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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

SANDPIPER CDN, LLC, Plaintiff, v. COMCAST CABLE COMMUNICATIONS, LLC d/b/a XFINITY and COMCAST CABLE COMMUNICATIONS MANAGEMENT, LLC d/b/a COMCAST TECHNOLOGY SOLUTIONS, Defendants.	§	Case No. 2:24-cv-00886-JRG-RSP

COMCAST'S RESPONSIVE CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Plaintiff Sandpiper CDN did not invent CDNs.[1] In fact, Sandpiper CDN did not invent anything. While it references the history of a different company called Sandpiper ***Networks*** and its successors, Sandpiper ***CDN*** is an unrelated entity that last year purchased the Asserted Patents, along with hundreds more, for [redacted]. That price reflects the minor alleged improvements of the Asserted Patents.

Sandpiper CDN asserts that all eight disputed terms should be given their plain and ordinary meaning. But it does not explain what any term's plain and ordinary meaning is. In so doing, Sandpiper CDN ignores the intrinsic evidence and ambiguities in the claim language. The Court should therefore adopt Comcast's proposals.[2]

II. LEGAL STANDARDS

Claim construction is an issue of law for the court to decide. *Markman v. Westview Instruments, Inc*., 517 U.S. 370, 390-91 (1996). "When the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362-63 (Fed. Cir. 2008). Claim terms are presumed to have their plain and ordinary meaning when read in the context of the intrinsic record, including the specification and prosecution history. *Phillips v. AWH Corp*., 415 F.3d

[1] This brief uses the following abbreviations: Content Delivery Network ("CDN"); Plaintiff Sandpiper CDN, LLC ("Sandpiper CDN"); Defendants Comcast Cable Communications, LLC and Comcast Cable Communications Management, LLC ("Comcast"); U.S. Patent No. 8,478,903 (the "'903 Patent"), U.S. Patent No. 9,762,692 (the "'692 Patent"), U.S. Patent No. 9,628,347 (the "'347 Patent"), and U.S. Patent No. 9,660,876 (the "'876 Patent") (collectively, the "Asserted Patents"); and Sandpiper CDN's Opening Claim Construction Brief (Dkt. 88) ("Pl. Br."). In addition, "Ex. _" refers to the exhibits to the Declaration of James Y. Park in Support of Comcast's Responsive Claim Construction Brief filed herewith.

[2] Comcast has no objection to Sandpiper CDN's proposed skill level of a person of ordinary skill in the art for the Asserted Patents. Pl. Br. at 6-7.

1303, 1312-13, 1315 (Fed. Cir. 2005). However, when the specification "reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess," the "inventor's lexicography governs." *Id*. at 1316.

A claim will be found indefinite under Section 112 if, read in light of the specification and prosecution history, it fails to inform those skilled in the art about the scope of the invention with reasonable certainty. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

III. THE '903 PATENT

A. The Alleged Invention

As the '903 Patent acknowledges, by the time of its priority date, numerous solutions had already been developed to address the growth of internet content through the replication of site content. Dkt. 1-3 ("'903 Patent") at 1:24-27, 1:43-57. These solutions included the use of proxy caches to store copies of popular resources close to the end users. *Id.* at 2:34-36. Thus, contrary to Sandpiper CDN's suggestion, the '903 Patent does not claim to invent the use of a different server to process resource requests. Pl. Br. at 2. Rather, the asserted claims are directed to more specific methods of delivering resources by a repeater server that is associated with different alias names depending on the origin server on which the resource is located. *See* '903 Patent at 27:35-56, 28:38-29:4.

B. Disputed Terms

1. "first alias name" / "second alias name" ('903 Patent Claims 28, 37)

Comcast's Proposed Construction	Sandpiper CDN's Proposed Construction
The first alias name is different than the second alias name	Plain and ordinary meaning

The '903 Patent requires that a repeater server be associated with both a "first alias name" and a "second alias name." Sandpiper CDN "does not dispute that the 'first alias name'

and the 'second alias name' are different alias names." Pl. Br. at 7. Instead, it erroneously claims that Comcast's construction requires "the first and second alias names to have no similarities." *Id.* It does not. Consistent with the claims and intrinsic evidence, Comcast's construction simply requires that the alias names associated with the server be different. Because Comcast's proposal will avoid jury confusion and is correct, the construction should be adopted.

The Federal Circuit has held that "[t]he use of the terms 'first' and 'second' is a common patent-law convention to distinguish between repeated instances of an element or limitation." *3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1371 (Fed. Cir. 2003); *see also Regents of Univ. of Minnesota v. AGA Med. Corp.*, 717 F.3d 929, 935 (Fed. Cir. 2013) (affirming construction of "first and second disks" as "physically distinct and separate disks"). Similarly, courts in this District routinely hold that a "first" instance of a term must be different from a "second" instance to avoid rendering the latter meaningless. *Motorola, Inc. v. Analog Devices, Inc.*, 2004 WL 5633738, at *5 (E.D. Tex. June 17, 2004) ("[U]nless the 'second subset' is different from the first, it is a meaningless term."); *Alexsam, Inc. v. Cigna Corp.*, 2021 WL 1561606, at *29 (E.D. Tex. Apr. 20, 2021) (construing "first database" and "second database" as distinct), *aff'd*, 2024 WL 1364205 (Fed. Cir. Apr. 1, 2024); *Northeastern Univ. v. Google Inc.*, 2010 WL 4511010, *8 (E.D. Tex. Nov. 9, 2010) (construing "a first portion and a second portion" as distinct).

The asserted claims of the '903 Patent follow the convention that a "first" element and a "second" element are different. Claim 28 recites, in relevant part:

> [a] associating the at least one repeater server with a **first alias** name, wherein requests for a **first resource** located on a **first origin server** are directed, based at least in part on said first alias name to the at least one repeater server for delivery of the first resource from said at least one repeater server;

[redacted]

> [b] associating the at least one repeater server with a **second alias** name, wherein requests for a **second resource** located on a **second origin server** are directed, based at least in part on said second alias name, to the at least one repeater server for delivery of the second resource from said at least one repeater server, wherein the second origin server is distinct from the first origin server;

'903 Patent at 27:33-46 (emphasis added). The claim thus recites that the "***first*** alias name" of a repeater is used to direct requests for "a ***first*** resource" on a "***first*** origin server," whereas the "***second*** alias name" for the repeater is used to direct requests for "a ***second*** resource" on a "***second*** origin server."[3] The first alias name, first resource, and first origin server are different from the second alias name, second resource, and second origin server. Further, the claim recites that the repeater server is adapted to analyze the alias name received with a client request to determine the origin server associated with the requested resource. *Id.* It could not determine the appropriate origin server if the first and second alias names were the same.

The specification of the '903 Patent similarly makes clear that the alias names for the repeater server are different. The patent explains that a request includes "a resource identifier for the particular resource" and "an indication of the origin server." *Id.* at 3:4-12. "To avoid the need for placing both the repeater name and the [origin] name in the URL," a "family" of alias names can be created for an origin server, with "each name identifying one of the repeaters used by that server." *Id.* at 9:39-47. "If the repeater can determine by which name it was addressed, it can use this information (along with a table that associates repeater alias names with origin server names) to determine which origin server is being addressed." *Id.* at 9:56-59. Thus, in the example provided in the patent, "if repeater 1 is addressed as wr1.example.com, then the origin server is 'www.example.com'; if it is addressed as 'wr1.anotherExample.com', then the origin server is

[3] Claim 37 similarly recites "a first alias name" associated with "a first origin server" and "a second alias name" associated with "a second origin server." '903 Patent at 28:38-29:4.

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'www.anotherExample.com.'" *Id.* at 9:59-63. Because the first alias name (wr1.example.com) and the second alias name (wr1.anotherExample.com) are different, the repeater server can determine the origin server corresponding to the requested resource. *See id.*

Recognizing that the claims and specification require that the first and second alias names be different, Sandpiper CDN attacks a strawman by arguing that Comcast's proposed construction "require[s] the first and second alias names to have no similarities." Pl. Br. at 8. Comcast's construction says no such thing—it just requires that the names be different. And Sandpiper CDN points to the same portion of the specification that Comcast does, which provides examples of ***different*** alias names for the same repeater server: "wr1.example.com," "wr1.anotherExample.com," and "wr1.example.edu." *Id.* at 8 (citing '903 Patent at 9:53-55).

Notably, courts in this District have held that it is appropriate to construe a "first" term and a "second" term as different even where the parties appear to agree on that point. *See, e.g.*, *Alexsam*, 2021 WL 1561606, at *29-30 (holding that "first database" and "second database" should be construed as distinct from one another even though the parties agreed on that fact); *see also Imperium (IP) Holdings, Inc. v. Apple Inc.*, 2012 WL 6949611, at *18-19 (E.D. Tex. July 2, 2012) (construing "first metal layer" and a "second metal layer" to mean "a particular metal layer" and "a metal layer other than the first metal layer," respectively, where the parties proposed substantially similar constructions differentiating the two terms), *report and recommendation adopted as modified*, 2013 WL 322053 (E.D. Tex. Jan. 28, 2013).[4] In contrast, Sandpiper CDN's cited authority does not concern the issue at hand. In *Touchstream*

[4] *See also Acera Surgical, Inc. v. Nanofiber Sols.*, 2022 WL 6948855, at *3, 5 (D. Del. Oct. 12, 2022) ("'[F]irst layer'/'second layer' terms should be construed to require that each is 'a distinct layer distinguishable from other layers.'"), *report and recommendation adopted*, 2023 WL 2139699 (D. Del. Feb. 21, 2023).

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Technologies, Inc. v. Charter Communications, Inc., the court did not address whether a "first format" was different than a "second format," but instead addressed "a distinction between the 'format' and the 'content' of the commands." No. 2:23-cv-59, Dkt. 74 at 24 (E.D. Tex. July 9, 2024). And in *Uniloc 2017 LLC v. Google LLC*, the defendant did not simply seek to establish that a "first server" was different than a "second server," but instead sought to construe those terms in a way that would have "contradict[ed] the claim language" by "requiring the 'second server' to always be the 'standby server.'" 2020 WL 512605, at *7 (E.D. Tex. Jan. 30, 2020).

Sandpiper CDN's proposal that the disputed terms be given their plain and ordinary meaning is insufficient because the jury—unfamiliar with patent-law convention—could erroneously believe that the first and second alias names could be the same name. For example, the jury could interpret "first" and "second" temporally such that they refer to the alias name included in one request and the same alias name in a later request, even though the names are not different. Thus, to give effect to the '903 Patent's claims and avoid jury confusion, the Court should adopt Comcast's proposed construction.

IV. THE '692 PATENT

A. The Alleged Invention

The '692 Patent is directed to a method for serving content from different servers in different tiers of a CDN depending on whether the content is popular. Dkt. 1-5 ("'692 Patent") at Abstract. Figure 7 discloses a flowchart of the claimed invention. At step 705, "a first server in a first tier of servers obtains a request from a client for a resource." *Id*. at 11:55-58. At "step 710, if the resource is not available at the first server or at a peer of the first server, and additionally if it is determined that the resource is popular," then the "first server obtains the resource and serves it to the client." *Id*. at 11:62-66. However, "if the resource is determined ***not*** to be popular," then at step 715, "the client is "directed to a second server in a second tier of servers . . . distinct from

[redacted]

the first tier of servers," and at step 725, the second server "serves the resource to the client." *Id.* at 12:3-7, 64-65 (emphasis added).

B. Disputed Terms

1. "the first portion of the content provider's library is distinct from the second portion / a second portion of the content provider's library distinct from the first portion" ('692 Patent Claims 1, 15)

Comcast's Proposed Construction	Sandpiper CDN's Proposed Construction
Indefinite	Plain and ordinary meaning

The '692 Patent claims require two servers in a second tier of servers where one server comprises a first portion of a content provider's library and the second server comprises a second portion of the library, and the first and second portions of the content provider's library are "distinct" from each other. The patent defines what it means for two portions of a content provider's library to be distinct and, in so doing, allows them to overlap "only minimally." By allowing only minimal overlap, the patent places an upper limit on the overlap that is allowed if the portions are to be distinct. However, the patent does not provide any objective basis on which to determine what amount of overlap is "minimal." The claims are thus indefinite.

As a threshold matter, the patentee acted as its own lexicographer with respect to the "distinct" portions of a content provider's library. *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009) ("When a patentee explicitly defines a claim term in the patent specification, the patentee's definition controls."). The specification explains that a server in a second tier "comprises a first portion (or subset) of the content provider's library." '692 Patent at 12:5-9. It then explains that "the second tier includes at least one other server that comprises a second portion of the content provider's library" where "the first portion is distinct from the second portion ***(i.e., the portions/subsets of the library do not overlap, or overlap only minimally)***." *Id.* at 12:11-16 (emphasis added). By using the word "i.e.," the patentee made clear

its intent to define the phrase "the first portion is distinct from the second portion" by the parenthetical immediately following it. *See, e.g.*, *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1334 (Fed. Cir. 2009) ("use of 'i.e.' signals an intent to define the word to which it refers."). Indeed, Sandpiper CDN concedes that "the specification explains that 'distinct' portions can mean portions that 'overlap only minimally.'" Pl. Br. at 10.[5]

The patentee's definition thus allows "distinct" portions of a content provider's library to "overlap only minimally." However, a term of degree such as "minimal" is indefinite unless the intrinsic evidence informs a person of ordinary skill about its scope with reasonable certainty. *See Berkheimer v. HP Inc.*, 881 F.3d 1360, 1363-64 (Fed. Cir. 2018) ("minimal redundancy" indefinite where patent "lack[ed] objective boundary or specific examples of what constitutes 'minimal' in the claims"); *Ultravision Techs., LLC v. Holophane Eur. Ltd.,* 2020 WL 6271231, at *18 (E.D. Tex. Oct. 26, 2020) ("minimal amount of illumination" indefinite); *CA, Inc. v. Netflix, Inc.*, 2021 WL 5323413, at *14 (E.D. Tex. Nov. 16, 2021) ("maximizing," "minimize[es/ing]," and "substantially [minimizes]" indefinite).

Here, the '692 Patent provides no objective boundaries for determining when portions of a library "overlap only minimally" and are thus "distinct." The claims themselves do not reference the amount of permitted overlap (if any). *See* '692 Patent at 13:14-40, 14:50-15:11. The specification is likewise uninformative. Besides the disclosures identified above, the only other use of the word "minimal" relates to "a first/minimal level of popularity" of a resource, *id.*

[5] The prosecution history further confirms that the patentee acted as its own lexicographer. Before the Board, the patentee explained that: "distinct . . . ***means*** they have no overlap or ***some overlap. Minimal overlap***." Ex. 1 at 13:15-14:1 (emphasis added). It also clarified that "[a]bsent the word 'distinct,'" the portions of the content provider's library could "overlap more than minimally." *Id.* at 16:9-17:3. However, neither the patentee nor the Board explored the limits of permitted overlap because the servers in the prior art reference being distinguished contained "the ***same*** material." Ex. 2 at 11, 15, 17-19.

[redacted]

at 6:51-61, which has no bearing on the extent of overlap of a content provider's library. The specification's use of the word "distinct" in other contexts refers to physical items such as "distinct servers," which do not overlap at all. *See id.* at Figs. 1-3; *see also id.* at 4:25-26, 12:3-7, 13:27-29. Thus, there is no way for a skilled artisan to determine whether any overlap of the content provider's library is "minimal" and thus within the scope of the claims.

Sandpiper CDN misapprehends Comcast's position as requiring that the portions be "entirely" distinct. *See* Pl. Br. at 9-11. That is not Comcast's position—the patent clearly allows for some overlap. The problem is that it allows for "only minimal" overlap without providing any basis on which to determine how much overlap is "minimal." As a result, the cases on which Sandpiper CDN relies for the unremarkable proposition that, in some cases, "distinct" items may overlap are inapposite. *See id.*[6] The same is true for Sandpiper CDN's dictionary definitions of "distinct," which have no application here because of the patentee's clear lexicography. *See id.* at 11. None of the cases or dictionaries addresses the central question raised by the patent's definition: how much overlap is permitted before it is no longer "minimal" and thus the portions of the library are no longer "distinct"? Because the patent is silent on this question, the claims should be found indefinite.

2. "[a] at a first server in the first tier of servers, obtaining a request from a client for a resource"
"[b] if the resource is not available at the first server or at the peer of the first server, determining if the resource is popular"
"[c] if the resource is determined to popular, then the first server obtaining the resource and the first server serving the resource to the client"
"[d] if the resource is determined not to be popular, directing the client to a second server"

[6] *Linear Tech. Corp. v. Int'l Trade Comm'n*, 566 F.3d 1049, 1055 (Fed. Cir. 2009) ("second circuit" and "third circuit" did "not require entirely separate and distinct circuits"); *Northeastern Univ. v. Google, Inc.*, 2010 WL 4511010, at *8 (E.D. Tex. Nov. 9, 2010) ("first portion" and "second portion" "must be distinct but need not be separate").

[redacted]

"[e] the second server serving the resource to the client" ('692 Patent Claim 1)

Comcast's Proposed Construction	Sandpiper CDN's Proposed Construction
The claim requires performance of steps [a], [b], and [c], and separately the performance of steps [a], [b], [d], and [e]	Plain and ordinary meaning

The Court must construe Claim 1 of the '692 Patent to establish what elements need to be satisfied. Claim 1 is a method that includes a first condition followed by a determination and two "branches" or sets of steps depending on whether the resource is determined to be popular or not popular. The question is thus whether the claim is satisfied if an accused system or prior-art reference satisfies one branch only. Sandpiper CDN says yes, eliminating half of the limitations in the claim. In contrast, Comcast's proposal clarifies that both branches must be satisfied.

Claim 1 of the '692 Patent recites a method comprising:

> [a] at a first server in the first tier of servers, **obtaining a request from a client for a resource**, wherein the resource is available as part of a content provider's library;
>
> [b] **if the resource is not available** at the first server or at a peer of the first server, **determining if the resource is popular**;
>
> [c] ***if* the resource is determined to be popular**, then the first server obtaining the resource and the first server serving the resource to the client, ***otherwise***,
>
> [d] ***if* the resource is determined not to be popular**, directing the client to a second server in a second tier of servers distinct from the first tier of servers, wherein the second server comprises a first portion of the content provider's library, the first portion comprising at least the resource, wherein at least one other server in the second tier comprises a second portion of the content provider's library, wherein the first portion of the content provider's library is distinct from the second portion, and wherein the second tier is any intermediate tier between the first tier and an origin server that stores resources associated with the content provider's library, and [e] the second server serving the resource to the client.

'692 Patent at 13:14-40 (emphasis and step denominators added). Claim 1 is thus a method in which two distinct branches are followed depending on whether the requested resource is

popular. Each branch first requires receiving a request and, if the resource is not available, determining if it is popular (steps [a] and [b]). Step [c] then recites what occurs "***if***" the resource is determined to be popular ("the first server obtaining the resource and the first server serving the resource to the client"). *See id*. at 13:24-26. Steps [d] and [e] recite what occurs "***if***" the resource is determined ***not*** to be popular, including directing the client to a second server that serves the resource wherein the second server is part of a second tier that satisfies various requirements. *See id*. at 13:27-40.

As an initial matter, construction is necessary to resolve the fundamental issue of what is required to meet the asserted claim. *O2 Micro*, 521 F.3d at 1360. Sandpiper CDN asserts that if one branch is satisfied, then the other need not be. Pl. Br. at 12-13. In that case, there would be infringement or anticipation if the resource is determined to be popular and then is obtained and served by the first server ***regardless*** of what would happen in the system if the resource is determined not to be popular or how the second tier of servers is arranged. In contrast, Comcast asserts that both branches must be satisfied. Regardless of which position is correct, construction is necessary to ensure that the parties and the jury understand what satisfies the claim, and Sandpiper CDN's "plain and ordinary meaning" proposal does not answer the question.

Moreover, Sandpiper CDN's interpretation of the alleged "plain and ordinary meaning" is incorrect. First, Sandpiper CDN's logic would result in infringement and anticipation by any system that simply obtained a request for a resource available on a server (step [a]). Step [b] and every later step only occur "if the resource is not available at a first server." '692 Patent at 13:21. Under Sandpiper CDN's reading of conditional statements, if the resource is available at the first server, then none of the further steps must be performed and the claim is satisfied simply by

obtaining the request.[7] That cannot be correct. Second, Sandpiper CDN relies on a 2020 decision of this Court that adopted the reasoning of the PTAB in *Schulhauser*, which found that if a conditional statement is not met, the subsequent steps are nonlimiting. Pl. Br. at 12 (citing *GREE, Inc. v. Supercell Oy*, 2020 WL 4928303, at *4 (E.D. Tex. July 10, 2020), *report and recommendation adopted*, 2020 WL 4926438 (E.D. Tex. Aug. 21, 2020); *Ex Parte Schulhauser*, 2016 WL 6277792 (P.T.A.B. Apr. 28, 2016)). But the Federal Circuit considered *Schulhauser* in 2021 and held that if a method claim "contains a clear indication that the method requires performance . . . in response to ***each*** of the two alternative conditions," then "the response to either alternative condition…must be performed." *Hytera Commc'ns Co. v. Motorola Sols., Inc.*, 841 F. App'x 210, 217-18 (Fed. Cir. 2021).[8]

Claim 1 of the '692 Patent is indistinguishable from the claim at issue in *Hytera*, which was also "written in conditional language, with two alternative conditions and corresponding responses." *Hytera*, 841 F. App'x at 215. The claim at issue in *Hytera* reads, in relevant part:

> 7. In a time division multiple access (TDMA) system having a plurality of timeslots, a method comprises the steps of:
>
> **knowing** a first set of synchronization patterns associated with a desired timeslot and a second set of synchronization patterns . . .
>
> ***if*** the timeslot is the current desired timeslot, **selecting a synchronization pattern selected from the *first* set** of synchronization patterns based on the one of the particular payload type and a particular source of the transmission;

[7] The same applies to Claim 15, in which the steps other than the obtaining of the request only occur "if the resource is not available at the first server or at a peer of the first server."

[8] *Hytera* addressed invalidity and found that this required the prior-art system be "configured to perform each claimed responsive action in response to each corresponding claimed prerequisite condition" in order to invalidate. 841 F. App'x at 215. However, the court also rejected plaintiff's argument that a conditional clause in a method claim need not be performed for defendant to infringe, relying on its decision in *Lincoln,* which noted that it is axiomatic that a method claim is directly infringed only if each step of the claimed method is ***performed***. *Id.* (*citing Lincoln Nat'l Life Ins. Co. v. Transamerica Life Ins. Co.*, 609 F.3d 1364, 1366, 1370 (Fed. Cir. 2010)).

> ***otherwise* selecting a synchronization pattern selected from the *second* set** of synchronization patterns based on the one of the particular payload type and the particular source of the transmission;

Id. at 213. The claim thus began with a step of "knowing" at least two mutually exclusive options, *id.* at 217, just like the claim at issue here begins with "determining" whether or not the resource is popular. Both the "knowing" and the "determining" two mutually exclusive options would be unnecessary if the method could be performed by only one condition (in the case of Claim 1, obtaining and serving the resource from the first server if the resource is popular). *Id.* Indeed, not only would the determination of whether or not the resource is popular be unnecessary in Claim 1, but so would the entirety of steps [d] and [e]. That is plainly incorrect; Claim 1 recites the "determining" step "precisely because it is essential that" the second branch is performed when the first condition is not met. *Id.* Accordingly, Claim 1 is a method in which the response to either alternative condition must be performed. *Id.*

Sandpiper CDN's cases do not address similar claim structure and/or the reasoning in *Hytera*. *Schulhauser*, for example, examined a claim under the broadest reasonable interpretation standard, which is not applicable here.[9] 2016 WL 6277792, at *3-5. In *GREE*, which was decided before *Hytera*, the Court did not address a claim reciting two mutually exclusive branches but rather just one conditional statement and held that if a condition is satisfied, the limitation must be satisfied. *See* 2020 WL 4928303, at *4. And *Eon Corp. IP Holdings, LLC v. T-Mobile USA, Inc.* did not address the issue of which limitations must be satisfied at all. 2012 WL 405492, at *14 (E.D. Tex. Feb. 8, 2012) (finding "binary" conditional claims but not addressing what is required for infringement).

[9] Moreover, the applicant asserted that *Schulhauser* did not apply to similar claim language in applications related to the '692 Patent. *See* Ex. 3 at 11.

[redacted]

The only other support cited by Sandpiper CDN is Figure 7 of the '692 Patent. But that figure, which shows "a flowchart of processing steps associated with a multi-tiered content delivery network," confirms that the claimed method requires performance of both branches. The flowchart does not stop or end with performance of one branch. Rather, it continues onto the second branch, showing that all steps are performed. *See* Section IV.A, *supra*. Accordingly, the Court should reject Sandpiper CDN's attempt to ignore half of Claim 1 under the guise of "plain and ordinary meaning" and should hold that all claim limitations must be satisfied.

3. "origin server" ('692 Patent Claims 1, 15)

Comcast's Proposed Construction	Sandpiper CDN's Proposed Construction
"A content provider's/customer's server"	Plain and ordinary meaning

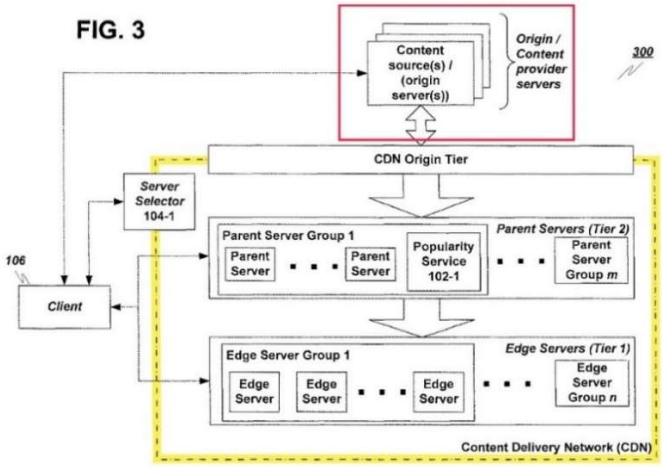
Comcast's proposed construction of "origin server" is taken verbatim from the '692 Patent's specification and prevents juror confusion as to what makes a server an "origin server" as opposed to the other kinds of servers referenced in the claim. Sandpiper CDN's proposal provides no meaning for the term.

The specification states: "A content provider's/customer's server (or servers) are also referred to as origin servers." '692 Patent at 3:65-66. This "expressly and unambiguously defines" the term by using the phrase "referred to." *In re Imes,* 778 F.3d 1250, 1252 (Fed. Cir. 2015); *see also Linear Tech.*, 566 F.3d at 1054 ("providing a definition in the specification controls the meaning of the term" (citation omitted)); *Martek*, 579 F.3d at 1380 (similar).

Rather than accept the patent's straightforward lexicography, Sandpiper CDN seeks to avoid it by accusing Comcast of importing an ownership requirement. But Comcast's construction does not say anything about who owns the server. As Sandpiper CDN acknowledges, the sentence right after the patent's definition of "origin server" as "a content provider's / customer's server (or servers)" states that such server(s) "may be owned and/or

operated by that content provider or they may be servers provided and/or operated by a third party." '692 Patent at 3:65-4:4 (emphasis added). This establishes that both possibilities are encompassed by the definition and thus by Comcast's construction.

Sandpiper CDN also argues that "origin server" is a well-known and understood term, but it provides no support for that assertion nor explains what the term's meaning allegedly is. Pl. Br. at 15. It asserts that the claims use the term in the context of obtaining content from an "origin server." *Id.*[10] But that does not explain what an origin server is or how it is different from the other servers in the claims from which content is also obtained. *See* '692 Patent at 13:14-40, 14:50-15:11 (reciting an "origin server" as well as servers in a "first tier" and "second tier" of the CDN); *id*. at 15:12-16 (reciting "edge servers" and "parent servers"); *id*. at 15:28 (reciting a server in an "origin tier"). The patent's definition of "origin server" explains exactly that, as illustrated below:



'692 Patent at Fig. 3. Whereas servers in the first, second, and origin tiers are part of the CDN (noted in yellow), origin servers (noted in red) are "content provider / origin servers."

[10] Sandpiper CDN also suggests that an origin server "stores the content provider's library." Pl. Br. at 15. That is true for Claim 15 but not Claim 1, which recites an origin server that stores "resources associated with" a content provider's library. In any event, in neither case does the claim state what an origin server is—instead, it simply recites a function of the server.

[redacted]

Despite what a juror may think, an "origin server" is not a server in the "origin tier" of the CDN. *Id.* And the patent defines "origin server" to differentiate it from the other types of servers. There is no reason to ignore that definition or assume that a jury will understand it to be the term's plain and ordinary meaning. Thus, the Court should adopt Comcast's construction.

V. THE '347 AND '876 PATENTS

A. The Alleged Inventions

The '347 and '876 Patents claim specific functionalities concerning processing requests and collecting data in a CDN, respectively. They share the same 200+ column specification, which mostly concerns aspects of CDNs that have nothing to do with the claimed inventions.

The only asserted independent claim of the '347 Patent is 37 lines long and recites a very specific method of request processing. The claims are directed to receiving a request for a service of a particular type that defines a fixed number of configurable layers of request processing. Dkt. 1-1 ("'347 Patent") at Abstract. The processing of the request starts at a first layer and continues conditionally through each layer until the request is terminated or a last layer processes the request. *Id.* However, the claims are more specific than simply using a layered approach to processing a request, which had been known for decades, and require the use of specifically defined "control" and "request" "environments." *Infra* Section V.B.1.

The asserted claims of the '876 Patent are directed to methods performed by a "collector system." Dkt. 1-2 ("'876 Patent") at 203:48-204:3. The collector system collects streams of event data, produces state data relating to the event data, and responds to queries relating to the state data, which is used to inform a peering policy of a set of peer caches. *Id.* at 203:54-204:3.

[redacted]

B. Disputed Terms

1. "control environment" ('347 Patent Claims 1, 13); "request environment" ('347 Patent Claims 1, 2)

Comcast's Proposed Construction	Sandpiper CDN's Proposed Construction
"A list { . . . } of Name=Value assignments which must be constants, not functions of the request"	Plain and ordinary meaning
"Another list [. . .] of Name=Value assignments which may be functions of the request"	Plain and ordinary meaning

The asserted claims of the '347 Patent require that the processing of a request for a content delivery service be based on a "modifiable runtime environment" that comprises a "modifiable control environment" and a "modifiable request environment," which are distinct from each other. '347 Patent at 202:47-48, 53-60. The claims then lay out specific requirements for how the "control environment" and "request environment" are determined, handled, and modified during the processing of the request. *Id.* at 202:61-203:5. The meanings of "control environment" and "request environment" are thus central to the alleged invention. But while Sandpiper CDN says those terms should be given their "plain and ordinary meaning," those terms have no such meanings and Sandpiper CDN never suggests any. It is the specification that provides the requisite definitions, which must be adopted. *See Martek*, 579 F.3d at 1380.

A patentee may act as its own lexicographer by providing "a definition of the disputed claim term in either the specification or prosecution history." *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366-67 (Fed. Cir. 2002). There is no specific manner in which a patentee must indicate a definition so long as it clearly signals its intent to define, and a patentee may signal such an intent by using punctuation and/or explanatory phrases. *See, e.g.*, *SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1196 (Fed. Cir. 2013) (specification can "dictat[e] the manner in which the claims are to be construed" even without "explicit definitional format" (cleaned up));

[redacted]

Sinorgchem Co., Shandong v. Int'l Trade Comm'n, 511 F.3d 1132, 1136 (Fed. Cir. 2007) (indicating intent to define term through punctuation).

That is precisely what the patentee did here for "control environment" and "request environment." The specification states that:

> The effects of matching a request collection are to constrain the next set of nodes to examine and to specify one or more of the following optional attributes:
>
> **1. A control environment: (CE) (a list of { . . . } Name=Value assignments which must be constants, not functions of the request);**
>
> **2. A request environment: (RE) (another list [. . .] of Name=Value assignments which may be functions of the request);**
>
> 3. A behavior identifier: B (a string); and
>
> 4. A single layer control instruction <I> (where I is one of a small number of predefined opcodes governing the flow from layer to layer).

'347 Patent at 65:4-17 (emphasis added).

This is the first time either term appears in the patent, and it establishes definitions of those terms for the remainder of the specification and the claims. The sentence introducing the list makes clear that what follows are different types of attributes, which the list then defines. First, it names "control environment" and sets the term off with a colon, followed by an abbreviation (CE) and then a phrase in parentheses defining the term: "a list of { . . . } Name=Value assignments which must be constants, not functions of the request." *Id.* at 65:7-9. It then does the same for "request environment," setting the term off with a colon, followed by its abbreviation (RE), and then its definition in parentheses: "another list [. . .] of Name=Value assignments, which may be functions of the request." *Id.* at 65:10-12.

The Federal Circuit has recognized that the use of parentheses "is a conventional manner by which one may define another term used in a document." *MyPAQ Holdings Ltd. v. Samsung*

[redacted]

Elecs. Co., 2025 WL 1189920, at *3 (Fed. Cir. Apr. 24, 2025). The use of colons has also been found to signal definition. *See Sharp v. Fed. Sav. & Loan Ins. Corp.*, 858 F.2d 1042, 1045 (5th Cir. 1988) (colon in contractual provision "unambiguous[ly]" signaled definition). Indeed, the patentee uses colons to identify definitions elsewhere in the specification. *See*, *e.g.*, '347 Patent at 28:27-46 ("Reference slots: A slot with a name beginning with a single '@' is a reference slot."). For both disputed terms, then, the punctuation of the sentence, including parentheticals and colons, indicates that the patentee intended the explanatory phrase to be definitional.

The specification then uses these terms consistent with their definitions. Shortly after the above excerpt, the specification explains that "[c]ontrol environments are intended as symbolic categorization labels of the requests that match to that point, whereas request environments capture information from the particular request," *id.* at 65:24-27, reflecting the definitions' clarifications that the request environment "may be functions of the request" whereas a control environment must not be. The specification then states that, "[i]n the end, the combination of both of these environments can be thought of as a single environment of ***name value pairs***," *id.* at 65:27-29 (emphasis added), confirming that both terms refer to lists of such pairs.

Sandpiper CDN claims that the clear definitions of each term are not actually definitional because the introduction to the list states that they (along with two other defined attributes) are "optional attributes." Pl. Br. at 18-19. But that only means that the use of a "control environment" or a "request environment" is optional in the broader system described in the specification. It says nothing about what those attributes are ***if*** they are used (as they are in the claims). It is the list that follows that defines the attributes clearly, without any indication that the definitions are optional.

[redacted]

Sandpiper CDN also misreads the definitions themselves to suggest inconsistencies where there are none. First, it suggests that a control environment cannot include "constants" because the claim requires the control environment to be "modifiable." *Id*. at 19. But the definition states that the Name=Value assignments "must be constants, ***not functions of the request***." '347 Patent at 65:8-10 (emphasis added). "Must" confirms that what follows is a mandatory feature of a control environment. *See Promega Corp. v. Applera Corp.*, 2002 WL 32355680, at *11 (W.D. Wis. Jan. 2, 2002) (use of the word "must" emphasized the "essential nature" of the defined characteristics). However, what follows simply means that the assignments must be constants in the sense that they are not functions of the request, not that they are not otherwise modifiable. Indeed, the very next paragraph of the specification explains that the "control environment" that was just defined to include such constants is incrementally updated as each node inherits the settings for the attributes from previous nodes, showing that the definition does not preclude modification of the control environment. '347 Patent at 65:17-24.

Second, Sandpiper CDN misreads "may" in the definition of "request environment" to suggest that that the definition as a whole is not mandatory. Pl. Br. at 21. But the term "may" follows the mandatory part of the definition and serves to differentiate a "request environment" from a "control environment." Like a "control environment," a "request environment" is a list […] of Name=Value assignments. '347 Patent at 65:7-13. Unlike in a "control environment," however, the assignments in a "request environment" may be functions of the request, which is consistent with the claims' requirement that the "request environment" is determined from information associated with the request. *Id.* at 202:61-63. Far from being problematic, the fact that a "request environment" may be a function of the request establishes the way in which it is definitionally different from a "control environment," which is both necessary and entirely

missing from Sandpiper CDN's proposals. *See CAE Screenplates Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) ("[T]he use of these different terms in the claims connotes different meanings.").

Nor can Sandpiper CDN complain that the definition of "control environment" includes a negative limitation ("not functions of the request"). Pl. Br. at 18. That is precisely what differentiates a "control environment" from a "request environment" and removing that requirement would leave the two terms meaninglessly equivalent. *See Parkervision, Inc. v. Vidal*, 88 F.4th 969, 977 (Fed. Cir. 2023) (explaining that a sentencing being "comparative," i.e., comparing two elements, "does not prevent it from being definitional").[11]

Finally, Sandpiper CDN misreads the specification to assert that the "control environment" may be implemented as variables or other data structures. Pl. Br. at 19. The patent says no such thing. The sentence cited by Sandpiper CDN first states that "the control and request environments have been combined" and then goes on to say, "and it is assumed that ***the behavior*** is identified with an environment variable." '347 Patent at 67:1-3 (emphasis added). A "behavior" is a separate "optional attribute" from the control and request environments, and it is defined third in the list. *Id.* at 65:13. In contrast, the specification is clear that both control and request environments are lists of "name value assignments" and explains what it means for the environments to have been combined in the manner referenced in the earlier part of the sentence:

[11] Sandpiper CDN's cases rejecting negative limitations are inapposite. *Clear With Computers, LLC v. Hyundai Motor Am., Inc.* did not concern a patentee's definition and rejected a negative limitation because the defendant's "only argument" in support was that it would avoid jury confusion. 2011 WL 43454, at *7 (E.D. Tex. Jan. 5, 2011). *Core Wireless Licensing S.A.R.L. v. LG Electronics, Inc.* simply declined to adopt a definition that included "mere[] examples." 2015 WL 6746910, at *7 (E.D. Tex. Nov. 4, 2015).

[redacted]

"the combination of both of these environments can be thought of as ***a single environment of name value pairs***." *Id.* at 65:28-29 (emphasis added).

At bottom, Sandpiper CDN's position is that the patent's definitions are too "technical" and will allegedly confuse the jury. Pl. Br. at 19-21. They will not. But regardless, Sandpiper CDN cannot be heard to complain about the way the patentee defined its own terms. Removing allegedly "technical" concepts such as a list of "Name=Value assignments" would leave the terms meaningless and render the claims abstract and invalid for lack of written description. Indeed, Sandpiper CDN's inability to identify the alleged plain and ordinary meaning of either of these terms is telling: it desires for them to be boundless. But these are technical terms that have no plain and ordinary meaning outside the definitions in the specification, which is precisely why they must be construed as Comcast proposes. *Paice LLC v. Toyota Motor Corp.*, 2005 WL 6220101, at *13 (E.D. Tex. Sept. 28, 2005) ("Where . . . a patentee specifically defines a term, that definition controls."); *see also Martek*, 579 F.3d at 1380 (similar).

2. "wherein a CD service of said particular service type defines a particular number of configurable layers of request processing associated with said CD service of said particular service type, sequentially from a particular first layer to a particular last layer" ('347 Patent Claim 1)

Defendants' Proposed Construction	Sandpiper CDN's Proposed Construction
Indefinite	Plain and ordinary meaning

This term is indefinite because it is equally susceptible to two different interpretations that lead to different results. *See Lites Out, LLC v. Outdoorlink, Inc.*, 2017 WL 4882613, at *18 (E.D. Tex. Oct. 30, 2017) (if there are competing interpretations of the claim language and "no informed and confident choice is available among the contending definitions, the claim is indefinite"); *Evicam Int'l, Inc. v. Enforcement Video, LLC*, 2016 WL 6470967, at *20 (E.D. Tex.

[redacted]

Nov. 2, 2016) ("[T]he existence of multiple reasonable interpretations … supports the conclusion that the scope of the claim is not 'reasonably certain.'" (cleaned up)). Sandpiper CDN does not address the ambiguity in the claim language, let alone resolve it, and thus the claims are invalid.

The different interpretations arise from the last clause of the first step of Claim 1:

> (A) receiving a request for a CD service of a particular service type, **wherein a CD service of said particular service type defines a particular number of configurable layers of request processing** associated with said CD service of said particular service type, **sequentially from a particular first layer to a particular last layer**;

'347 Patent at 202:36-45 (emphasis added).

Grammatically, there are two possible interpretations:

1. The CD service type ***sequentially*** defines a particular number of configurable layers.

2. The CD service type defines a particular number of configurable layers of request processing ***and the sequence for processing such layers***.

Under the first interpretation, "sequentially" modifies the verb "defines." Thus, the CD service type would ***define*** each layer "sequentially," one layer after another from a first layer to a last layer. That would mean that a system in which the CD service type defines the layers in parallel or all at once would not infringe. On the other hand, the limitation would impose no limitation on how the layers were processed or, if processed sequentially, what defined the sequence.

In contrast, under the second interpretation, "sequentially" modifies the "processing" of the layers. Thus, the claim would impose no limitation on the sequence in which the CD service type defines the layers—it could define each layer one after the other or it could define them all at once. But the claim would require that the CD service type define both the layers and the sequence in which they are processed such that there would be no infringement if, in the accused

system, something other than the CD service type defined the sequence in which the layers were processed.

Both interpretations make sense from a design perspective: the first interpretation allows more flexibility because it does not require the processing of the layers to have any defined sequence, and, if there is a processing sequence, it allows that sequence to be defined by something other than the CD service type. Conversely, the second interpretation provides more certainty since both the layers and their processing sequence are defined by the CD service type.

The intrinsic evidence does not provide any guidance as to which interpretation is correct. Step 1(B) recites processing the request starting at the first layer and continuing through each layer until the request is terminated or the last layer processes the request. '347 Patent at 202:46-52. But this limitation is equally consistent with the first interpretation, in which the CD service type has sequentially defined one layer followed by another and the second interpretation in which the CD service type need not have defined the layers sequentially but has defined the sequence of their processing. No other claim steps shed any further light on either the sequence of the definition of the layers or their processing.

The specification does not help either because it provides support for ***both*** interpretations. The specification suggests that "each service type T defines an arbitrary but fixed number NT of configurable layers of request processing." *Id.* at 63:52-55. This says nothing about sequential definition or processing. Then, the specification states that "[t]he idea is that the processing of each request proceeds through each layer in turn." *Id.* at 63:52-55. This is arguably suggestive of the second interpretation but does not actually state that the CD service type defined the sequence of processing. Moreover, the very next sentence suggests that it is the definition of layers that is sequentially defined, when it states that "[f]or each layer, a mapping is defined from

the request collections into behavior configurations. *Id.* at 63:59-60. For its part, the section titled "Layered Request Processing," simply explains that "[t]he general algorithm for processing a request is to compute the applicable configuration for each layer . . . , apply it, and conditionally move to the next layer until the last layer is reached or a stop control is issued." *Id.* at 65:56-60. It does not establish how the layers or any sequence of their processing are defined.

Sandpiper CDN does not address, let alone resolve, the ambiguity in the claim language. It simply posits that "a POSITA would understand from reading the claim language that the CD service defines the particular layers." *See* Pl. Br. at 23. That does not address what the "sequentially…" limitation modifies. Does the CD service type sequentially define the layers or does it define the layers and the sequence of their processing? Sandpiper CDN does not say. Nor does any of the intrinsic evidence to which Sandpiper CDN points.

Because the claim language grammatically supports two equally correct but different interpretations and the intrinsic evidence provides no means by which to choose between them, the claim is indefinite.[12]

3. "collector system" ('876 Patent Claims 1, 7, 8, 9, 11, 12, 13, 16, 20, 21)

Defendants' Proposed Construction	Sandpiper CDN's Proposed Construction
This is a means-plus-function term. Function: The functions disclosed in Claims 1(A), 1(B), 1(C), and any applicable dependent claim steps. Corresponding Structure(s):	Plain and ordinary meaning

[12] None of the cases cited by Sandpiper CDN addresses this type of situation. *See Deep Nines, Inc. v. McAfee, Inc.*, 2010 U.S. Dist. LEXIS 79420, at *10 (E.D. Tex. Aug. 4, 2010) (second interpretation would work "only if . . . standard rules of grammar and punctation" are ignored); *WhereverTV, Inc. v. Comcast Cable Commc'ns, LLC*, 2025 WL 2101946, at *8 (Fed. Cir. July 28, 2025) (addressing term of degree); *Wapp Tech. Ltd. P'ship v. Bank of Am., N.A.*, 2022 WL 2463569, at *17 (E.D. Tex. July 6, 2022) (same). Similarly, an expert declaration is not needed here because the problem is one of grammar, about which there is no factual dispute.

[redacted]

Collector systems disclosed in Table 4-Collector 1 ('876 Patent at 103:54-62) Table 4-Collector 2 (*id.* at 104:4-11), Table 4-Collector 3 (*id.* at 104:31-45), and Table 4-Collector 4 (*id.* at 105:1-11)	

The term "collector system" is a verbal construct connoting nothing more than something defined by its function. "System" is a generic description for software or hardware that performs a function, just like "mechanism," "element," or "device." *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015). And "collector" simply reflects that the system is one that collects. The term is thus a means-plus-function element subject to Section 112(f) and must be limited to the structure disclosed in the specification that performs the claimed functions. Sandpiper CDN does not dispute that the tables identified in Comcast's proposed construction constitute the disclosed structure that performs the claimed functions, and thus Comcast's construction should be adopted.

Under Section 112(f), if an element is "expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof," then the claim will be "construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112(f). Section 112(f) will apply absent the word "means" if "the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Koninklijke KPN N.V. v. Telefonaktiebolaget LM Ericsson*, 2022 WL 811072, at *13 (E.D. Tex. Mar. 16, 2022) (Gilstrap, J.). Thus, "generic terms such as 'mechanism,' 'element,' 'device,' and other nonce words that reflect nothing more than verbal constructs[]" may invoke Section 112(f). *Williamson*, 792 F.3d at 1350.

Here, "collector system" is the type of "nonce word" that invokes Section 112(f). Indeed, in *Koninklijke*, Judge Gilstrap found a materially identical term—"information collector"—to be

a "coined term" that lacks sufficient structural connotations because it is "simply an abstraction that describes the function being performed." 2022 WL 811072, at *15 (cleaned up). That is exactly the case here, where the claim language does not describe the structure of a collector but rather the generic characteristic of collecting. *See also Media Rts. Techs., Inc. v. Cap. One Fin. Corp.*, 800 F.3d 1366, 1373 (Fed. Cir. 2015) ("compliance mechanism" is means-plus-function because "it only describes the term's function and interaction with other parts in the system"); *Synchronoss Techs., Inc. v. Dropbox, Inc.*, 987 F.3d 1358, 1367 (Fed. Cir. 2021) ("user identifier module" is means-plus-function); *Optis Cellular Tech., LLC v. Apple Inc.*, 139 F.4th 1363, 1382 (Fed. Cir. 2025) ("selecting unit" is a generic term that does not connote structure); *Fintiv, Inc. v. PayPal Holdings, Inc.,* 134 F.4th 1377, 1381-82 (Fed. Cir. 2025) ("payment handler" and "payment handler service" are means-plus-function because patentee "merely replace[d] the term 'means' with the payment-handler terms").

Although Sandpiper CDN suggests that the remainder of the claim helps define the claim scope, it only proves the functional nature of the term because, as Sandpiper CDN itself admits, it only provides a description of "the ***operation*** of the 'collector system.'" *See* Pl. Br. 26-27 (emphasis added). Specifically, Claim 1 of the '876 Patent simply provides, in relevant part:

> **by a *collector system***:
>
> (A) **receiving multiple event streams of event data**, said multiple event streams comprising event data from a plurality of CD services in said CDN, said plurality of CD services including a first CD service, each event of said event streams comprising: (i) a timestamp for said event, (ii) information relating to said event;
>
> (B) **producing state data** relating to and based on information represented in said event data of said multiple event streams, wherein, while said collector system is producing said state data, said collector system asynchronously **responds to at least one query** relating to said state data; and

[redacted]

> (C) in response to a query from said first CD service, said query relating to said state data, **providing at least some of said state data** to said first CD service, wherein said state data are used to inform a peering policy of a set of peer caches.

'876 Patent at 203:53-204:3 (emphasis added). Moreover, while the preamble states that the collector system is part of a "computer-implemented method" operable on "at least one device comprising hardware including memory and at least one processor," reciting that a term "may be largely implemented as software executed by a processor and making use of memory" is "insufficient to demonstrate any structural connotation." *Koninklijke*, 2022 WL 811072 at *14.

The specification confirms that the term "collector system" does not connote structure, as it only describes the term in broad, functional terms. In particular, it describes "a collector or collector mechanism" as "a collecting (or collector) service instance running on one or more machines." '876 Patent at 7:40-42. A "service instance," is simply "a mechanism . . . that runs on a machine and that provides one or more functionalities or pieces of functionality," and can be either "***software and/or hardware, alone or in combination***." *Id*. at 6:10-14 (emphasis added). As Judge Gilstrap recognized in *Koninklijke*, the fact that "the patentee did not identify any known type of software structure . . . reinforces that the patentee used the phrase [collector system] to refer to anything that performs the recited functions," 2022 WL 811072 at *14.[13]

Although Sandpiper CDN suggests that extrinsic evidence establishes that a collector system refers to a known class of structures, ***none*** of that evidence suggests any structure for a collector system. Pl. Br. at 27-28. To the contrary, each piece of extrinsic evidence uses the term "collector system" to refer to a generic system that performs certain functions. *See id*. at 28, Ex.

[13] Similarly, references to a "generic collector"—which "consumes an event stream and generates updates to a table, while asynchronously responding to ad hoc queries over the table," and a "pure collector"—which "consumes input events and aggregates them into one or more tables which can be queried ad hoc" but "produce[s] no output events," further reflect that the term "collector system" is only defined by its functions. *See* '876 Patent at 99:30-35, 97:46-51.

F (DOCSIS specification describing a "collector system" by reference to its functions of collecting and correlating information); Ex. G (describing only how the collectors "act"); Ex. I (describing the function of a "Collector," i.e., logging); Ex. J (describing a collector that "receives [records]"); Ex. K (reciting a "data collector" that is configured to "receive" data values); Ex. L (describing collectors that "communicate information").[14]

Moreover, as Judge Gilstrap found in *Koninklijke*, a "collector system" (or "information collector" in that case), is different from terms such as "processor" and "circuit" that were found to connote structure in the cases cited by Sandpiper CDN. That is because a "collector system" is "simply an abstraction that describes the function being performed" rather than serving "as a stand-in" for a known class of structures. *Koninklijke*, 2022 WL 811072 at *14-15 (distinguishing "information collectors" from "digital processing units" and "circuits"); *cf. Smartflash LLC v. Apple Inc*., 77 F. Supp. 3d 535, 541 (E.D. Tex. 2014) ("processor" describes "a class of structures" because it "can be purchased, can perform certain functions even without specific instructions, and has a design for interpreting and executing instructions"); *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004) ("circuit" connotes structure where dictionaries define it as "the combination of a number of electrical devices and conductors" that can be "interconnected to form a conducting path").[15]

[14] The 2009 U.S. Postal Service MODS Handbook cited by Sandpiper CDN discusses neither the function nor the structure of a collector system, and therefore is irrelevant here. *See* Pl. Br. 28, Ex. H (describing how to "add a collector" to the system).

[15] Sandpiper CDN's assertion that Comcast "fail[s] to submit any extrinsic evidence," Pl. Br. at 28, ignores that no such evidence is required where the intrinsic evidence itself is sufficient to determine that a limitation connotes no structure. *See TEK Glob., S.R.L. v. Sealant Sys. Int'l*, 920 F.3d 777, 786 (Fed. Cir. 2019) ("To determine whether the claim limitation at issue connotes sufficiently definite structure to a person of ordinary skill in the art, we look first to intrinsic evidence, and then, ***if necessary***, to the extrinsic evidence." (emphasis added)). Sandpiper CDN's cited cases are consistent with this principle. *See U.S. Well Servs., LLC v. TOPS Well* (….continued)

[redacted]

Because Section 112(f) applies, "collector system" must be limited to the structure disclosed in the specification for performing the claimed functions. *See Williamson*, 792 F.3d at 1351-52. The functions of the "collector system" are recited in steps (A)-(C) and consist of: (i) "receiving multiple event streams of data," (ii) "producing state data," (iii) "asynchronously respond[ing] to at least one query," and (iv) "providing . . . state data . . . to inform a peering policy of a set of peer caches." '876 Patent at 203:54-204:3. Sandpiper CDN does not dispute that the only disclosed structure that corresponds to these functions is the collection of Collectors 1 through 4 listed in Table 4 of the specification. *See id.* at 103:34-39 (Collector 1 "receiv[es] a sequence of events"), 103:66-104:2 (Collector 2 "allows the captured data to be queried"), 104:22-45 (Collector 3 produces state data by "maintain[ing] for each entity x the last availability value a along with the first and last time any event was received"), 104:57-105:11 (Collector 4 "keep[s] track of the popularity, cacheability, and size of a resource in order to inform the peering policy of a set of peer caches from an event stream").[16]

Thus, "collector system" is a means-plus-function term and the Court should limit its structure to the four Collectors disclosed in the specification.

VI. CONCLUSION

Comcast respectfully requests that the Court adopt its proposed constructions.

Servs., 2020 WL 9439469, at *16 (S.D. Tex. Sept. 18, 2020) (looking first to the intrinsic evidence); *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1367 (Fed. Cir. 2022) (same).

[16] All four collectors listed in Table 4 are required to perform the claimed functions.

[redacted]

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Respectfully submitted,

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CERTIFICATE OF AUTHORIZATION TO FILE UNDER SEAL

I hereby certify that this document is authorized to be filed under seal pursuant to the Protective Order entered in this case.

/s/ David J. Lisson

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CERTIFICATE OF SERVICE

I hereby certify that on December 5, 2025 true and correct copies of the foregoing COMCAST'S RESPONSIVE CLAIM CONSTRUCTION BRIEF were served upon the following as indicated:

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