United States Court of Appeals for the Federal Circuit

TRAXCELL TECHNOLOGIES, LLC,
Plaintiff-Appellant

v.

NOKIA SOLUTIONS AND NETWORKS OY, NOKIA OF AMERICA CORPORATION, FKA NOKIA SOLUTIONS AND NETWORKS US LLC,
Defendants-Appellees

2020-1440, 2020-1443

Appeals from the United States District Court for the Eastern District of Texas in Nos. 2:17-cv-00042-RWS-RSP, 2:17-cv-00044-RWS-RSP, Judge Robert Schroeder, III.

Decided: October 12, 2021

WILLIAM PETERSON RAMEY, III, Ramey & Schwaller, LLP, Houston, TX, argued for plaintiff-appellant. Also represented by JOHN PIERRE LAHAD, Susman Godfrey LLP, Houston, TX.

NATHAN HAMSTRA, Quinn Emanuel Urquhart & Sullivan LLP, Chicago, IL, argued for defendants-appellees. Also represented by MARC L. KAPLAN, DAVID A. NELSON.

Before PROST, O'MALLEY, and STOLL, *Circuit Judges.*

PROST, *Circuit Judge.*

Traxcell[1] sued Nokia[2] for infringement of three patents related to self-optimizing wireless networks. After claim construction and discovery, the district court granted summary judgment of noninfringement for Nokia. Traxcell appeals. For the reasons below, we agree with the district court's claim construction. We also agree that under that construction there is no genuine dispute of material fact that Nokia's accused technology did not infringe. We therefore affirm.

BACKGROUND

I

This case involves three patents in the same family: U.S. Patent Nos. 8,977,284 ("the '284 patent"), 9,510,320 ("the '320 patent"), and 9,642,024 ("the '024 patent"). They share a common 2001 priority claim and a substantially common specification. All are related to self-optimizing wireless network technology—namely, making "corrective actions" to improve communications between a wireless device (for instance, a phone) and the network. They do so using measurements of wireless-device performance and location. The asserted claims (claims 1 and 12 of the '284 patent, claims 1 and 4 of the '320 patent, and claims 1, 6, 11, and 17 of the '024 patent) are a mix of method claims and apparatus claims.

Claim 4 of the '320 patent is representative (emphasis added to disputed terms):

---

[1]   Traxcell Technologies, LLC.
[2]   Nokia of America Corporation (f/k/a Nokia Solutions and Networks US LLC) and Nokia Solutions & Networks Oy.

4.   A method of managing a wireless radio-frequency (RF) network, the method comprising:

coupling in communication, at least one radio-frequency transceiver and an associated at least one antenna to which the radio-frequency transceiver is coupled to at least one mobile wireless communication device;

at *a first computer* coupled to the at least one radio-frequency transceiver, locating the at least one mobile wireless device according to the radio-frequency communications and generating an indication of a *location* of the at least one mobile wireless device;

at the first computer, receiving and storing performance data of connections between the at least one mobile wireless device and the radio-frequency transceiver along with the indication of location;

at the *first computer* storing updated performance data and an updated indication of *location* of the at least one mobile wireless device while the mobile wireless device is communicating with the at least one radio-frequency transceiver;

referencing the performance data to expected performance data;

determining at least one suggested corrective action in conformity with differences between the performance data and expected performance data in conjunction with the indication of *location*;

coupling a second computer in communication with the *first computer*;

at the *first computer*, responsive to a communication from the at least one mobile wireless communication device, setting a no access flag within a memory of the *first computer*;

> providing access from the *first computer* to the in-
> dication of *location* to the second computer if the no
> access flag is reset; and
>
> the *first computer* denying access to the indication
> of *location* to the second computer if the no access
> flag is set.

II

Traxcell sued Nokia, accusing its product Eden-NET of
infringement. Broadly, Eden-NET consists of a suite of
software modules that allows a wireless network operator
to make adjustments to its network. For example, Eden-
NET can restart a malfunctioning base station (e.g., a cell
tower) or identify one that has lost power. Eden-NET can
also collect so-called key performance indicators (or "KPIs")
that contain performance information for devices within
some area—an area such as a cell in a mobile network. In
general, everyone agrees that Eden-NET is a self-optimiz-
ing network product. The question is whether there is any
evidence that Eden-NET is the kind of self-optimizing net-
work product that these patents claim.

III

The magistrate judge issued a claim-construction order
on January 7, 2019. That order construed the terms "loca-
tion" and "first computer" (or "computer"), among others.
The order also determined that claim 1 of the '284 patent
was indefinite. Traxcell did not object afterward to that
determination, nor does it appeal it now. Instead it sought
a certificate of correction from the PTO to fix what it viewed
as a typographical error—reasoning that the correction
would remedy the indefiniteness issue.

After claim construction, Nokia moved for summary
judgment of noninfringement. The district court adopted
the magistrate judge's report and recommendation and
granted summary judgment for Nokia.

Traxcell appeals. We have jurisdiction under 28 U.S.C.
§ 1295(a)(1).

DISCUSSION

The district court granted summary judgment for defendant Nokia in light of its construction of several claim terms.[3] Traxcell appeals both the claim constructions and the noninfringement determinations that flow from them.

"We review claim construction based on intrinsic evidence de novo and review any findings of fact regarding extrinsic evidence for clear error." *SpeedTrack, Inc. v. Amazon.com*, 998 F.3d 1373, 1378 (Fed. Cir. 2021). And we review the district court's summary judgment de novo under the law of the regional circuit—here the Fifth Circuit. *Ericsson Inc. v. TCL Commc'n Tech. Holdings Ltd.*, 955 F.3d 1317, 1324–25 (Fed. Cir. 2020). Summary judgment is proper "if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). We "view[] all evidence in the light most favorable to the nonmoving party and draw[] all reasonable inferences in that party's favor." *Kariuki v. Tarango*, 709 F.3d 495, 501 (5th Cir. 2013) (quoting *Pierce v. Dep't of the Air Force*, 512 F.3d 184, 185 (5th Cir. 2007)). But "the nonmovant can't defeat summary judgment with conclusory allegations, unsupported assertions, or only a scintilla of evidence." *Batiste v. Lewis*, 976 F.3d 493, 500 (5th Cir. 2020).

The district court based its summary judgment on two grounds. First, Eden-NET didn't meet the "location"

---

[3]   For simplicity, and because the district judge adopted the magistrate judge's recommendations as the opinion of the court, we refer to "the district court" in discussing the underlying determinations whether made by the magistrate judge or the district judge.

limitation present in every asserted claim. Second, Eden-NET didn't meet the "first computer" or "computer" limitations present in every asserted claim except claim 6 of the '024 patent. Traxcell appeals not only the constructions of "location" and "first computer" (or "computer") but also the resulting noninfringement determinations. We address each issue in turn.

I

First, we address "location," a term present in all asserted claims. That term was construed as a "location that is not merely a position in a grid pattern." And under that construction, the court granted summary judgment of noninfringement to Nokia. For the reasons below, we agree.

A

We turn to claim construction first. The district court construed "location" to mean a "location that is not merely a position in a grid pattern." It did so mainly in view of arguments that the applicant made during prosecution. On appeal, Traxcell argues that "location" should instead simply take its plain and ordinary meaning.

The dispute here is whether the applicant disclaimed the grid-position sense of "location" during prosecution. "The doctrine of prosecution disclaimer . . . preclud[es] patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution." *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). "Prosecution disclaimer can arise from both claim amendments and arguments." *SpeedTrack*, 998 F.3d at 1379 (quoting *Tech. Props. Ltd. v. Huawei Techs. Co.*, 849 F.3d 1349, 1357 (Fed. Cir. 2017)). And "[a]n applicant's argument that a prior art reference is distinguishable on a particular ground can serve as a disclaimer of claim scope even if the applicant distinguishes the reference on other grounds as well." *Id.* at 1380 (quoting *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1374 (Fed. Cir. 2007)).

The doctrine "ensures that claims are not construed one way in order to obtain their allowance and in a different way against accused infringers." *Id.* (cleaned up). It attaches if a patentee "has unequivocally disavowed a certain meaning to obtain [a] patent" in a way that is "clear and unmistakable." *Omega*, 334 F.3d at 1324–26. If so, it "narrows the ordinary meaning of the claim congruent with the scope of the surrender." *Id.*

In its claim construction order, the court explained that during prosecution the applicant had distinguished the claims from prior art that used a position in a grid pattern as the location. That prior art, "Steer,"[4] included a system that suggested corrective action using "locations in a roughly grid pattern." J.A. 2092. But this "grid pattern," the applicant argued, "does not allow for fine tuning." J.A. 2021. The applicant added that, in this prior art, "all wireless devices within the same grid pattern receive the same tuning." J.A. 2021. In contrast, the applicant argued that its claimed invention (which it called "Reed," after a named inventor) operated "without the limitation of a 'grid pattern.'" J.A. 2021, 2092. The resulting system, it explained, was "more adaptable" and "more refined." J.A. 2021–22. Indeed, it argued this in a section titled "Grid pattern not required in Reed et al. v. grid pattern required in Steer et al." *See* J.A. 2021 (typeface normalized). As appellee points out, Traxcell has also stipulated that this construction is correct in two other cases. *See* Appellee's Br. 27.

In view of the prosecution history, the disclaimer here was clear and unmistakable. Accordingly, we agree with the court's construction.

---

[4]   U.S. Patent No. 6,845,246.

B

Next, we move to infringement. Given its construction, the district court concluded that Traxcell hadn't created a genuine dispute of material fact about whether the accused technology uses a "location" as construed. J.A. 15. We agree.

The claims require that the Eden-NET products use or generate a "location" for wireless devices that is "not merely a position in a grid pattern." They also require that an infringing system identify and store such a "location" for a wireless device.

Nokia's expert explained without contradiction that the accused technology's geolocation systems collect KPIs from base stations—and that the KPIs are grouped into 50-meter-by-50-meter "bins." J.A. 15–16. And none of the KPIs, the expert explained, correspond to any particular phone. J.A. 15. Rather, they are averages within a given cell over a certain period—from a quarter-hour to a day. J.A. 15.

It was these KPIs that Traxcell pointed to as meeting the "location" limitation. But Traxcell did not provide evidence to controvert Nokia's expert's description. *See* J.A. 16 n.2. And its own expert stated that his "interpretation of the word 'grid'" was "a defined geographic area within a certain confine. For example, in a cell." J.A. 16, 3601. He added that if "you have a 50-by-50 meter square area within a particular cell," then "that would be a particular grid." J.A. 16, 3601. In view of the claim construction and Traxcell's expert's statements, the court concluded that this all amounted to simply a grid-based location— whether a cell or to a 50-meter-by-50-meter bin within a cell. We agree with the district court on that point.

But even if the accused technology weren't using "merely a position in a grid pattern," there's another problem, as the district court also noted: the claims require that

each "location" be tied to a specific device. For instance, the independent claims of the '024 patent recite the "location of the one or more mobile wireless communication devices." '024 patent claims 1, 6, 11, 17. The independent claims of the '320 patent include the "location of the at least one mobile wireless device." '320 patent claims 1, 4. And the independent claims of the '284 patent recite the "corresponding location for said at least one wireless device" or "location associated with said at least one wireless device" (where the location is coupled with some other performance data). '284 patent claim 1; *see also id.* claim 12 ("location for each of said at least two wireless devices"). Despite some minor variability in claim language, in each claim it is clear that the "location" must be of *a device*.

Compare this with the accused technology. As mentioned, the theory of infringement puts "location" as part of Eden-NET's KPIs. But the KPIs are aggregated over time, over space, and over devices; they are not tied to specific phones. Indeed, the performance information relates to an entire area within a bin or cell—to all devices within that grid. And Traxcell hasn't provided any evidence to rebut Nokia's evidence on that point. J.A. 17; *see Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1382–83 (Fed. Cir. 2016) (affirming summary judgment of noninfringement in light of unrebutted evidence).

Traxcell first argues that the claims don't require location to be tied to specific devices. On this point, Traxcell relies on the doctrine of claim differentiation. Because *some* claims recite the "location for each . . . device," it says, the claims without "each" do not require per-device locations. But claim differentiation is "a guide, not a rigid rule," especially if the claim language is clearly to the contrary. *Wi-LAN USA, Inc. v. Apple Inc.*, 830 F.3d 1374, 1391 (Fed. Cir. 2016) (quoting *Marine Polymer Techs., Inc. v. HemCon, Inc.*, 672 F.3d 1350, 1359 (Fed. Cir. 2012)). And Traxcell provides no adequate reason why the mere presence of "each" should have this importance—especially

where the various claims all just seem to say the same thing differently phrased. As we explained, each claim recites the location *of a device*, or "locating" a device. *See, e.g.*, '284 patent claim 1 ("locating at least one said wireless device"). Not the *average* of many locations. The fact that some claims require multiple device locations (i.e., locations for "each" device) does not mean that broader claims only requiring a single device location need not be tied to a specific device.

Traxcell also suggests that it just might happen that one phone is alone in a cell or bin, by itself, for the averaging period—meaning that, in theory, an averaged KPI for that cell or bin would correspond to data for one device. But that's much too speculative. No evidence in the record suggests that this is or ever was the case. *See Ball Aerosol & Specialty Container, Inc. v. Ltd. Brands, Inc.*, 555 F.3d 984, 995 (Fed. Cir. 2009) (holding summary judgment of noninfringement to be appropriate where infringement required a particular product configuration but where there was no evidence that the infringing configuration had ever existed). And this evidentiary shortfall exists against abundant evidence from Nokia's expert—again, unrebutted—that the system doesn't know which devices generate the data for any given geographic bin. *See, e.g.*, J.A. 17, 2683, 2708, 3141, 3143, 3616, 3618–19.

We agree with the district court. On this record, there is no genuine dispute of material fact that the accused technology's geolocation systems do not employ a "location" as claimed.

II

Next we address "first computer" and "computer," which are limitations in all asserted claims except claim 6 of the '024 patent. Those terms are paired with various functions throughout the claims. Construing those terms to require that a single computer could perform the recited functions, the district court concluded that Traxcell

couldn't show that the accused technology met those limi-
tations, and that summary judgment was proper.   We
agree.

A

First, we address claim construction.   The asserted
claims recite a "computer" or "first computer" capable of
taking certain actions.   For example, claim 1 of the '284 pa-
tent recites a "first computer programmed to perform the
steps" of "locating" a wireless device and "routinely storing
performance data and a corresponding location data," and
being "further programmed" to "receive [an] error code"
and "selectively suggest a corrective action."   Similarly,
claim 1 of the '024 patent recites "a computer . . . pro-
grammed to" perform a function, "wherein the computer
further" performs additional functions.   The question is
whether these capabilities all belong to one computer or
can be spread among multiple.   The district court construed
"first computer" and "computer" to mean a *single* computer
that can perform each function.   *See* J.A. 5, 7, 2084–88.

We start with the claim language.   *See Immunex Corp.
v. Sanofi-Aventis U.S. LLC*, 977 F.3d 1212, 1218 (Fed. Cir.
2020).   As a matter of plain language, reciting "a computer"
(or a "first computer") that performs a function, and then
further reciting that "*the* computer" (or "*said* first com-
puter") performs multiple additional functions, suggests
that such "computer" must be tied to all those functions.
And it would make little sense—indeed, it would defy the
concept of antecedent basis—for the claims to recite "the
computer" or "said first computer" being "further" pro-
grammed to do a second set of tasks if a different computer
were to do those tasks instead.

The prosecution history confirms this understanding.
During prosecution, the applicant distinguished a prior-art

reference, "Andersson,"[5] in part because that reference used multiple computers, whereas its claimed invention (deemed "Reed") used just one. A section of the applicant's arguments was titled "Single computer needed in Reed et al. v. additional software needed in Andersson et al." J.A. 2007 (typeface normalized). There, the applicant explained that its claimed invention avoided the "extra steps, equipment, and expense required by" the Andersson reference. J.A. 2007. Rather, its claimed solution taught "a first computer . . . without the requirement of Andersson's extra equipment." J.A. 2007 (typeface normalized). Namely, it explained that "Reed's invention for [its] functionality requires only 'a first computer.' Andersson, on the other side, cannot provide a location for the phone, without a second computer in the phone." J.A. 2007. And later it reiterated that its invention "offers a single computer . . . without the need for special hardware on the phone, second computers, or a two way tuning communication with the wireless device." J.A. 2008. Separately, distinguishing another prior-art combination (Andersson and Steer), the applicant again emphasized that its solution "requires only a first computer," unlike the asserted combination—which also needed "a second computer requiring additional hardware and software." J.A. 1987–88. We agree with the district court that the patentee clearly and unmistakably disclaimed the use of multiple computers.

Traxcell argues that we shouldn't find a disclaimer this broad because a narrower disclaimer would have been enough to overcome the prior art. But the patentee is held "to the actual arguments made, not the arguments that could have been made." *Tech. Props.*, 849 F.3d at 1349; *Norian Corp. v. Stryker Corp.*, 432 F.3d 1356, 1361–62 (Fed. Cir. 2005) ("[I]t frequently happens that patentees

---

[5]   U.S. Patent No. 6,334,047.

surrender more through amendment than may have been absolutely necessary to avoid particular prior art.").

Consider also the specification. Figure 29—"the preferred embodiment"—pictures a lone computer, a "master server" having "all [the] preferred embodiment[']s software and necessary hardware to operate." '284 patent Fig. 29; *id.* at col. 48 ll. 36–49. This embodiment is consistent with the single-computer construction based on the language and the prosecution history, and Traxcell points to no embodiment spreading functions among multiple computers.

Traxcell also suggests that a person of ordinary skill would understand in general that the terms "first computer" and "computer" would include multiple computers. Set aside that Traxcell provides no extrinsic evidence on this point. Even if it had, if the intrinsic record is to the contrary, "the intrinsic record trumps." *Immunex*, 977 F.3d at 1222.

On the basis of the claim language, the prosecution history, and the specification, we agree with the district court's construction. The claims require a single computer where a "first computer" or "computer" is mentioned.

B

Finally, we turn to the district court's noninfringement determination predicated on its construction of "first computer" and "computer." The court concluded that Traxcell had not provided evidence that the limitation was satisfied. First, Traxcell made no showing that a single Eden-NET computer could perform the corresponding claimed functions. And a multiple-computer infringement theory under the doctrine of equivalents was doomed by prosecution-history estoppel. We discuss literal infringement and the doctrine of equivalents in turn.

1

The district court first concluded that Traxcell had not presented the requisite evidence to show a genuine factual dispute under a literal-infringement theory. We agree.

As explained above, Eden-NET is a distributed system with various functions performed on various modules and servers and processors. For its part, Nokia provided un-controverted evidence from its corporate representative that Eden-NET not only *is* installed on multiple computers but that it *must* be. For instance, Eden-NET has "various software functions" that "have to run on disparate computer systems." J.A. 2654. Eden-NET "run[s] on distinct computers" to avoid "a single point of failure," and its "size" makes it impossible to run on just one. J.A. 2693; *see also* J.A. 2692, 2694; *Profectus Tech.*, 823 F.3d at 1382–83.

Traxcell didn't dispute this evidence. Instead, it explained that all the functions are accessible to a user through a graphical user interface (that is, a "GUI") run by a specialized GUI server. Traxcell argued that this GUI server qualifies as a "single computer" that performs all the claimed functions. But the GUI server is an interface—a point of interaction. J.A. 19. It doesn't (and can't) perform the functions itself. Indeed, Traxcell's expert explained that "the GUI server gets its information from the other modules, from the other subroutines that are running on different servers or different processors." J.A. 19; *see also* J.A. 3055–56 (providing unrebutted evidence that the GUI is merely the "front end" that "collects the information from all the other servers," displays it, and lets the user control them). As the district court observed, Traxcell "has not shown that even its own expert considers the GUI server to be a single computer." J.A. 19. The court went on to explain that Traxcell hadn't shown how various specific functions were performed by the GUI server. J.A. 19. Alternatively, Traxcell argues that, by *controlling* other computers that perform the claimed functions, the GUI server

meets the limitations. This interpretation, however, would nullify the single-versus-multiple-computer distinction in claim construction.

We agree with the district court. Traxcell's showing is insufficient to withstand summary judgment.

2

We also agree with the district court that prosecution-history estoppel forecloses Traxcell's alternative multiple-computer infringement theory.

If a patentee surrenders some scope during prosecution, that territory isn't available later as a doctrine-of-equivalents battleground. *Amgen Inc. v. Coherus BioSciences Inc.*, 931 F.3d 1154, 1159 (Fed. Cir. 2019). Scope surrender often occurs through a claim amendment, but it can also result from arguments—that is, if the prosecution history "evince[s] a clear and unmistakable surrender of subject matter." *Id.* The relevant inquiry is "whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter." *Id.* at 1159–60 (quoting *PODS, Inc. v. Porta Stor, Inc.*, 484 F.3d 1359, 1368 (Fed. Cir. 2007)). Whether prosecution-history estoppel applies is a question of law. *Id.* at 1159.

Traxcell's first challenge to the application of prosecution-history estoppel is its contention that nothing was surrendered at all. We disagree with Traxcell, as explained in our claim-construction analysis.

Traxcell also insists that the district court didn't adequately parse out which equivalents were surrendered and which weren't. Traxcell essentially argues that, seeing *some* surrender, the district court wielded prosecution-history estoppel as a crude categorical cudgel and ignored that only the surrendered scope is excluded from recapture. Again we disagree with Traxcell. The district court properly concluded that *multiple-computer* equivalents, as asserted, were surrendered—not that *all* equivalents were.

We agree with the district court that Traxcell clearly and unmistakably surrendered multiple-computer equivalents during prosecution and that a competitor would reasonably believe those equivalents to be fair game. Traxcell cannot reclaim that lost territory now.

III

Finally, we note that Nokia has argued that many of Traxcell's arguments have been forfeited through failure to timely raise them at the trial court, or for other reasons. We need not reach the forfeiture issues, however, because we agree with the district court and disagree with Traxcell on the merits. *See Immunex*, 977 F.3d at 1216; *TEK Global, S.R.L. v. Sealant Sys. Int'l, Inc.*, 920 F.3d 777, 787 (Fed. Cir. 2019).

CONCLUSION

We have considered Traxcell's remaining arguments but find them unpersuasive. For the reasons we have explained, we affirm.

AFFIRMED