

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

COOPERATIVE ENTERTAINMENT, INC.,
Plaintiff-Appellant

v.

KOLLECTIVE TECHNOLOGY, INC.,
Defendant-Appellee

2021-2167

Appeal from the United States District Court for the Northern District of California in No. 5:20-cv-07273-EJD, Judge Edward J. Davila.

Decided: September 28, 2022

MEREDITH MARTIN ADDY, AddyHart P.C., Atlanta, GA, argued for plaintiff-appellant. Also represented by BENJAMIN CAPPEL, Chicago, IL; MATTHEW MICHAEL WAWRZYN, Wawrzyn LLC, Chicago, IL.

MICHAEL S. DOWLER, Park, Vaughan, Fleming & Dowler LLP, Houston, TX, argued for defendant-appellee.

Before MOORE, *Chief Judge*, LOURIE and STARK, *Circuit Judges*.

MOORE, *Chief Judge*.

Cooperative Entertainment, Inc. (Cooperative) appeals the United States District Court for the Northern District of California’s dismissal of its amended complaint under Rule 12(b)(6), which held all claims of U.S. Patent No. 9,432,452 ineligible under 35 U.S.C. § 101. We reverse the district court’s dismissal and remand for further proceedings.

BACKGROUND

The ’452 patent relates to systems and methods of structuring a peer-to-peer (P2P) dynamic network for distributing large files, namely videos and video games. ’452 patent at 4:28–40. In prior art systems, video streaming was controlled by content distribution networks (CDNs), where content was “distributed directly from the CDN server originating the content.” *Id.* at 3:35–36, 9:50–52. The ’452 patent, in contrast, claims methods and systems for a network in which content distribution occurs “*outside* controlled networks and/or [CDNs],” i.e., outside a “static network of controlled systems.” *Id.* at 3:40–43 (emphasis added), 3:57–58, 5:38–42. It does this with dynamic P2P networks comprising “peer nodes,” i.e., nodes consuming the same content contemporaneously, that transmit content directly to each other instead of receiving content from the CDN. *Id.* at 3:55–64, 4:52–60, 5:4–10, 6:40–43, 7:43–46.

To facilitate content distribution, the claimed P2P networks use “content segmentation” in which a video file, for example, is segmented into smaller clips and distributed piecemeal. As a result, viewers can obtain individual segments as needed, preferably from other viewers. *Id.* at 8:10–12, Figs. 2–9. Content is segmented using several techniques, including “CDN address resolution, *trace route to CDN and the P2P server manager*, dynamic feedback from peers reporting traffic rates between individual peer and its neighbors, round-robin, other server side

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scheduling/resource allocation techniques, and combinations thereof.” *Id.* at 5:51–56 (emphasis added).

Claim 1 recites:

1. A system for virtualized computing peer-based content sharing comprising:

at least one content delivery server computer constructed and configured for electrical connection and communication via at least one communications network; and

at least one peer-to-peer (P2P) dynamic network including a multiplicity of peer nodes, wherein the multiplicity of peer nodes consume the same content within a predetermined time, wherein the multiplicity of peer nodes are constructed and configured for electronic communication over the at least one P2P dynamic network, wherein the at least one P2P dynamic network is based on at least one trace route; wherein the multiplicity of peer nodes is distributed outside controlled networks and/or content distribution networks (CDNs) that are included within the at least one communications network;

wherein the at least one content delivery server computer is operable to store viewer information, check content request, use the trace route to segment requested content, find peers, and return client-block pairs;

wherein distribution of P2P content delivery over the at least one P2P dynamic network is based on content segmentation;

wherein content segmentation is based on CDN address resolution, trace route to CDN and P2P server manager, dynamic feedback from peers reporting traffic rates between individual peer and

its neighbors, round-robin and other server side scheduling/resource allocation techniques.

'452 patent at claim 1.

Cooperative sued Kollektive Technology, Inc. (Kollektive) for infringement of at least claims 1–3 and 5 of the '452 patent.¹ In response to Kollektive's first motion to dismiss under Rule 12(b)(6) arguing all claims are ineligible under 35 U.S.C. § 101, Cooperative filed an amended complaint. Kollektive refiled its motion to dismiss. The district court granted the motion. *Coop. Ent., Inc. v. Kollektive Tech., Inc.*, 544 F. Supp. 3d 890, 902 (N.D. Cal. 2021). Cooperative appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I

We review the district court's dismissal under regional circuit law, here the Ninth Circuit. *In re TLI Commc'ns LLC Pat. Litig.*, 823 F.3d 607, 610 (Fed. Cir. 2016). The Ninth Circuit reviews de novo whether a complaint contains "well-pleaded facts . . . that plausibly give rise to an entitlement to relief." *Whitaker v. Tesla Motors, Inc.*, 985 F.3d 1173, 1176 (9th Cir. 2021) (internal citations and quotation marks omitted).

Patent eligibility is ultimately a question of law we review de novo. Eligibility, however, may depend on underlying issues of fact. *See Berkheimer v. HP, Inc.*, 881 F.3d

¹ The parties dispute what claims were at issue below and whether the district court had jurisdiction to hold ineligible all claims of the '452 patent. Appellant's Br. 48–49; Appellee's Br. 52–57. Because the alleged inventive concepts are present in *all* claims, we need not address the parties' dispute over what claims were at issue before the district court.

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1360, 1365 (Fed. Cir. 2018). To determine patent eligibility, we apply the Supreme Court’s two-step *Alice* framework. See *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 217 (2014). At step one, we determine whether the claim is “directed to” a “patent-ineligible concept,” such as an abstract idea. *Id.* If it is, at step two we examine “the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Id.* at 221 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72, 79–80 (2012)). Specifically, we determine whether the claim elements, individually and as an ordered combination, contain an inventive concept, which is more than merely implementing an abstract idea using “well-understood, routine, [and] conventional activities previously known to the industry.” *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014) (quoting *Alice*, 573 U.S. at 225) (alteration in original). Thus, patent eligibility may be resolved at the Rule 12 stage only if there are no plausible factual disputes after drawing all reasonable inferences from the intrinsic and Rule 12 record in favor of the non-movant. *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1261–62 (Fed. Cir. 2017); *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358, 1369 (Fed. Cir. 2020); *Nat. Alternatives Int’l, Inc. v. Creative Compounds, LLC*, 918 F.3d 1338, 1349 (Fed. Cir. 2019); *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1008 & n.2 (Fed. Cir. 2018); *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1125–27 (Fed. Cir. 2018); *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1316–18 (Fed. Cir. 2019); *Berkheimer*, 881 F.3d at 1368–70.

II

The district court held at *Alice* step one the “focus of the ’452 patent” is the abstract idea of “the preparation and transmission of content to peers through a computer network.” *Kolcollective*, 544 F. Supp. 3d at 896. We need not

address the parties' dispute regarding the application of *Alice* step one because, as explained below, the claims contain alleged inventive concepts not limited to the abstract idea, which defeat Kollektive's Rule 12 motion. *See Aatrix*, 882 F.3d at 1129 (addressing only *Alice* step two). At *Alice* step two, the district court characterized the '452 patent as "merely implement[ing] the abstract idea of preparing and transmitting data over a computer network with generic computer components using conventional technology." *Kollektive*, 544 F. Supp. 3d at 900. Cooperative argues the district court erred because, *inter alia*, its amended complaint plausibly alleges that the '452 patent claims recite inventive concepts at *Alice* step two, precluding dismissal. *See* Appellant's Br. 3–17, 38–46. We agree. Claim 1 contains several alleged inventive concepts which the specification touts as specific improvements in the distribution of data compared to the prior art. The amended complaint plausibly alleges these inventive concepts, and this should have defeated Kollektive's Rule 12(b)(6) motion in this case.

There are at least two alleged inventive concepts in claim 1 which should have precluded the district court's holding on ineligibility. The first is the required dynamic P2P network wherein multiple peer nodes consume the same content and are configured to communicate outside the CDNs. '452 patent at claim 1 ("at least one peer-to-peer (P2P) dynamic network including a multiplicity of peer nodes, wherein the multiplicity of peer nodes consume the same content within a predetermined time, . . . wherein the multiplicity of peer nodes is distributed outside controlled networks and/or content distribution networks (CDNs)"). The second requires trace routes be used in content segmentation. *Id.* at claim 1 ("wherein content segmentation is based on CDN address resolution, trace route to CDN and P2P server manager, dynamic feedback from peers reporting traffic rates between individual peer and its neighbors, round-robin and other server side scheduling/resource allocation techniques"). Because

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Cooperative plausibly alleged that both of these concepts were inventive, we reverse the district court's dismissal.

A

Claim 1 recites the allegedly inventive concept of a particular network structure for sharing content through a dynamic P2P network. '452 patent at claim 1. The written description and Cooperative's amended complaint plausibly tout this as an improvement to content distribution systems. Accordingly, we hold the district court erred in dismissing Cooperative's complaint.

Claim 1 recites a specific type of content-sharing network and delineates both the network's structure and function. The claimed system must contain at least one P2P dynamic network and one content delivery server. *Id.* The dynamic P2P network must include at least one trace route and a multiplicity of peer nodes, which the claim defines as nodes "consum[ing] the same content within a predetermined time" and configured to communicate within the dynamic P2P network. *Id.* Claim 1 further limits the structural and functional relationship between the P2P network and the content delivery server: the "multiplicity of peer nodes is distributed outside controlled networks and/or" CDNs. *Id.* And, as discussed further below, it describes how content is distributed within the P2P network using content segmentation based on trace routes. *Id.* It is this specific network structure required by claim 1 that Cooperative alleges to be inventive.

The specification explains how claim 1's dynamic P2P network structure is different from and improves upon the prior art, especially the structural limitation that the peer nodes consuming the same content be distributed outside a controlled network or a CDN: "The prior art fails to provide video streaming over P2P networks outside the structure and control of CDNs." *Id.* at claim 1, 3:35–36. It describes that, in "contrast to the prior art," grouping peer nodes based on their simultaneous consumption of common

content, such as a video or a video game, allows the “groups of peer nodes forming the dynamic P2P networks of the present invention [to] provide for smooth playback and avoids stuttering problems or delays or buffering problems.” *Id.* at 7:29–38. The “need for peer nodes to share in real-time or near-real-time all while the users are viewing the video content via the remote, distributed peer nodes provides a session constraint that *does not exist with prior art gaming or prior art audio sharing.*” *Id.* at 7:46–50 (emphasis added). As a result, claim 1 “by-pass[es] any established or static content delivery network (CDN); advantageously, this saves time, improves redundancy, and also reduces or eliminates costs for content delivery over the CDN for the peer nodes.” *Id.* at 5:41–44. This allegedly new claimed P2P network “provide[s] more efficient and reduced cost of delivery for the content,” *id.* at 4:49–50, and enables new content-delivery system functionality by “providing live streaming for video and/or audio content as well as data, files, analytics, and combinations thereof,” *id.* at 4:50–52.

The amended complaint reiterates the benefits of claim 1’s “novel technique” of a dynamic P2P network for distributing content outside the control of a CDN. J.A. 46 ¶ 13 (quoting ’452 patent at 5:38–48). For example, it alleges the prior art “failed to disclose . . . the multiplicity of peer nodes of the dynamic peer-to-peer network consum[ing] the same content within a predetermined time.” J.A. 46 ¶ 12 (quoting J.A. 245 (examiner’s statement of reason of allowance)). It also alleges claim 1’s structure of sharing “common video content iteratively [] in segments throughout the P2P network” is inventive because it “reversed the flow of distributed digital content” compared to the prior art and solved capacity problems related to content sharing. J.A. 47 ¶ 14 (quoting ’452 patent at 4:52–60). As a result, the “problem that the ’452 patent addresses is capacity,” and “[t]he patent claims are addressed to the solution—sharing video content through a dynamic network . . . defined by

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the peer nodes consuming the same content.” J.A. 49 ¶ 24. Specifically,

[t]he benefit of this “bottom up” approach is manifold and generally directed to addressing the capacity problem. If control is passed to the P2P dynamic network, then capacity may be substantially addressed—and in some cases exclusively addressed—by the P2P dynamic network. In other words, the computing capacity of the client devices consuming the video content is leveraged and used to the maximum extent.

J.A. 49 ¶ 25. Contrary to the district court’s conclusion, *Kolletive*, 544 F. Supp. 3d at 897, Cooperative’s allegations related to system capacity are plausibly tethered to claim 1’s distribution of content within its P2P network outside the control of a CDN. ’452 patent at 9:54–60 (“The systems and methods of the present invention provide for harnessing the content recipient devices to aggregate or assemble intelligent functionality of the devices unassociated with the content receipt, including but not limited to computational storage and processing *capacity of the content recipient devices in the P2P* dynamic network” (emphasis added)); *see also* J.A. 48 ¶ 19 (“Claim 1, like all the claims, covers the virtual layer outside the control of the prior art distribution scheme pushed from the CDN.”).

Drawing all inferences in favor of Cooperative, as we must on a motion to dismiss, we conclude that claim 1 recites a specific technical solution that is an inventive concept: it recites a particular arrangement of peer nodes for distributing content “*outside* controlled networks and/or [CDNs],” ’452 patent at claim 1, which did not exist in the prior art, ’452 patent at 3:35–36. This is not an “abstract idea implemented on a generic computer,” and it is alleged to improve the performance of the content delivery network with reductions in costs and improvements in several aspects of system performance. *See BASCOM Glob. Internet*

Servs., Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1352 (Fed. Cir. 2016); *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1299 (Fed. Cir. 2016) (citing *BASCOM*, 827 F.3d at 1351).

At a minimum, the district court should have denied the motion to dismiss because Cooperative's allegations in the complaint regarding the claims and the '452 patent's written description create a plausible factual issue regarding the inventiveness of the dynamic P2P configuration of claim 1. *See Berkheimer*, 881 F.3d at 1370 (holding material dispute of fact regarding inventiveness created by improved redundancy, efficiency, computer functionality, and costs of operating a network or computer systems network costs that are captured by claim elements precludes summary judgment). Claim 1 recites a specific network structure, the patent's written description explains how it is arranged, and the written description and amended complaint explain the alleged benefits of sharing content using a P2P network outside the control of a CDN using peer nodes. Determining whether the claimed network is well-understood, routine, or conventional is a question of fact that cannot be resolved at the Rule 12(b)(6) stage, and the district court erred in resolving this factual issue against Cooperative. *See Aatrix*, 882 F.3d at 1128.

B

The district court held that Cooperative did not plausibly allege that the second alleged inventive concept, segmenting content using trace routes, is inventive. *Kollective*, 544 F. Supp. 3d at 899–900. We do not agree.

As an initial matter, the parties dispute whether claim 1 requires or merely permits the use of trace routes to segment content. *See* Appellant's Br. 10–14, 21–23, 41–43; Appellee's Br. 16, 20–21, 34–35, 46–47, 50. Kollective does not dispute on appeal that segmenting content based on trace routes is inventive; rather, it contends only that the use of trace routes is not required and thus irrelevant to

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eligibility. Appellee’s Br. 16, 20–21, 34–35, 46–47, 50. As Kollektive acknowledges, Cooperative asserted below and on appeal that “[t]he ’452 patent claims all require segmenting the digital content according to the trace routes.” Appellee’s Br. 17–20 (quoting J.A. 47 ¶ 18 (Cooperative’s amended complaint)). The district court did not conduct claim construction, J.A. 38–42 (docket sheet), or otherwise resolve whether claim 1 requires segmenting content based on a trace route. *See Kollektive*, 544 F. Supp. 3d at 901 (noting only that claim 1 does not “rely *solely* on trace routes” in segmenting content without resolving whether it is required (emphasis in original)). Under these circumstances, we “proceed by adopting the non-moving party’s construction[]” that claim 1 requires segmenting content based on trace routes. *See Aatrix*, 882 F.3d at 1125 (internal citations omitted).²

In addition to claim 1’s structural limitations, claim 1 recites functional requirements of its claimed P2P dynamic network. For example, distribution of the content in the system must occur through content segmentation. ’452 patent at claim 1. Claim 1 requires the content segmentation to be “based on . . . trace route to CDN and P2P server manager” among other segmentation techniques. *Id.*; *see id.* at 3:50–54, 4:65–5:1 (“[E]mbodiments of the present invention include dynamic networks base[d] upon at least one trace route, e.g., CDN internet protocol (IP) addresses.”), 5:49–56.

The specification explains segmenting using trace routes is one “[f]actor[] for balancing or managing distribution of the P2P content delivery.” *Id.* at 5:49–53. Figures 2–9 demonstrate content segmentation outside the CDN using trace routes according to claim 1. *Id.* at 8:6–32; *see* J.A. 47 ¶ 18. For example, viewer b in Figure 4 receives a

² We leave it to the district court to conduct the claim construction analysis in the first instance.

content segment from the CDN and distributes that segment to other viewers viewing the same content. '452 patent at 8:18–25, Figs. 4–6.

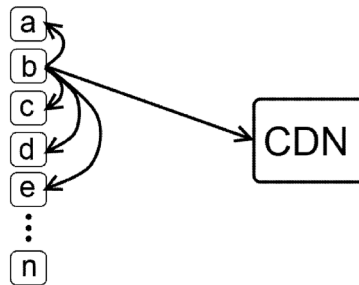


Fig. 4

Viewer b also receives different segments of the same content from other viewers who have received the different segments from the CDN, e.g., viewers c and d. *Id.* at 8:18–25, Figs. 5–6.

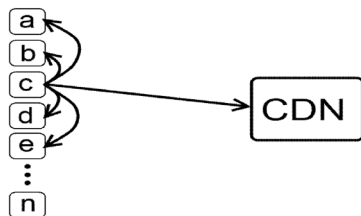


Fig. 5

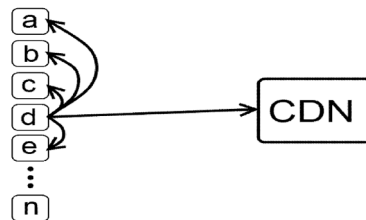


Fig. 6

The specification further explains that segmenting content using trace routes has benefits over the prior art: “the present invention systems and methods provide increased reliability, more redundancy, and more efficient delivery than those of the prior art.” *Id.* at 5:28–30.

Similar to the P2P network structure discussed above, Cooperative’s amended complaint alleges using trace

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routes to segment content in claim 1’s dynamic P2P network was not well-understood, routine, or conventional. It explains that the “prior art featured segmentation at a macro level . . . to test pathways between and among the various computing devices that comprise a given network’s architecture.” J.A. 46 ¶ 11. And it alleges the specific advance over the prior art associated with the claimed use of trace routes “was that the claims use these means of testing to further segment the actual content being delivered.” J.A. 46 ¶ 11. The prior art’s use of a trace route “as a type of network traffic test . . . does not suggest or indicate using [a] trace route to segment requested content.”³ J.A. 46 ¶ 11. Indeed, the prior art allegedly did not deliver P2P content using content segmentation where “the content segmentation is based on . . . trace route to CDN and P2P server manager.” J.A. 46 ¶ 12 (quoting J.A. 245 (examiner’s statement of reason of allowance)). These allegations mirror the applicant’s statements in the prosecution history and the patent’s specification that using trace routes in segmenting content was inventive and improves efficiency, redundancy, and reliability of content delivery computer network systems. J.A. 262 (distinguishing prior art using trace routes for “network traffic test” from “segmenting requested content” using trace routes in claim 1); *see* ’452 patent at 5:28–30.

Cooperative’s allegations that claim 1’s use of trace route segmentation is an inventive concept are sufficient to preclude dismissal at the Rule 12 stage. Kollektive argues

³ The district court faulted Cooperative for not providing “any supporting evidence” with its allegations. *Kollektive*, 544 F. Supp. 3d at 897. While supporting evidence, such as an expert declaration or research articles, would further support the existence of an inventive concept, such evidence is not always necessary to defeat a Rule 12 motion. *See Nat. Alternatives*, 918 F.3d at 1349.

only that the '452 patent does not claim anything inventive because P2P networks and CDNs are conventional. Appellee's Br. 51–52. This argument misses the point—useful improvements to computer networks are patentable regardless of whether the network is comprised of standard computing equipment. *See Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1349 (Fed. Cir. 2017) (citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337–38 (Fed. Cir. 2016)). And, notably, Kollektive does not argue that the use of trace routes to segment content in claim 1's dynamic P2P network structure is not inventive. *See Appellee's Br. 45–52*. The record here contains concrete allegations in the complaint and the specification that the segmentation limitation was not well-understood, routine, or conventional and “recit[es] a specific technique for improving computer network” functioning. *SRI Int'l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1304 (Fed. Cir. 2019); *see Aatrix*, 882 F.3d at 1128. It follows the district court erred in discounting Cooperative's plausible allegations consistent with the '452 patent's specification and dismissing its amended complaint.

C

In sum, the district court erred in dismissing the complaint. The claim language, the written description, and the amended complaint “describe[] how [the '452 patent's] particular arrangements of elements is a technical improvement over prior art ways of” arranging networks for distributing video content. *BASCOM*, 827 F.3d at 1350; *see Cellspin*, 927 F.3d at 1316 (reversing district court for failing to weigh allegations in complaint and statements in patent specification in favor of patentee at Rule 12 stage). We do not decide today that the claims are patent eligible under § 101. We hold only that there are plausible factual allegations that the claims include inventive concepts, and that is enough to preclude dismissal.

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CONCLUSION

The district court erred in granting Kollektive's motion to dismiss. We therefore reverse and remand for further proceedings.

REVERSED AND REMANDED

COSTS

Kollektive shall bear costs.