PO did not define “data beacon” in the specification and “only mentioned [the term] twice” in the specification. (*Id.*) But claim terms need not be defined explicitly—the entirety of the specification and prosecution history can inform the meaning of a claim term. Moreover, this “only mentioned twice” reasoning is both irrelevant and factually inaccurate. A “network system for providing data beacons” is exemplified throughout the specification by repeated reference to the “Data Beacon Pulser” or “DBP.” This embodiment is mentioned no fewer than 87 *times* in the description. “Beacons” are also labeled explicitly in at least five figures, and are also labeled throughout with alphanumerical identifiers. (Ex-1001, figs. 5, 21-23, 26.) In sum, there was no legal basis for the Board to discount the prosecution history.

## **V. CONCLUSION**

For these reasons, the FWD should be reversed and all challenged claims (claims 1-7) upheld as valid.

Dated: August 11, 2025

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**CERTIFICATE OF SERVICE**

The undersigned certifies that the foregoing Patent Owner's Request for Director Review was served on August 11, 2025, to Lead and Back-up Counsel for Petitioner at the service address provided in Petitioner's Mandatory Notices:

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