United States Court of Appeals for the Federal Circuit

SOUND VIEW INNOVATIONS, LLC,
Plaintiff-Appellant

v.

HULU, LLC,
Defendant-Appellee

2021-1998

Appeal from the United States District Court for the Central District of California in No. 2:17-cv-04146-JAK-PLA, Judge John A. Kronstadt.

Decided: May 11, 2022

ALAN KELLMAN, Desmarais LLP, New York, NY, argued for plaintiff-appellant. Also represented by FREDERICK DING; PETER CURTIS MAGIC, San Francisco, CA.

BRETT JOHNSTON WILLIAMSON, O'Melveny & Myers LLP, Newport Beach, CA, argued for defendant-appellee. Also represented by BRADLEY M. BERG, JOHN C. KAPPOS, BO MOON, CAMERON WILLIAM WESTIN; PATRICK NACK-LEHMAN, Menlo Park, CA.

Before PROST, MAYER, and TARANTO, *Circuit Judges*.

TARANTO, *Circuit Judge*.

Sound View Innovations, LLC owns now-expired U.S. Patent No. 6,708,213, titled "Method for Streaming Multimedia Information over Public Networks." When Sound View brought the present case against Hulu, LLC, it alleged infringement of six Sound View patents, but only claim 16 of the '213 patent remains at issue. Sound View alleges that Hulu infringed claim 16 by its use of (third party) edge servers, which sit between a central Hulu content server and the video-playing devices of end-user customers (clients). Most significantly for purposes of the infringement dispute currently before us, Sound View alleges that, under Hulu's direction, when an edge server receives a client request for a video not already fully in the edge server's possession, and obtains segments of the video seriatim from the content server (or another edge server), the edge server transmits to the Hulu client a segment it has obtained while concurrently retrieving a remaining segment.

Claim 16 specifies a method, involving a content server and intermediate servers (helper servers), to use when a client requests a streaming multimedia (SM) object. One limitation requires "allocating a buffer" at a helper server "to cache" at least a portion of the SM object. The next limitation (the "downloading/retrieving limitation") requires sending that portion to a requesting client while concurrently retrieving a remaining portion of the SM object from the content server or another helper server. In the first ruling before us, the district court construed the downloading/retrieving limitation not to cover a process in which the downloading occurs from one buffer in the helper server and the (concurrent) retrieving places what is retrieved in another buffer in that server. Rather, the court construed the limitation to require that the same buffer in the helper server—the one allocated in the preceding step—host both the portion sent to the client and a remaining portion retrieved concurrently from the content server or other

helper server. *Sound View Innovations, LLC v. Hulu, LLC*, No. LA CV17-04146, 2020 WL 10758103, at *5 (C.D. Cal. Apr. 13, 2020) (*Claim Construction Opinion*).

With that claim construction in hand, Hulu sought summary judgment of non-infringement of claim 16, arguing that it was undisputed that, in the edge servers of its content delivery networks, no single buffer hosts both the video portion downloaded to the client and the retrieved additional portion. Sound View argued, in response, that there remained a factual dispute about whether "caches" in the edge servers met the concurrency limitation as construed. The district court held, however, that a "cache" could not be the "buffer" that its construction of the downloading/retrieving limitation required, and on that basis, it granted summary judgment of non-infringement. *Sound View Innovations, LLC v. Hulu, LLC*, No. LA CV17-04146, 2020 WL 6821317, at *6 (C.D. Cal. Oct. 20, 2020) (*Summary Judgment Opinion*). A final judgment followed.

Sound View appeals. It challenges the claim construction and the summary judgment ruling. It also challenges two interlocutory rulings that excluded, under Federal Rule of Evidence 702, portions of Sound View's expert testimony on reasonable-royalty damages. *Sound View Innovations, LLC v. Hulu, LLC*, No. LA CV17-04146, 2019 WL 9047211, at *9–11 (C.D. Cal. Nov. 18, 2019) (*Damages Opinion I*); Order Re Defendant's Supplemental Motion to Exclude Testimony of Mr. David Yurkerwich, *Sound View Innovations, LLC v. Hulu, LLC*, No. LA CV17-04146 (C.D. Cal. June 18, 2020), ECF No. 840 (*Damages Opinion II*).

We affirm the district court's construction of the downloading/retrieving limitation. But we reject the district court's determination that "buffer" cannot cover "a cache," and we therefore vacate the district court's grant of summary judgment and remand for further proceedings. Because the evidentiary rulings could matter on remand, we address those rulings—which we affirm.

I

A

The '213 patent describes and claims "methods which improve the caching of streaming multimedia data (e.g., audio and video data) from a content provider over a network to a client's computer." '213 patent, col. 1, lines 10–15. The methods use "helper servers (HS) . . . which operate as caching and streaming agents." *Id.*, col. 2, lines 64–67. Delay in content delivery, server load, and network load can be reduced by using helper servers to respond to client requests. *Id.*, col. 5, lines 46–50. In described embodiments, the invention "utilizes ring buffers in the memory of the HS." *Id.*, col. 5, lines 55–57. When a helper server receives a request for a streaming media (SM) object, and it does not already have the object, it requests the object from, *e.g.*, the content server, which starts streaming it to the HS. *Id.*, col. 6, lines 42–46. The HS "allocates a ring buffer in memory," *id.*, col. 6, line 54, which "is filled with data" from, *e.g.*, the content server, *id.*, col. 6, lines 48–51. "The ring buffers represent a type of short term storage to service multiple requests for the same object which occur within a certain time range." *Id.*, col. 5, lines 57–60. Referring to a ring buffer 57 of Figure 5A, the patent states that "the ring buffer 57 operates as a type of short term cache which stores a portion of an SM object for a fixed time interval," and, because it is emptied out by sending data to a client and replenished with more data, "[i]t is also convenient to view the ring buffer 57 as a sliding window in the sense that portions of an SM object are initially cached in the ring buffer 57 and then deleted to store successive portions of the SM object." *Id.*, col. 7, lines 20–26.

Claim 16 of the '213 patent recites:

> 16. A method of reducing latency in a network having a content server which hosts streaming media (SM) objects which comprise a plurality of time-

> ordered segments for distribution over said network through a plurality of helpers (HSs) to a plurality of clients, said method comprising:
>
> > receiving a request for an SM object from one of said plurality of clients at one of said plurality of helper servers;
> >
> > allocating a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object;
> >
> > downloading said portion of said requested SM object to said requesting client, while concurrently retrieving a remaining portion of said requested SM object from one of another HS and said content server; and
> >
> > adjusting a data transfer rate at said one of said plurality of HSs for transferring data from said one of said plurality of helper servers to said one of said plurality of clients.

Id., col. 14, lines 31–48.

B

In June 2017, Sound View sued Hulu for infringement of claims of six patents, based on Hulu's Streaming Video on Demand products, which use the edge servers of content delivery networks, including third parties Akamai and Level 3, to deliver content to clients. J.A. 203; J.A. 221–37. As to claim 16 of the '213 patent, Sound View argued that Hulu directed or controlled the content delivery networks to allocate a local buffer at an edge server (the claimed "helper server") to cache at least a portion of a Hulu video and to download that video portion to a client while concurrently pre-fetching (*i.e.*, retrieving) another portion of the video.

1

The district court initially construed several claim terms, but the initial constructions are not disputed in this appeal. As the case proceeded, it became clear that the parties disputed the meaning of the downloading/retrieving limitation of claim 16. The district court's resolution of the dispute is on appeal to us.

Sound View argued that the limitation should be construed according to the ordinary meaning of its words, which do not include "buffer" and, more particularly, do not require that the concurrent sending out (downloading) and receiving (retrieving) involve the same buffer. Hulu argued that the concurrent-function requirement must involve the same buffer, and it relied centrally (though not solely) on the prosecution history to support that construction. During prosecution, the applicants added the entire downloading/retrieving limitation to original claim 16 to overcome a rejection over DeMoney (U.S. Patent No. 6,438,630). The district court agreed with Hulu that the applicants' statements accompanying the amendment disclaimed the full scope of the downloading/retrieving limitation, and that the claim required the concurrent downloading from and filling of a single buffer. *Claim Construction Opinion*, 2020 WL 10758103, at *3–4. It thus construed the downloading/retrieving limitation as "downloading said portion of said requested SM object from *said allocated buffer* to said requesting client, while concurrently retrieving *into the same buffer* a remaining portion of said requested SM object from one of another HS and said content server." *Id.* at *5 (emphases added). Sound View subsequently sought reconsideration of that decision, but the court denied the reconsideration motion. *Sound View Innovations, LLC v. Hulu, LLC*, No. LA CV17-04146, 2020 WL 5356698, at *5 (C.D. Cal. June 18, 2020).

Hulu eventually sought summary judgment of non-infringement, arguing that it could not infringe claim 16

because it was undisputed that the accused edge servers—the edge servers Sound View identified as the "helper servers" for its infringement charge—do not download and retrieve subsequent portions of the same SM object in the same buffer, so there could be no infringement in light of the court's "same-buffer" claim-construction decision. J.A. 3583–89. Sound View argued that there was a factual dispute as to whether certain *caches* in the accused edge servers satisfied the requirements of claim 16. J.A. 3742–50. The district court agreed with Hulu and granted it summary judgment of non-infringement of claim 16. *Summary Judgment Opinion,* 2020 WL 6821317, at *6. The court determined that the '213 patent uses the terms "buffer" and "cache" to refer to distinct physical components and, therefore, a cache could not satisfy the limitation of claim 16 requiring a buffer. *Id.* at *3–6. It determined that no further construction of "buffer" was necessary. *Id.* at *6 n.1.

2

The district court issued two rulings related to damages that are on appeal along with the claim-construction and summary-judgment rulings. Sound View proposed to have David Yurkerwich testify to what amount would constitute a reasonable royalty if infringement were found. Mr. Yurkerwich sought to show the value of the invention to a video-streaming provider based on the improved user experience if the invention were used, including fewer occasions of stalling of the video on the user's device ("rebuffering events," J.A. 2288) to await arrival of successive portions for display.

Mr. Yurkerwich's first damages opinion, J.A. 2819–25, relied in part on a study titled "Empirical Evaluation of HTTP Adaptive Streaming under Vehicular Mobility" by Yao et al. (the Yao study), which considered (through emulation) the experience of vehicle passengers in Sydney, Australia, watching streaming videos received on mobile devices over a Wireless Wide Area Network connection,

J.A. 3175–78. According to Mr. Yurkerwich, the Yao study concluded that so-called "adaptive streaming" reduced the number of stalling occasions by 80%, and because the '213 patent teaches adaptive streaming (among other things), there would be an 80% decrease in stalling occasions if the patented technology were used. J.A. 2825.[1] Hulu moved to preclude Mr. Yurkerwich from presenting damages calculations that relied on the Yao study. The district court granted the motion, explaining that Mr. Yurkerwich did not present a sufficient basis to rely on the Yao study, as he did not account for the differences between the adaptive bit rate streaming that was the subject of the Yao study and Hulu's alleged use of adaptive streaming, since many of Hulu's U.S. customers use stationary devices and a WiFi or wired connection. *Damages Opinion I,* 2019 WL 9047211, at *9–11.

Mr. Yurkerwich subsequently submitted an amended report, J.A. 4446–4529, which removed references to the Yao study and instead relied on a press release by a company called Conviva. But the amended report itself presented an evidentiary problem. The Conviva press release

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[1] The Abstract of Yao characterizes "adaptive streaming" in a way that corresponds, not to the downloading/retrieving limitation (as construed to require same-buffer concurrency), but to the last limitation of claim 16, which calls for "adjusting a transfer rate." *See* J.A. 3175 ("Adaptive streaming is a promising technique for delivering a high-quality video streaming experience. In this technique, the streaming bit-rate is constantly adjusted in accordance with variations in the underlying network bandwidth conditions."); *see also* Sound View's Opening Br. at 17 ("[A]daptive bitrate streaming (ABR) [is] a key *part* of the infringing feature" (emphasis added)); *id.* at 53 ("Hulu's systems use ABR and are designed to change bitrates based on available bandwidth.").

described a study of 22.6 billion video streams from viewers in 190 countries and asserted that users with an optimal streaming experience with startup time, stalling, and bit rate watched 250% more content. J.A. 3326–28. Mr. Yurkerwich noted that a Hulu-commissioned study estimated that users of streaming systems with adaptive bit rate technology watched an even greater percentage of additional content, J.A. 4524, but explained that he used the lower figure from Conviva in his calculations so that his estimate would be "conservative[]," *id.* When Hulu moved to exclude the amended report, the district court granted the motion because Mr. Yurkerwich never saw the underlying study in the Conviva report and thus could not assess the methodology or even determine what streaming services were studied, and because he did not demonstrate that all of the identified benefits of the study were attributable to the patented invention or consider whether apportionment was warranted. *Damages Opinion II*, at 4–5. The district court struck Mr. Yurkerwich's amended report and directed the parties to meet to confer about whether the aspects of Mr. Yurkerwich's original report that did not rely on the Yao study could support a claim for damages. *Damages Opinion II*, at 5–6.

3

After the parties stipulated to dismissal of the remaining claims and counterclaims,[2] the district court issued a final judgment of non-infringement of claim 16 of the '213 patent. J.A. 2. It also dismissed Hulu's counterclaim for invalidity of claim 16 without prejudice. *Id.* Sound View

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[2] The asserted claims regarding four of the patents, along with infringement and invalidity allegations concerning other claims of the '213 patent, were dismissed at various points in the litigation. The court held invalid all asserted claims of another asserted patent, and Sound View has not appealed that decision.

timely appealed. We have jurisdiction over the district court's final judgment under 28 U.S.C. § 1295(a)(1).

II

We review de novo the claim-construction ruling concerning the downloading/retrieving limitation, as the ruling rests only on intrinsic evidence. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 808 (Fed. Cir. 2021). "We generally give words of a claim their ordinary meaning in the context of the claim and the whole patent document; the specification particularly, but also the prosecution history, informs the determination of claim meaning in context, including by resolving ambiguities; and even if the meaning is plain on the face of the claim language, the patentee can, by acting with sufficient clarity, disclaim such a plain meaning or prescribe a special definition." *World Class Technology Corp. v. Ormco Corp.*, 769 F.3d 1120, 1123 (Fed. Cir. 2014) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc), and *Thorner v. Sony Computer Entertainment America LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also Personalized Media Communications, LLC v. Apple Inc.*, 952 F.3d 1336, 1340 (Fed. Cir. 2020) ("[A]n applicant's amendment accompanied by explanatory remarks can define a claim term by demonstrating what the applicant meant by the amendment."). Here, we conclude, as the district court did, that the prosecution history establishes that the downloading/retrieving limitation must be construed to require the downloading and retrieving actions to involve the same buffer.

Before discussing the prosecution history, we note that this is not a case in which the other intrinsic evidence—the claim language and specification—establish a truly plain meaning contrary to the meaning assertedly established by the prosecution history. The downloading/retrieving limitation, which does not expressly refer to "buffers," contains no words affirmatively making clear that different buffers

in the helper server may be used for the sending out to clients of one portion of the SM object and the receiving of a retrieved remaining portion. In its opening phrase, "downloading *said* portion of said requested SM object to said requesting client," '213 patent, col. 14, lines 41–42 (emphasis added), the limitation refers indirectly to "a buffer" via the preceding limitation's requirement of "allocating a buffer . . . to cache at least a portion" of the SM object, *id.*, col. 14, lines 39–40. In this claim, in which care is taken to use "a plurality of" when more than the singular is meant, "allocating a buffer" reasonably suggests allocating a single buffer. The next phrase, "while concurrently retrieving a remaining portion" of the same requested SM object, makes no mention of a separate buffer. And given the facially integrated references to the two functions, the language is susceptible to being understood, in context, as implicitly calling for use of the same buffer for the storage of what is retrieved as the one used for the "downloading said portion" function. Proper claim construction "demands interpretation of the entire claim in context, not a single element in isolation." *Pause Technology, LLC v. TiVo, Inc.*, 419 F.3d 1326, 1331 (Fed. Cir. 2005) (citations omitted).

The specification, of central importance to determining a proper claim construction, is not inconsistent with such a reading. As Sound View acknowledges, the specification nowhere says that the invention includes use of separate buffers for the concurrent downloading and retrieving functions, and it nowhere illustrates or describes such an embodiment, in which different buffers are involved in concurrent downloading of one portion and retrieving of a remaining portion of the same SM object in response to a given client's request. *See* Sound View's Opening Br. at 34 n.5. The patent does, however, describe and illustrate an embodiment with only one buffer of the HS performing these simultaneous downloading (emptying) and retrieving (filling) functions. *See* '213 patent, col. 8, lines 46–61; Fig. 7B. In addition, when describing embodiments in which

each HS has multiple buffers, *i.e.*, "ring buffers in the memory," *id.*, col. 5, line 57, the specification indicates that "whenever *a* ring buffer is allocated" to respond to a client request, "as the ring buffer is filled, the data is simultaneously streamed to the requesting client," *id.*, col. 7, lines 55–58 (emphasis added).

It is against this background that we consider the prosecution history. During prosecution, the examiner rejected original claim 16—which was identical to issued claim 16 except that it lacked the downloading/retrieving limitation, J.A. 4395—as anticipated over DeMoney, J.A. 4415. To overcome the rejection, the applicants amended the claim to add the downloading/retrieving limitation to claim 16, J.A. 4406, and they distinguished DeMoney.

The applicants explained that the added limitation, which "recite[d] additional features that the applicants consider as being inventive," overcame the rejection based on DeMoney. J.A. 4410. The applicants first block quoted the Abstract of DeMoney and underlined a portion to highlight the distinction from the now-claimed invention:

> A system for scheduling storage accesses of multiple continuous media streams may include a plurality of media stream clients. Associated with each media stream client is one of a plurality of media stream managers. Each media stream manager maintains a ring of buffers configured to buffer media stream data between its associated media stream client and one or more storage systems. A different deadline queue may be associated with each one of the storage systems. Each deadline queue may be configured to queue buffer requests from the media stream managers. Each buffer request may include a deadline by which the buffer request must be fulfilled by the corresponding storage system. Each media stream manager may be configured so that <u>once one of its buffers is</u>

> consumed by the associated media stream client, the media stream manager submits a buffer request and deadline for that buffer to the appropriate deadline queue. Buffer requests may be ordered in each deadline queue from the earliest to latest deadline. Each media stream manager may be configured to provide a guaranteed maximum media stream rate to its associated media stream client.

J.A. 4410–11 (underlining in applicants' statements). The applicants then explained:

> By contrast, the applicants' invention allocates a buffer . . . and downloads the portion of the SM object to the requesting client, while concurrently retrieving a remaining portion of the requested SM object from another HS or a content server. That is, the applicants' invention concurrently empties and fills the buffer, while the DeMoney reference teaches filling the buffer only after the buffer is empty.

J.A. 4411 (underlining in applicants' statements) (citing DeMoney, col. 12, lines 28–40). The cited portion of DeMoney, at column 12, lines 28–43, which is relevant to the concept of a "deadline queue" discussed in the abstract, explains: "As each buffer is consumed by the stream requester, a block request is issued along with a deadline time to fill the now consumed buffer[]"; the buffers "are accessed one after another in a circular manner"; and "[t]he deadline time assures that each buffer is filled before it is needed by the stream requester." *Id.*, col. 12, lines 28–30, 36–40. Finally, the applicants explained that support for the added limitation is found in the applicants' specification, pointing to the portion of the specification that shows concurrent downloading and retrieval involving a single buffer, as noted above. J.A. 4412; *see* '213 patent, col. 8, line 51, through col. 9, line 24.

Based on the applicants' statements, we agree with the district court that the applicants limited claim 16 to using the same buffer for the required concurrent downloading and retrieval of portions of a requested SM object. We may look at the prior art the applicants were discussing to determine what the applicants' own words about prior art would mean to a relevant skilled artisan. *See Speedtrack, Inc. v. Amazon.com*, 998 F.3d 1373, 1378–80 (Fed. Cir. 2021); *see also Technology Properties Ltd. v. Huawei Techologies Co.*, 849 F.3d 1349, 1359 (Fed. Cir. 2017) ("The question is what a person of ordinary skill would understand the patentee to have disclaimed during prosecution, not what a person of ordinary skill would think the patentee needed to disclaim during prosecution."). Here, the portion of DeMoney cited by the applicants describes a process in which a single buffer of DeMoney downloads and retrieves portions of an SM object only serially, not concurrently; once the buffer is "consumed" (emptied by downloading to the client), it is placed in a queue with a deadline by which it must be filled. DeMoney, col. 12, lines 28–30. The passage describes the group of buffers as a whole performing these functions concurrently; one buffer in the ring downloads the object to the client, while the others in the ring are filled in accordance with their deadline queues. *Id.*, col. 12, lines 36–40.

The applicants in this case must be understood to have been distinguishing their invention (as newly narrowed by the added limitation) on the basis of the distinction between serial and concurrent use of a single buffer. That distinction is communicated first by the applicants' underlining of the "once one of its buffers is consumed . . ." language of the DeMoney Abstract. J.A. 4411. It is then highlighted by the applicants' assertion of the "contrast" of their invention with DeMoney: "That is, the applicants' invention concurrently empties and fills the buffer, while the DeMoney reference teaches filling the buffer only after the buffer is empty," citing column 12, lines 28–40 of DeMoney.

J.A. 4411. And it is reinforced by the applicants' pointing, for support of the added limitation, to a part of their specification disclosing use of the same buffer for the concurrent processes. J.A. 4412.

Sound View suggests that its view of separate-buffer concurrent actions (downloading and retrieving) would in fact have distinguished DeMoney because DeMoney does not disclose concurrent actions at all. But that is not the legal inquiry, which focuses, rather, on what the applicants said about the prior art. Sound View relies on a passage in DeMoney stating that the invention "allows future [storage] requests to be satisfied during lulls" of activity, *id.*, col. 11, lines 28–33, which suggests, according to Sound View, that the buffers in DeMoney, even considered as a whole, perform downloading and retrieving serially, not concurrently. The applicants, however, did not cite that passage in overcoming the rejection, and in any event, the passage cannot establish what Sound View urges. Even if the passage suggests that that DeMoney "allows" serial downloading and retrieving in the ring of buffers, it does not exclude concurrent downloading and retrieving, and it does not negate the disclosure of such concurrency in the passage that the applicants did cite.

For those reasons, we reject Sound View's challenge to the district court's construction of the downloading/retrieving limitation, which we therefore affirm.

III

After the district court adopted its "buffer"-requiring claim construction of the downloading/retrieving limitation, a construction we have now approved, it granted summary judgment of non-infringement, concluding that accused-system components called "caches"—on which Sound View relied for its allegation of infringement under the court's claim construction—could not be the required "buffers." We review the district court's grant of summary judgment here de novo. *See Apple Inc. v. Wi-LAN Inc.,* 25

F.4th 960, 969 (Fed. Cir. 2022) (citing *Estate of Diaz v. City of Anaheim*, 840 F.3d 592, 604 (9th Cir. 2016)). "Whether an accused device infringes requires a two-step analysis—the court first 'determines the scope and meaning of the patent claims asserted, and then the properly construed claims are compared to the allegedly infringing device.'" *CommScope Technologies LLC v. Dali Wireless Inc.*, 10 F.4th 1289, 1295 (Fed. Cir. 2021) (citations omitted).

The district court relied for its conclusion on the '213 patent's references to its described "buffers" and "caches" as distinct physical components. *Summary Judgment Opinion,* 2020 WL 6821317, at *4, *6. The court noted that the '213 patent describes buffers and caches in different locations: The patent defines "cache" as "a region *on the computer disk* that holds a subset of a larger collection of data," '213 patent, col. 4, lines 7–8 (emphasis added); and although the patent does not define "buffer," it describes "ring buffers" located "*in the memory*" of the HS, *id.*, col. 5, lines 55–60 (emphasis added). The court also cited other portions of the specification as distinguishing "buffers" and "caches." *See, e.g.*, *id.*, col. 14, line 49, through col. 16, line 4 (claim 17) (reciting both "managing available memory in the form of a buffer pool" and "means for recording data onto [a] cache"), *id.*, col. 7, lines 55–67 (discussing sources for servicing client requests such as "the memory ring buffer," and "cache on the disk"). The court then concluded that there could be no infringement because Sound View identified certain components in the accused edge servers labeled "caches" as meeting the "buffer" limitations (under its alternative infringement theory), *Summary Judgment Opinion,* 2020 WL 6821317, at *3, and "a cache" cannot satisfy the "buffer" limitations, *id.* at *6.

To the extent that the district court performed the first step of an infringement analysis—claim construction—all it did for the term at issue, "buffer," was to declare what it must exclude (a "cache"). The court did not adopt an affirmative construction of what constitutes a "buffer" in this

patent. But "'[a]lthough there is no per se rule against negative constructions,' which in some cases can be enough to resolve the relevant dispute," *Intel*, 21 F.4th at 811 (citation omitted), the court's construction here was inadequate for the second step of an infringement analysis—comparison to the accused products or methods.

The district court did not decide, and the record does not establish, that "cache" is a term of such uniform meaning in the art that its meaning in the '213 patent must be relevantly identical to its meaning when used by those who labeled the pertinent components of the accused edge servers. In the absence of such a uniformity-of-meaning determination, the district court's conclusion that the '213 patent distinguishes its buffers and caches is insufficient to support a determination that the accused-component "caches" are outside the "buffers" of the '213 patent. What was needed was an affirmative construction of "buffer"—which could then be compared to the accused-component "caches" based on more than a mere name. The district court did not supply the needed construction.

There is an additional reason a further, affirmative construction is needed. Even in the '213 patent, the terms "buffer" and "cache" do not appear to be mutually exclusive, but instead seem to have at least some overlap in their coverage. The disputed claim describes "allocating a *buffer* . . . to *cache*" a portion of the SM object, '213 patent, col. 14, lines 39–40 (emphasis added), and the specification explains that "the ring buffer . . . *operates as a type of short term cache*" because it is capable of servicing multiple client requests within a certain time interval, *id.*, col. 7, lines 20–22 (emphasis added). This intrinsic evidence suggests the absence of mutual exclusivity in general usage of the terms.

It appears that "buffer" should be given the ordinary meaning proposed by Sound View here and in the district court based on a dictionary definition: "temporary storage

for data being sent or received." *See* Sound View's Opening Br. at 44; J.A. 3959, 3977. And Sound View set forth factual evidence that the component of the accused edge servers called a "cache" meets the requirements of a "buffer" under its own proposed construction. J.A. 3742–50. Hulu has not meaningfully advanced a contrary affirmative construction, and there is no definition stated in the '213 patent itself. But we do not decide the issue, instead leaving to the district court the determination whether to conduct further proceedings on what affirmative construction should be adopted.

We note that the district court did not find it necessary to address a separate ground advanced by Hulu to support summary judgment of non-infringement. Hulu argued that it was undisputed that, even if the edge servers' caches could satisfy the buffer limitations, claim 16 was still not met because, in the accused systems, those caches are not "allocated" to store at least a portion of the streaming media object, as required by the "allocating a buffer" limitation of claim 16. J.A. 3997–98; *see also* Hulu's Br. at 51. We will not address this assertion in the first instance.

We vacate the summary judgment of non-infringement and remand the case.

IV

Because we are remanding for further proceedings, we address the district court's two rulings that excluded certain damages evidence. We review a district court's decision to exclude expert testimony for an abuse of discretion. *See General Electric Co. v. Joiner*, 522 U.S. 136, 141 (1997) ("[A]buse of discretion is the proper standard of review of a district court's evidentiary rulings."); *MLC Intellectual Property, LLC v. Micron Technology, Inc.*, 10 F.4th 1358, 1367 (Fed. Cir. 2021); *Messick v. Novartis Pharmaceuticals Corp.*, 747 F.3d 1193, 1196 (9th Cir. 2014). We find no abuse of discretion in the district court's application in this case of the basic evidentiary standards requiring reliability

and legal relevance of expert testimony—here offered on the issue of a reasonable royalty for the particular infringement alleged. *See Daubert v. Merrell Dow Pharmaceuticals,* 509 U.S. 579, 589 (1993); *see also, e.g.*, *MLC Intellectual Property*, 10 F.4th at 1373–75; *VirnetX, Inc. v. Cisco Systems, Inc.*, 767 F.3d 1308, 1328 (Fed. Cir. 2014).

Mr. Yurkerwich's first damages opinion, as discussed, relied on a study of adaptive streaming used by mobile devices in vehicles connected to a wireless wide-area network in Sydney, Australia—the Yao study. Specifically, the study sought to emulate bandwidth variation on commuting routes in Sydney in order to assess how Hypertext Transfer Protocol (HTTP) adaptive streaming "perform[s] under a typical high-speed vehicular environment, wherein the wireless bandwidth varies significantly and rapidly." J.A. 3175. Mr. Yurkerwich adopted the results of that study to conclude that "adaptive streaming" reduces occasions of stalling on users' devices by 80%, thus showing a significant advantage of the patented technology over old technology. J.A. 2825. He then concluded that, because the '213 patent calls for such "adaptive streaming," Hulu's use of adaptive streaming captured that significant advantage, to be reflected in a royalty. *Id.*

The district court reasonably determined that Mr. Yurkerwich did not account for substantial differences between the circumstances studied by Yao and the circumstances of Hulu's accused streaming services. Specifically, Hulu's services are used by many stationary viewers, on desktop computers or televisions, via WiFi or wired connections with stable bandwidth, in the United States. *Damages Opinion I,* 2019 WL 9047211, at *10. And the Yao study acknowledges that non-adaptive streaming "is usually sufficient when the viewer is connected via a wired connection, which has high and fairly stable bandwidth capacity," J.A. 3175, supporting the court's conclusion that Mr. Yurkerwich's failure to account for the streaming behavior of Hulu's customers (including the proportion that

use stationary devices with wired connections) rendered his opinion unreliable, *Damages Opinion I,* 2019 WL 9047211, at *10. For those reasons, and because the testimony of Sound View's technical expert regarding the Yao study does not fill the gaps in justifying use of the Yao study, the district court did not abuse its discretion in recognizing that Mr. Yurkerwich's wholesale adoption of the figures in the Yao study did not pass muster under the standards for admission of expert testimony. *Id.* at *9–11.

Mr. Yurkerwich's amended damages opinion relied on a 2013 Conviva press release describing a 2012 Viewer Experience Report. The press release explains that the report measured over 22 billion video streams from viewers in 190 countries. Mr. Yurkerwich adopted the press release's explanation that users in the study watched 250% more content when they had an "optimal experience" with startup times, buffering stalls, and bit rates; because those are purported benefits of the claimed invention, he assumed that the study's 250% increase in content should be credited to the claimed invention. J.A. 4523–24.

The district court reasonably found a key reliability problem in the fact that Mr. Yurkerwich did not himself see the report underlying the Conviva press release and did not (and could not) adequately characterize the participants in the study (including what proportion were U.S. or non-U.S. companies), or the study's methodology, in adopting the 250% figure. *Damages Opinion II,* at 4. The district court recognized a decisive problem: "[T]he press release does not include a sufficient, in-depth discussion of the study so that it can be assessed, and then compared to the accused technology." *Id.* And those deficiencies, the district court reasonably determined, were not made immaterial by the simple fact that a Hulu internal document reflected an increase even higher than 250% in viewed content due to use of adaptive bit rate streaming. *Damages Opinion II*, at 5. Thus, the court did not abuse its discretion in excluding this testimony.

Although the exclusion stands independently on the foregoing basis, the district court also reasonably concluded that Mr. Yurkerwich did not have an adequate basis for treating the results of the Conviva-reported study as sufficiently tied to the invention as claimed—or, therefore, for not undertaking apportionment that would exclude value reflected in the study (and derivatively in Hulu's services) not attributable to the claimed invention. *Damages Opinion II,* at 4–5. In terms of claim 16, the invention to be valued is only the practicing of the entirety of claim 16, including all limitations. To tie the study results (or Hulu's service value) sufficiently to claim 16 would require at least determining how much of the improvement in user experience from use of adaptive streaming could still be achieved, and at what if any increased cost, without practicing the downloading/retrieving limitation of claim 16, with its requirement of concurrent emptying and filling of the same buffer (as opposed to using more than one buffer but still adjusting bit rates). The district court reasonably saw no adequate consideration of that conceptually central issue.

Sound View has not justified a different conclusion based on its invocation of *Alaska Rent-A-Car, Inc. v. Avis Budget Group, Inc.*, 738 F.3d 960, 969–70 (9th Cir. 2013). There, the Ninth Circuit concluded that the district court did not abuse its discretion in admitting certain expert testimony, whereas here Sound View seeks to reverse a district court's decision to exclude. The substantive damages issues were different, too: the case involved lost profits for breach of contract, not, as here, a reasonable royalty for patent infringement. *Id.* at 968. The Ninth Circuit held that the district court did not abuse its discretion in admitting testimony where the expert extrapolated market projections involving similarly situated companies, "gave reasons for his use of [the] comparisons," and used a reliable methodology to "calculate damages from the breach, as opposed to damages from competition." *Id.* at 968–69. That ruling does not show that the district court in the present case

abused its discretion in finding critical deficiencies of reliability and relevance on the different record here.

V

For the foregoing reasons, we affirm the district court's claim construction of the downloading/retrieving limitation and its exclusion of both the original and amended damages testimony. But we vacate the entry of summary judgment of non-infringement and remand for further proceedings consistent with this opinion.

The parties shall bear their own costs.

AFFIRMED IN PART, VACATED IN PART, AND REMANDED