

United States Court of Appeals
for the Fifth Circuit

No. 25-60550

United States Court of Appeals
Fifth Circuit

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Lyle W. Cayce
Clerk

EMMERICH NEWSPAPERS, INCORPORATED,

Plaintiff—Appellant,

versus

PARTICLE MEDIA, INCORPORATED, *doing business as* NEWSBREAK,

Defendant—Appellee.

Appeal from the United States District Court
for the Southern District of Mississippi
USDC No. 3:23-CV-26

Before KING, HIGGINSON, and DUNCAN, *Circuit Judges*.

STEPHEN A. HIGGINSON, *Circuit Judge*:

As we understand the operation of the internet exoterically, it consists of websites and links that are, in the truest sense, embedded in our everyday life. But this appeal turns on the esoteric. We must understand the innerworkings of this technology to comprehend how another framework—that of copyright law—can be superimposed on it.

Emmerich Newspapers, Inc. (“Emmerich”), a publisher of various local news publications, sued Particle Media, Inc. (“Particle”), asserting claims of copyright infringement. Particle operates NewsBreak, a news

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aggregator website and application, in which it links to news from various publications, including those Emmerich owns and publishes.

This appeal ultimately concerns technical aspects of the internet that enable NewsBreak to operate. Emmerich claimed that Particle “frames” Emmerich articles in a way that infringes upon Emmerich’s exclusive right to the public display of its own content, as provided under the Copyright Act of 1976. Additionally, Emmerich claimed that its URLs, or uniform resource locators, that identify the location of its website on the internet, constitute “copyright management information” (“CMI”), which is protected from unauthorized alteration or removal under the Digital Millenium Copyright Act (“DMCA”). Accordingly, Emmerich claimed that when Particle displayed Emmerich’s content under Particle’s own URLs, it removed Emmerich’s CMI in violation of the DMCA.

The district court denied these claims. Applying the Ninth Circuit’s “server test,” the district court determined that because Particle did not have a copy of the content stored on its server and only linked to Emmerich’s server, Particle did not infringe on Emmerich’s display rights. *See Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146 (9th Cir. 2007). Moreover, the district court found that URLs serve primarily as a functional reference to locate addresses on the internet and, therefore, do not contain the markers necessary to constitute CMI.

On interlocutory appeal, Emmerich presents two questions of law: (1) whether the server test is the proper standard to apply to copyright infringement claims, in accordance with the text and meaning of the Copyright Act; and (2) whether URLs can constitute CMI, subject to the safeguards of the DMCA.

Given the ubiquity of linking on the internet, we recognize the great practical effects that could follow our answers to these questions. We are

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careful to only answer the questions of law before us, minimally. From careful analysis of the statutory texts, we conclude, first, that Particle’s manner of linking does not run afoul of the Copyright Act, although we anchor on different language than that of the server test. Second, we find that the DMCA does not foreclose URLs from constituting CMI, but given the functional purpose of URLs, for a URL to be CMI, it would need to clearly convey the characteristics required by the statute. For the reasons discussed below, we remand for proceedings consistent with this opinion—incorporating the fullness of facts related to these technologies.

I. BACKGROUND

Emmerich owns and publishes over 26 publications both in print and online, serving communities in Mississippi, Arkansas, and Louisiana. Emmerich asserts copyright infringement claims against Particle, a news aggregator based in Mountain View, California. Particle developed a specialized search engine called NewsBreak, which connects users to news from an array of publications on both its free website and its app. In particular, NewsBreak collects local and national news content into a single newsfeed for users.

Although the questions presented in this interlocutory appeal are ones of law, we must first provide a backdrop of the underlying technology at issue, as well as the pertinent provisions of the Copyright Act and the DMCA.

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A. SERVER AND LINKING TECHNOLOGY

This appeal relates to two core functions that undergird the operation of the internet as we know it: servers and linking. We briefly contextualize the role of these functions in the broader internet ecosystem.¹

The internet is, in essence, a network of connections. Starting with the very place a reader is likely seeing this opinion, a webpage (or its component text and images) is stored on a server. Servers, in effect, are the locus centers of the internet. They not only store content, such as webpages or various components of webpages, but also provide this content to computers that request it. Simply, servers function “to *serve* data to some other computer that has requested it.” Stephan S. Dalal, *The Basic Operations of a Webpage*, 1 GEO. L. TECH. REV. 234, 237 (2017). The software behind servers “has three core features: the ability to handle requests by other computers; to store and organize files in a certain way; and to make those files accessible . . . through the internet.” *Id.* The first of these features is central to this case.

To see any webpage, our computers are engaging in a series of steps behind the scenes. Servers that store, also understood as “host,” webpages can be accessed by visiting their specific addresses, or their URLs as we commonly understand them. Thus, when a user wants to visit a certain webpage, she provides the URL to her internet browser, which consequently instructs the browser on where to access the webpage—that is, where to locate the server that hosts that page. *See Leader’s Inst., LLC v. Jackson*, 2017 WL 5629514, at *10 (N.D. Tex. Nov. 22, 2017).

¹ This section describes the technology at issue as we understand it, principally from the parties’ and amici’s descriptions, relevant caselaw, and scholarly commentary.

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But the process is not yet complete. Even after locating the right server, the user's computer must now request access to the relevant information—here, the webpage—from the server, which occurs through back-end code. Once the user's computer receives instructions from the server, it must read and interpret them in order for the user to see the webpage. These instructions are often written in a language called HyperText Markup Language (“HTML”). Thus, when the user sees an article, for example, she is only seeing it by way of her computer interpreting the HTML instructions it received from the server that hosts the article.

The above depicts a single process that may occur for a user to see a webpage. But the World Wide Web is, in fact, a web, wherein this process occurs constantly to connect users, computers, webpages, and servers alike. These connections occur through hyperlinks, the second function we are concerned with in this appeal. As we commonly recognize, links are often denoted by the blue, underlined URL, but the link itself provides the information needed for one computer to engage with another, in the process described above. Links can be integrated in a number of ways. There is simple hyperlinking, wherein a user clicks the blue, underlined link and is brought to that new webpage, as occurs when selecting a search result from Google. There is also “in-line linking,” which is at issue in this case. In-line linking, also known as embedding, is the “process by which the webpage directs a user's browser to incorporate content from different computers into a single window.” *Perfect 10*, 508 F.3d at 1161. As far as its visual appearance, content from in-line links may look different depending on how a webpage is coded on the back-end. For one, it can appear to be framed, where the linked page appears in a pop-up frame from the existing page (“Framed View”). Links can also appear to be incorporated directly into the existing webpage. One form of this type of in-line linking is the “full-text reproduction” of content, whereby the linked webpage is reproduced entirely on the linking webpage

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(“Full-Text View”). *Emmerich Newspapers, Inc. v. Particle Media, Inc.*, No. 3:21-CV-32-KHJ-MTP, 2022 WL 3222892, at *1 (S.D. Miss. Aug. 9, 2022) (hereinafter “*Emmerich I*”).

Having described this backdrop, we turn to Particle’s use of Framed View and Full-Text View, alongside the statutes and context at issue in this appeal.

B. FRAMED LINKING AND THE COPYRIGHT ACT CLAIM

The Copyright Act provides copyright owners with certain “monopoly privileges,” granting them various rights over the use of their works. *See Sony Corp. of Am. v. Univ. City Studios, Inc.*, 464 U.S. 417, 429 (1984); 17 U.S.C. § 106. This appeal pertains to Section 106(5)’s provision of the right “to display the copyrighted work publicly.” 17 U.S.C. § 106(5). Emmerich claims that Particle infringed its display rights by showing Emmerich articles on the NewsBreak App.

Similar to other news apps, the NewsBreak App links, and shows users content, through Framed View. *See Emmerich I*, 2022 WL 3222892, at *1. Building on the description above with respect to how linking works between a user’s computer and the webpage she would like to see, framing essentially changes the appearance of how the linked content is shown to the requesting user. From the NewsBreak newsfeed, users see a thumbnail image of an article and can click it to link to that article. *Id.* Then, as the embedding webpage, NewsBreak creates an empty frame within its own page and fills the frame according to the instructions it receives from the link; that is, the link connects to the address of the server for the relevant article webpage and receives instructions from that server. The frame typically populates with the linked webpage in its entirety. *See Leader’s Inst.*, 2017 WL 5629514, at *10 (describing framing as “the user [] see[ing] the website she has visited framing the content the website instructed the web browser to retrieve from

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the other computer”). Users therefore see a live view of the linked webpage from the other site, but it is viewed from within the frame of the embedder, NewsBreak. *Id.* (explaining that the linked information is seen by users “at the same time as information retrieved from the first computer”). According to Particle, that means “what the user sees when clicking on the link in NewsBreak will change if the publisher changes the content.”

Although Particle partners with certain publishers, Emmerich is an example of a non-partner publisher. For partners, Particle is permitted to host the partners’ articles on its server, with the partners receiving benefits such as shared ad revenue. But for non-partner publishers, Particle describes the NewsBreak App as showing their articles through an “industry-standard web browser directly from the publisher’s *own* server.” “The built-in browser . . . opens the link to the publisher’s website and the user then views the content that the publisher’s website and server publicly display.” Particle characterizes this action as “retriev[ing]” a webpage, “just as with other browsers like Chrome or Safari.” In other words, from the NewsBreak App, users could see the live page of an Emmerich article on an Emmerich site.

Emmerich’s central issue with Framed View is that users “would not be aware” they were still on NewsBreak’s website without looking to the URL or noticing that NewsBreak ads are still shown. Particle disputes this and argues, for example, that the only NewsBreak elements a user would see in the frame are “a small Newsbreak ‘N’ at the top left of the screen to direct the user back to the NewsBreak news feed or search result list, as well as like, comment, and share buttons and potential ads from the App itself,” which appear outside the in-app browser component but “not to the exclusion of the publisher’s buttons and ads on its webpage.”

Such factual disputes, although not before us on appeal, help color the contours of the central Copyright Act issue on interlocutory appeal. Namely,

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when turning to the statutory text in Part IV—as relevant to the first legal question before us—we consider how this functionality influences whether a framed view of third-party content constitutes an infringement of said third-party’s copyrights.

C. URLS AND THE DMCA CLAIM

In response to the “expansion of the speed and capacity of the Internet,” the DMCA was enacted to reinforce certain protections provided in the Copyright Act. S. Rep. No. 105-190, at 8 (1998). Congress passed the DMCA, in part, to “make it unlawful to intentionally provide false information, or to deliberately alter or delete information provided by a copyright owner which identifies a work, its owner or performer, and the terms and conditions for its use.” H.R. Rep. No. 105-551, Part 1, 105th Cong., 2d Sess. (1998).

The DMCA protects a category of data known as “copyright management information” (“CMI”), which cannot be removed or altered by any third party. 17 U.S.C. § 1202. The statute defines what types of information qualifies as CMI, such that it can be deemed information “conveyed in connection with” the copyrighted work. *Id.*

Emmerich asserts that its URLs qualify as CMI because they include “both the title of the work and the name of the copyright owner (i.e., the publisher).” The parties’ URL dispute derives from another scenario in which Particle displayed Emmerich articles in Full-Text View, different from the Framed View described above. In Full-Text view, Emmerich argues that Particle removed Emmerich URLs, displaying them under Particle’s own URLs. According to Emmerich, this removal of URLs is an unauthorized removal of CMI.

For reference again, Full-Text View involved the full reproduction of articles. *Emmerich I*, 2022 WL 3222892, at *1. This occurred only on Android

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devices and during a period from 2019 to 2021 in which the NewsBreak App purportedly glitched. *Id.* Particle asserts the glitch was fixed once it was made aware.²

Emmerich describes Full-Text View as showing its article “under NewsBreak’s URL, with all Emmerich’s identifying information removed apart from the article’s headline, accompanying photograph, and full-text news article.” Particle emphasizes that this was a glitch, wherein the articles were “self-hosted” on NewsBreak as articles are when the publication is a NewsBreak partner, and the glitch was promptly fixed. But we need not explore this factual issue further and only remain concerned with the nature of URLs as CMI—the second certified legal question before us.

II. PROCEDURAL HISTORY

Emmerich first filed suit against Particle in January 2023 and then filed another suit in June of 2023. The two actions were consolidated. Emmerich’s claims were based on infringements regarding over 33,000 of its articles, but it later dismissed its claims as to 27,100 of the articles. Emmerich continued with its claims regarding unlawful displays of its articles in both Framed View and Full-Text View, as well as unlawful removal of its URLs.

The parties proceeded to discovery, after which Emmerich moved for summary judgment. The district court initially denied its motion for summary judgment in June 2024. The parties then cross-moved for summary judgment on various claims. A year later, the district court granted in part and denied in part Emmerich’s second motion for summary judgment and

² Moreover, Particle clarified that, starting in 2021, it no longer linked to any articles from Emmerich’s publishers in general.

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granted in part and denied in part Particle's motion for partial summary judgment.

The district court granted Emmerich's motion on its claim that articles displayed in Full-Text View violated the Copyright Act, which rested on the previous litigation between the parties in 2022 in another court in the same district. *See Emmerich I*, 2022 WL 3222892, at *5. It denied Emmerich's motion and granted Particle's motion on Framed View: the district court held that Particle's display of Emmerich's articles in Framed View did not amount to a display under 17 U.S.C. § 106(5) and therefore did not constitute infringement of Emmerich's display rights. Separately, the district court held that "URLs are not conveyed in connection with a copyrighted work and therefore, do not constitute CMI," denying Emmerich's motion as to this claim and granting Particle's motion.

A few weeks later, Emmerich moved for an interlocutory appeal. Pursuant to 28 U.S.C. § 1292(b) and *Rico v. Flores*, 481 F.3d 234, 238 (5th Cir. 2007), the district court certified the following two legal questions for appeal:

1. Whether the "server test" is the proper standard for evaluating infringement on the copyright holder's exclusive display right under 17 U.S.C. § 106(5); and
2. Whether under § 1202 a URL can be considered Copyright Management Information, and, if so, whether a URLs intentional removal constitutes a violation of § 1202(b)(1).

The district court stayed proceedings pending resolution of this appeal. Emmerich timely appealed, and another panel of our court granted interlocutory review. Jurisdiction is proper, and no party argues otherwise. The district court had jurisdiction under, *inter alia*, 28 U.S.C. § 1331, and we have jurisdiction under 28 U.S.C. § 1292(b).

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III. STANDARD OF REVIEW

We review a district court’s grant of summary judgment de novo. *BWP Media USA, Inc. v. T & S Software Assocs., Inc.*, 852 F.3d 436, 438 (5th Cir. 2017). Because this case presents an interlocutory appeal from a partial grant of summary judgment, our review is limited to issues of law. *See Garcia v. Orta*, 47 F.4th 343, 348 (5th Cir. 2022). Here, the central legal issues are interpretation of the Copyright Act and the DMCA. We interpret such statutes de novo. *See BWP Media USA*, 852 F.3d at 438.

In light of the interlocutory posture of this appeal, we review only the two questions that were certified. First, whether the server test comports with the plain language of the Copyright Act and is the proper standard for reviewing display right infringement claims. And, second, whether URLs can constitute CMI, subject to the safeguards of the DMCA.

IV. DISPLAY RIGHT

The Copyright Act grants the owner of a copyright the exclusive right, “[i]n the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, *to display the copyrighted work publicly.*” 17 U.S.C. § 106(5) (emphasis added). Violating this right is an infringement of the copyright, redressable through damages and injunctive relief against the infringer. 17 U.S.C. §§ 501(a), 502(a), 504.

Emmerich claimed that Particle’s framing of Emmerich articles infringed its display right. To assess the alleged infringement, the district court relied on the Ninth Circuit’s approach in *Perfect 10, Inc. v. Amazon.com, Inc.*, termed the “server test.” 508 F.3d at 1159. Under this test, “the owner of a computer that does not store and serve the electronic information to a user is not displaying that information, even if such owner in-line links to or frames the electronic information.” *Id.* The Ninth Circuit clarified that when

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a third-party site “does not have any ‘material objects . . . in which a work is fixed . . . and from which the work can be perceived, reproduced, or otherwise communicated’” it cannot be viewed as “communicat[ing] a copy” and thus is not displaying a protected work. *Id.* at 1160–61 (quoting 17 U.S.C. § 101).

The district court concluded that the server test is the proper standard to apply to such infringement claims. Rejecting Emmerich’s arguments in favor of Particle’s, the district court found that the test does not contravene the Copyright Act’s plain text or purpose. Applying the server test, the district court held that Particle’s conduct did not infringe upon Emmerich’s copyright because the NewsBreak App only showed content that was publicly displayed by Emmerich’s servers.

No other circuit has disavowed the server test. Our court has not yet addressed the server test, and the question certified on appeal requires us to consider whether it is the appropriate standard for examining infringement upon a copyright owner’s right to display its content under Section 106(5), or whether the statute compels a different understanding.

For the reasons discussed below, we find the server test is on weak statutory footing. Put simply, the server test focuses on the definition of *display*—which requires showing a *fixed* work. The server test rests on the idea that a work is always fixed on a server. But we shift the focus to the definition of displaying a work *publicly*—which requires *transmitting* the work. Although rooted in different statutory text, this shift likely provides similar results as the server test in many ways.

To arrive at this statutory conclusion, we first anchor to the defined statutory terms before considering the server test and broader display right jurisprudence. From there, we compare the language that is most central to understanding the display right, finding that a focus on the transmittal of the

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content, rather than on where the content is fixed, is most faithful to the plain meaning of the text, our court’s relevant precedent, and the modern functioning of the internet.

A. DEFINING THE DISPLAY RIGHT

In a matter of statutory interpretation, we “begin with the language of the statute itself” and “follow the plain and unambiguous meaning of the statutory language.” *United States v. Orellana*, 405 F.3d 360, 365 (5th Cir. 2005) (internal quotation marks and citation omitted). Emmerich argues that the Copyright Act’s plain language “provides no support for the notion that infringement depends on where the display copy is fixed,” rendering the server test inconsistent with the statute’s plain language. The parties agree that the content at issue falls within the orbit of Section 106, but that “[w]hether it is protected depends on definitions of terms” found in Section 101. Thus, we must consider how the definitions within the statutory language interact.

The essential language for interpretation is as follows: “to *display* the copyrighted work *publicly*.” 17 U.S.C. § 106(5) (emphasis added). Taking each definition—and nested definitions—in turn, we assemble a complete view of the statute.

Display. Turning to the first defined word, to “display” a work “means to *show* a *copy* of it, either directly or by means of a film, slide, television image, or any other device or process or, in the case of a motion picture or other audiovisual work, to show individual images nonsequentially.” 17 U.S.C. § 101 (emphasis added).

As emphasized, to understand the full meaning of “display,” we must incorporate the meaning of “show” and “copy.”

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Show. The statute provides no definition for “show,” so we consider its ordinary meaning. See *Cotropia v. Chapman*, 978 F.3d 282, 289 (5th Cir. 2020); *Wis. Cent. Ltd v. United States*, 585 U.S. 274, 277 (2018). To “show” can be understood as “to cause or permit to be seen.” Show, WEBSTER’S THIRD NEW INTERNATIONAL DICTIONARY (1976).

Copy. As defined in the statute, copies are “material objects, other than phonorecords, in which a work is *fixed* by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.” 17 U.S.C. § 101 (emphasis added). Additionally, “[t]he term ‘copies’ includes the material object . . . in which the work is first *fixed*.” *Id.* (emphasis added).

Fixed. As previewed, one of the critical terms to define and interpret is what constitutes a “fixed” work. The statute provides:

A work is “fixed” in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration.

17 U.S.C. § 101.

Aggregating the above definitions from “display,” the Copyright Act “defines ‘display’ in very broad terms that encompass a great many activities.” R. Anthony Reese, *The Public Display Right: The Copyright Act’s Neglected Solution to the Controversy Over RAM “Copies,”* 2001 UNIV. ILL. L. REV. 83, 87. But our work does not end there: “the copyright owner’s exclusive right is not a right to make all displays but only a right ‘to display the copyrighted work *publicly*.’” *Id.* (quoting 17 U.S.C. § 106(5)). Thus,

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understanding the meaning of “publicly” serves as an essential narrowing and clarifying mechanism.

Publicly. To display a work “publicly” means “to transmit or otherwise communicate” it “to the public, by means of any device or process.” 17 U.S.C. § 101. Particle, quoting the Ninth Circuit, notes that “Congress did not define ‘otherwise communicate,’ but it must ‘at least involve[] sending out some sort of signal via a device or process to be received by the public at a place beyond the place from which it is sent.’” *See Columbia Pictures Indus., Inc. v. Pro. Real Est. Invs., Inc.*, 866 F.2d 278, 280, 282 (9th Cir. 1989).

Finally, to understand the definition of “publicly,” we must also incorporate the word “transmit.”

Transmit. To “transmit” means “to communicate [a performance or display] by any device or process whereby images or sounds are received beyond the place from which they are sent.” 17 U.S.C. § 101.

* * *

From the definitions above, the statutory language in Section 106(5)—“to display the copyrighted work publicly”—distills to the following: To show a fixed work by transmitting it to the public. With the comprehensive text in mind, we consider whether the server test comports with Section 106(5) or whether the statute compels a different approach.

B. THE SERVER TEST

Following its inception in *Perfect 10*, the server test has been applied in the Ninth Circuit for nearly two decades. To date, however, other courts—district and circuit alike—have ranged in whether to embrace, distinguish, or criticize the test. Before we analyze the statutory basis for the test, we first

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discuss the Ninth Circuit’s approach, followed by how it has been treated in subsequent jurisprudence in other federal courts.

1. *PERFECT 10*

In the foundational “server test” case, the publisher of an adult subscription website, Perfect 10, sued Google and Amazon. *Perfect 10*, 508 F.3d at 1157. Perfect 10 owned the copyright to the images it published, and certain ones were located in a subscriber-only, password-protected area of its website. *Id.* Although Google did not directly include these protected images in its image search results, “[s]ome website publishers republish[ed] Perfect 10’s images on the Internet without authorization.” *Id.* The challenge was that Google’s search engine included in its index “the webpages containing these images,” and, by way of that, provided thumbnails of the images in response to user inquiries. *Id.* If the user clicked on the thumbnail, the user’s browser would “access[] the third-party webpage and in-line link[] to the full-sized infringing image stored” on the third-party’s computer. *Id.* Thus the user saw the image in Framed View from Google’s webpage, and Perfect 10 sued Google, asserting copyright infringement for this alleged display. *Id.*

The central issue the Ninth Circuit resolved in this case was whether Google can be liable for its linking practices. As developed in *Perfect 10*, the court fastened to a particular interpretation of “fixed” in the Copyright Act. *Id.* at 1160. The court held that content is “fixed in a tangible medium of expression” when it is “embodied (i.e., stored) in a computer’s server (or hard disk, or other storage device).” *Id.* In other words, “the owner of a computer that does not store and serve the electronic information to a user is not displaying that information, even if such owner inline links to or frames the electronic information.” *Id.* Terming it the “server test,” the court clarified that linking to content is not an infringement because the content is

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not fixed through that method—it must be stored on the server in order to be fixed.

As applied, the Ninth Circuit found that Google “does not have any ‘material objects . . . in which a work is fixed . . . and from which the work can be perceived, reproduced, or otherwise communicated’ and thus cannot communicate a copy.” *Id.* at 1160–61 (quoting 17 U.S.C. § 101). Google only “provide[d] HTML instructions that direct[ed] a user’s browser to a website publisher’s computer that stores the . . . image,” and “HTML instructions [are] not equivalent to showing a copy.” *Id.* at 1161. In turn, there was no infringement of the display right because Google merely provided coded HTML instructions to request the content from the server hosting it.

The Ninth Circuit has reaffirmed the server test since *Perfect 10* was decided nearly two decades ago. *See, e.g., McGucken v. Valnet, Inc.*, 2024 WL 5166624, at *1–2 (9th Cir. Dec. 19, 2024), *cert. denied*, 145 S. Ct. 1965 (2025). That court has applied the server test outside of the search engine context as well. In *Hunley v. Instagram, LLC*, plaintiffs alleged that Instagram violated their exclusive display right by permitting third-party sites to embed the photographers’ Instagram content. 73 F.4th 1062 (9th Cir. 2023). The court held that “[t]he application of the Server Test depends on the *method used* for displaying a photo—not the *context* in which the photo is displayed.” *Id.* at 1071. The process used in *Hunley* is the “same process used by Google to show users third-party images: embedding.” *Id.* Embedding, as described in Section I.A, is the type of linking where the embedding website will follow the HTML instructions it receives from the host website the content is stored on, after which “the browser will retrieve the image, caption, and formatting from the host website and display all these elements alongside content from the embedding website.” *Id.* at 1064. As the *Hunley* court described, “[t]he final product will show the external image ‘embedded’ seamlessly into a third-party website.” *Id.* There, the Ninth Circuit again applied the server

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test to find that embedding, with no content stored on the alleged infringer's computer, is not copyright infringement. *Id.*

2. SUBSEQUENT JURISPRUDENCE

No circuit has yet adopted the server test outright, but other courts' internet-copyright jurisprudence provides informative reasoning nonetheless.³ Starting with the First Circuit, in *Society of Holy Transfiguration Monastery, Inc. v. Gregory*, the court considered, in part, whether an Archbishop violated the Monastery's display rights to certain translated works by posting "verbatim or near-identical versions" to his own website. 689 F.3d 29, 36–38 (1st Cir. 2012). Deeming the posted translations to be sufficiently similar to the Monastery's, the court also considered whether the Archbishop's works were "fixed" and applied an interpretation similar to the Ninth Circuit. *Id.* at 55. The court recognized that the copies at issue "were embodied or 'fixed in a tangible medium of expression,' as they were loaded on the [defendant's] computer server and posted to his Website." *Id.* (first quoting 17 U.S.C. § 101; then citing *Cartoon Network LP, LLLP v. CSC Holdings, Inc.*, 536 F.3d 121, 129 (2d Cir. 2008); and then citing *Perfect 10*, 508 F.3d at 1160). The court also found the copies met the "transitory duration" requirement under the statutory definitions "as they were

³ In addition to the First and Seventh Circuit cases discussed in this section, the D.C. Circuit has considered an analogous case. See *IMAPizza, LLC v. At Pizza Ltd.*, 965 F.3d 871, 877 (D.C. Cir. 2020) (reasoning, in the context of the reproduction right, that the "ephemeral transmission of a picture across the internet" does not constitute a "copy"). The Second Circuit also recently commented on the server test but, because the defendant did not take a position on whether "publication via embedding constitutes the making of a copy under the Copyright Act and thus whether it can give rise to a claim for infringement," and instead assumed, *arguendo* that its embedding was actionable, the court did not decide whether to adopt the server test. *Richardson v. Townsquare Media, Inc.*, No. 25-291-CV, 2026 WL 1097502, at *2 n.2 (2d Cir. Apr. 23, 2026).

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continuously displayed on the Archbishop’s Website.” *Id.* Accordingly, this constituted a violation of the display right. *Id.*

The Seventh Circuit, in a case that parallels the present appeal in key ways, reached a similar outcome, although its decision turned on the process of transmitting. In *Flava Works, Inc. v. Gunter*, copyright owner Flava Works produces and distributes adult content to websites that are behind paywalls. 689 F.3d 754, 755–56 (7th Cir. 2012). The alleged infringer was “myVidster, an online service engaged in what is called social bookmarking,” where its users can point others to content of interest, after which myVidster requests the “‘embed code’ from the server that hosts . . . the video,” and then “creates a web page that makes the video appear to be on [its] site.” *Id.* at 756. The issue specific to Flava Works was that a myVidster user had uploaded a copy of a Flava Works video, which was bookmarked and then myVidster linked to that copy. *Id.* Flava Works thus sued myVidster for violating, in part, its exclusive public performance right. Specifically, Flava Works asserted that myVidster was responsible for contributory infringement (sometimes referred to as secondary liability), which is “personal conduct that encourages or assists the infringement.” *Id.* at 757. This is different from direct infringement or liability, as *Perfect 10* involved.

The Seventh Circuit found no such infringement occurred. Although different than the display right, we find the *Flava Works* court’s reasoning apt. In particular, the court determined that providing users with links to content “is not transmitting or communicating.” *Id.* at 761 (cleaned up); *see also id.* at 757 (“Like a telephone exchange connecting two telephones, [myVidster] is providing a connection between the server that hosts the video and the computer of myVidster’s visitor.”). Put simply, the court determined that “giving web surfers addresses where they can find entertainment” on websites through “embed[ded] code” is no more infringement than the *New Yorker’s* “listing plays and giving the name and

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address of the theaters where they are being performed.” *Id.* (citing *Perfect 10*, 508 F.3d at 1159–61). Thus, the court found that myVidster is not liable for infringement. *Id.* at 1160–61 (“The direct infringers in this case are the uploaders; myVidster is neither a direct nor a contributory infringer—at least of Flava’s exclusive right to copy and distribute copies of its copyrighted videos.”).

To date, our court has cited *Perfect 10* but has not yet opined on the server test directly. *See, e.g., UMG Recordings, Inc. v. Grande Commc’ns Networks, LLC*, 118 F.4th 697, 715–16 (5th Cir. 2024), *vacated on other grounds*, 146 S. Ct. 2152 (2026); *BWP Media USA*, 852 F.3d at 439. Most relevant to the present case, in *BWP Media USA*, our court considered a question of whether a forum website, where infringing content was posted, was liable for the copyright infringement. 852 F.3d at 442. We recognized that “it does not make sense to adopt a rule that could lead to the liability of countless parties whose role in the infringement is nothing more than setting up and operating a system that is necessary for the functioning of the Internet.” *Id.* (quoting *Religious Tech. Ctr. v. Netcom On-Line Commc’n Servs., Inc.*, 907 F. Supp. 1361, 1372 (N.D. Cal. 1995)). Our court focused on the elements needed for direct infringement liability, *id.* at 444, which similarly was the focus of the Ninth Circuit in crafting the server test, *Perfect 10*, 508 F.3d at 1159. We found that the forum website was not the direct infringer because it did not post the infringing content itself. *Id.* at 444. We did not consider secondary liability, as it was not on appeal before us, however we clarified that our decision does not diminish its scope. *Id.* Citing *Perfect 10*, we recognized that secondary liability still provides an

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“incentive[.]” for parties, such as forum websites, to avoid infringement from occurring on their site.⁴ *Id.* (citing *Perfect 10*, 508 F.3d at 1175).

Thus, the above circuits, including our own, have discussed these issues in ways that parallel the server test either in reasoning or in outcome, even if not directly adopting it. Yet, a number of district courts have addressed the propriety of the server test—some of which have expressly declined to adopt it. Even in those cases, the district courts draw distinctions between their cases and *Perfect 10* but do not themselves necessarily advance a competing test, reflecting the complexity of identifying the right standard for this statute.

For example, in *Leader’s Institute, LLC*, a district court in the Northern District of Texas considered an infringement stemming from linking by framing. The court distinguished *Perfect 10*, finding there is a difference between websites that act as browsers (such as Google Images), which only display content once a user clicks into it, and websites (such as the one at issue in the case) that display that content outright with no user interaction. *Leader’s Inst.*, 2017 WL 5629514, at *11. Additionally, the court rejected the proposition that a public display necessarily requires the infringer to possess a copy of the infringed work, “to the extent” *Perfect 10* must be read to require that possession. *Id.*

Further, a district court in the Southern District of New York also declined to apply the server test on similar grounds. In *Goldman v. Breitbart*

⁴ As the amici Copyright Scholars, in support of Particle, note: our court’s reasoning on this point is “the same point the Ninth Circuit made for the server test,” which is that even the non-directly liable parties could still be held accountable for secondary liability, but it is a different inquiry entirely. Br. of Copyright Scholars as Amici Curiae Supporting Appellee, at 20 (No. 25-60550) (hereinafter “Amicus Br. of Copyright Scholars”) (citing *Perfect 10*, 508 F.3d at 1161).

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News Network, LLC, the court recognized that “*Perfect 10* was heavily informed by two factors—the fact that the defendant operated a search engine, and the fact that the user made an active choice to click on an image before it was displayed.” 302 F. Supp. 3d 585, 595 (S.D.N.Y. 2018). Finding that those factors were not present in its case, the district court held that applying the server test was “neither appropriate to the specific facts of th[e] case, nor . . . adequately grounded in the text of the Copyright Act.” *Id.* at 596.

Importantly, in differentiating *Perfect 10*, the *Goldman* district court found that “the role of the user was paramount.” *Id.* at 596. Although *Perfect 10* involved a search engine that “provided a service whereby the user navigated from webpage to webpage, with Google’s assistance,” the same was not true in *Goldman*. *Id.* There, the facts involved a photo, taken by the plaintiff who holds the copyright; after the photo went viral on Twitter, now known as X, news outlets then published articles “featur[ing] the Photo by ‘embedding’ the Tweet into articles.” *Id.* at 587. The court highlighted that the user’s direct involvement in seeing content in the search engine context “is manifestly not the same as opening up a favorite [] website to find a full color image awaiting the user, whether he or she asked for it, looked for it, clicked on it, or not.” *Id.* at 596.

In sum, much has been said with respect to the server test by other courts. And our circuit is faced with a question in this appeal of determining where, across that spectrum, we fall on the basis of our interpretation of the statute.

C. THE DISPLAY RIGHT: TRANSMITTING FIXED WORKS

Returning to the statutory text, we must consider whether the server test—as informed by subsequent jurisprudence—comports with the

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aggregated, defined language of the display right: To show a fixed work by transmitting it to the public.

As described in the preceding section, the server test centers around the constraining role that the term “*fixed*” plays in the statute. We conclude that the statutory basis for grounding the server test in that term alone is lacking. Instead, we find that the operative word for analysis is “*transmit*.” Although we take different routes to get there, both the server test and the test we announce end up in a similar place: a website cannot transmit a work that it does not have.

1. FIXED

The server test was “crafted . . . out of the Copyright Act’s fixation requirement” and, in turn, found fixed content lies in a server. *Hunley*, 73 F.4th at 1076. Under the server test, the statutory term “fixed” is transformed into a requirement that an infringer must possess its own copy on its own server. Technologically, this premise makes sense. As Particle explains, for example, the function of linking only means that back-end code receives instructions for displaying the content from another site. Particle “does not itself display” a fixed work because only Emmerich’s server has the fixed copy. Emmerich admits as much but argues that this possession requirement is not found in the statute.⁵

The difficulty in accepting this approach is that the statutory definition contains a lower bar for considering content to be fixed than the Ninth Circuit’s interpretation, as used in the server test. That is, the definition of “fixed” does not require permanency or possession. As the

⁵ Emmerich also argues that, statutorily, copies “include the original works fixed in the websites,” so Particle violated the statute by “connect[ing] its customers to the original works fixed within Emmerich’s websites.”

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Second Circuit found, the definition only imposes two requirements: embodiment and duration. *Cartoon Network LP, LLLP*, 536 F.3d at 129. As to the embodiment requirement, “the work must be embodied in a medium, i.e., placed in a medium such that it can be perceived, reproduced, etc., from that medium.” *Id.* And, as to the duration requirement, “it must remain thus embodied ‘for a period of more than transitory duration.’” *Id.* at 127 (citing 2 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 8.02[B][3], at 8–32 (2007)). Thus, if the content is not embodied for sufficient duration, it is not “fixed” and thus not a proper “copy” of the original work. *Id.*

Accordingly, we do not find statutory support to construe “fixed” as requiring possession. The challenge is this: even though embedded links show live content by way of interpreting HTML instructions from the content host, the embedder’s webpage is not necessarily so fleeting that it could not meet the definition of “fixed,” meaning embodied for more than a transitory duration. Using the *Goldman* case as an example: the news outlets embedded the copyrighted photo by linking to tweets that included the photo. 302 F. Supp. 3d at 587. While not directly addressed in the district court’s opinion, the server test would falter, in our view, for a simple reason: it is possible for another third-party website to embed the photo by way of linking to one of the news outlets, thereby demonstrating that the news outlet’s showing of the work was sufficiently permanent or stable such that it would be considered fixed for purposes of the statute. Although this raises other questions, such as direct versus secondary liability, we remain focused on what the statutory text compels. Thus, to the extent the server test requires the infringer to possess the copyrighted content on its own server, we find that stretches the Copyright Act’s definition of a “fixed” copy beyond what the plain language can support.

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2. TRANSMIT

With less clarity from the fixation requirement alone, we turn to the statutory language that limits the display right to public *transmissions*.

As to this element, Emmerich argues that to “transmit” is to “communicate,” per the statutory definition and, applying this, “the images fixed on Emmerich’s computers were communicated to other places by a process employed by Particle.” Emmerich also returns to the definition of “show”—or, by ordinary meaning, to cause to be seen. It argues that the statute does not require “that the alleged infringer must be the one who communicates the copyrighted work.” Therefore, because Particle’s links are responsible for requesting instructions from Emmerich, Particle is ultimately responsible for “caus[ing] Emmerich’s computers ‘to communicate’ the copyrighted works.” We disagree with both readings of the statutory language.

The issue concerns a different understanding of what it means to actually “transmit” content. Is Particle transmitting the content because it ultimately provides the platform on which the content is viewed? Or is it Emmerich that transmitted the content because it is the only party that actually has the content (hosted on its server) that can be shared in the first place? We find the latter approach to be the most faithful to the technical process and the statutory text for the reasons discussed below.

We consider the technical process in light of the definition of “transmit,” which is “to communicate [a display] by any device or process whereby images or sounds are received beyond the place from which they are sent.” 17 U.S.C. § 101. As amici Copyright Scholars explain, “[e]mbedding does not itself transmit or host the displayed copy”; it only “directs a user’s device to retrieve content from a third-party server that controls the transmission.” Amicus Br. of Copyright Scholars at 4; *see also* 5 PATRY ON

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COPYRIGHT § 15:7 (describing the “fatal flaw” in *Leader’s Institute* as the fact “that defendant did not transmit a display of the ‘work,’ but rather merely sent to the user’s browser instructions for where the copy resided (typically plaintiff’s own website), and from which the instructions for actually displaying the work occurred”). Importantly, “the host server retains ultimate control over whether and what content is *transmitted* in response to a request.”⁶ Amicus Br. of Copyright Scholars at 6 (emphasis added).

To understand the technological feature that is determinative here, we provide an analogy—albeit one that is far more rudimentary than the technology at issue. Think of Particle as a switchboard operator: In the same way a switchboard operator cannot connect a caller without the intended recipient picking up the phone and agreeing to be patched through, Particle cannot connect a user to Emmerich’s content without Emmerich’s transmittal of the content. Just as the critical act in having a telephone conversation is someone picking up the other end, we find that the critical act in the linking process is the transmittal of content, which requires courts to evaluate the party responsible for “communicat[ing]” the copy. 17 U.S.C. § 101.

* * *

⁶ The amici Copyright Scholars also draw a distinction between directly or indirectly displaying the content. “An infringement action against the original server would stop the display; one against the embedder would only stop one set of directions.” Amicus Br. of Copyright Scholars at 10 (citation omitted). However, an indirect showing also “requires a ‘device or process’ of some kind,” meaning that when a server responds to a user’s request to see a link, it requires a process of transmitting the data that will display that content. *Id.* at 9 (citing 17 U.S.C. § 101). “Thus, the entity whose server initiated the transmission that displays the image—here, the copyright owner—is the entity engaged in the indirect showing.” *Id.*

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Therefore, we conclude that pointing or directing a user's browser to request and receive the copyright owner's *own* copy does not involve transmitting, or communicating, the content "beyond the place from which [it is] sent." 17 U.S.C. § 101. If the transmission must come from the content owner in order for a user to see any content at all, then no copyright liability exists for the linking site. If not, we must find where the transmission originates. Simply, one cannot transmit content it does not have. We call this "the transmit requirement."

Our interpretation of transmit comports with other aspects of the text, rendering the display right language internally cohesive and strengthening its faithfulness to the Copyright Act's plain meaning. Namely, this interpretation is bolstered by the statutory definition of "display," which means to "show" the work. 17 U.S.C. § 101. As described in the definitions section above, to "show" means to cause to be seen. According to Emmerich, Particle is responsible for causing the copy to be seen, because it is responsible for sending the coded request to Emmerich's server, which Emmerich responds to with back-end HTML instructions for Particle to display Emmerich's content. In oral argument, Emmerich even described Particle as conveying options to users, who then request the content, thus triggering a chain of communications—including triggering Emmerich "to display the article."⁷ Amici supporting Particle argue that this interpretation requires a "long chain [that] divorces the word 'cause' from the word 'display.'" Amicus Br. of Google et al. at 19 (No. 25-60550). We agree. This

⁷ We also recognize that, characterized this way, the technology behind the NewsBreak newsfeed is akin to Google Images showing users a thumbnail that they can click. *See, e.g., Goldman*, 302 F. Supp. 3d at 596 ("In *Perfect 10*, Google's search engine provided a service whereby the user navigated from webpage to webpage, with Google's assistance. This is manifestly not the same as opening up a . . . website to find a full color image awaiting the user, whether he or she asked for it, looked for it, clicked on it, or not.").

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sequence of steps does not follow naturally from the original language that “show” is defining.

The Restatement of Copyright cautioned against anchoring on such an outstretched sequence as well. AMERICAN LAW INSTITUTE, Restatement of Copyright, Tentative Draft No. 6, at §6.09, Comment *g* (2025) (hereinafter “Restatement of Copyright, Comment *g*”). Namely, it recognizes that although linking could theoretically constitute a “process whereby images . . . are received beyond the place from which they are sent,” 17 U.S.C. § 101, it casts doubt on construing “process” so broadly. Restatement of Copyright, Comment *g*. The Restatement described it as “unlikely . . . that Congress would have intended that chain of events” to render the provider of the link responsible for a display right infringement.⁸ *Id.*

To prevent an attenuated chain, we therefore find persuasive the notion that *connecting* does not equate to *displaying*.⁹ To hold otherwise would be to extend liability to webpages or search engines that provide links to another page, as they, too, would be “causing” the display. “The Copyright Act’s definition of ‘display’ requires a defendant to ‘*show* a copy’ of a work—not merely point to one that someone else has shown.” Amicus Br. of Copyright Scholars at 1 (quoting 17 U.S.C. §101) .

⁸ The Restatement provides its own analogy—that of a newscaster reading a website address during a broadcast, perhaps prompting viewers to visit the address, thereby potentially rendering the broadcaster an infringer by publicly displaying the website. *Id.* If “process” is to be construed broadly, under its analogy, the newscaster would potentially be “publicly displaying the images on the [] website and thereby infringing unless authorized by the copyright owner.” *Id.*

⁹ In accordance with our focus on where the transmission comes from, the Restatement also recognizes an embedded link as indistinguishable from a link that, when clicked, brings the user to a new page. Restatement of Copyright, Comment *g*.

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Our interpretation also does not create friction with the other courts that have considered this issue. Our analysis matches the Ninth Circuit’s in that both seek to limit the broad display right in accordance with the statutory text.¹⁰ We differ only in that we find hinging on “transmit” to be more faithful to the statutory text—and more constraining—than the Ninth Circuit’s reliance on the term “fixed” as a limiting principle.

We recognize that there is an apparent tension between how users may view this technology and what the Copyright Act’s language compels us to find. Linking, specifically in-line linking, can make content appear as though it is on the host or third-party webpage. But, in our Article III role, our obligation is to interpret the constraining language—especially its nested definitions—as enacted by Congress. Amicus Br. of Copyright Scholars at 12; *Perfect 10*, 508 F.3d at 1161 (“[T]he Copyright Act, unlike the Trademark Act, does not protect a copyright holder against acts that cause consumer confusion.”).

D. THE “TRANSMIT REQUIREMENT”

The “transmit requirement” is two-fold: first, locating where the transmission originates and, second, determining whether the transmission was permitted. This refinement of server test principles is supported by our precedent regarding volitional conduct and is vitally congruent with the natural opt-out structure of the internet. We address each in turn.

¹⁰ See Restatement of Copyright, Comment *g* (describing “[a] key issue” in the Ninth Circuit’s cases as being “whether defendants have engaged in activity that comes within the statute’s definition of ‘publicly’ displaying a work,” even though “not all of those opinions expressly analyze it”).

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1. VOLITIONAL CONDUCT

Our court’s decision in *BWP Media USA*, although centered on a different copyright issue, provides parallel reasoning for our purposes. There, we focused on the question of “whether volitional conduct is required to prove a claim of direct infringement.” *BWP Media USA*, 852 F.3d at 438. The facts at issue in that case involved the third-party site hosting “the forum on which infringing content was posted, but its connection to the infringement end[ed] there.” *Id.* at 442. It was individual users who “posted the infringing content” on the forum. *Id.* at 442.

Against this backdrop, we formally “adopt[ed] the volitional-conduct requirement in direct-copyright-infringement cases.” *Id.* at 444. Although we did not define “volition” specifically, we recognized that volition could be interpreted to “require[] a relationship between the system owner and the copyrighted work that will permit the owner to prevent infringement of the work without the necessity of monitoring the behavior of third parties.” *Id.* at 440 n.1 (quoting Robert C. Denicola, *Volition and Copyright Infringement*, 37 CARDOZO L. REV. 1259, 1276 (2016)). Said differently, adopting this requirement means a party is only liable if their conduct “cause[d] in some meaningful way an infringement,” and their involvement in the infringement is more than passive. *Id.* at 442. We remained cautious, in particular, of imposing liability on parties “whose role in the infringement is nothing more than setting up and operating a system that is necessary for the functioning of the Internet.” *Id.* (quoting *Religious Tech. Ctr. v. Netcom On-Line Commc’n Servs., Inc.*, 907 F. Supp. 1361, 1372 (N.D. Cal. 1995)).¹¹

¹¹ Notably, in *BWP Media USA*, our court considered and distinguished the Supreme Court’s decision in *American Broadcasting Companies, Inc. v. Aereo, Inc.*, 573 U.S. 431 (2014). See *BWP Media USA*, 852 F.3d at 442. *Aereo* concerned a public performance infringement claim against Aereo, which provided paying subscribers with access to

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Such is the case here. When the embedding webpage, such as Particle, only hosts the platform that receives content when transmitted from the copyright owner, its “connection to the infringement” cannot sustain a finding that it is the direct infringer. *Id.* at 442. Thus, the copyright owner’s volitional conduct reinforces our interpretation of the display right. For example, content is only readable on Particle’s page when Emmerich, as the copyright owner and host of the content, allows the transmission of its content.¹² Thus, we find that the transmit requirement is also supported by our volitional conduct precedent.

television programs over the internet at roughly the same time as they were being broadcast. *Aereo*, 573 U.S. at 436. The Court concluded that the Aereo streams constituted public performances of the works within the meaning of “transmit” in Section 101, thereby violating the Copyright Act. *Id.* at 444–49. However, as the Ninth Circuit has stated, *Aereo* did not address “what it means to transmit a copy, because the public performance right has no such requirement.” *Hunley*, 73 F.4th at 1074. Moreover, we recognized in *BWP Media USA* that Aereo was intricately involved in the transmission process, as was salient to the Court’s reasoning. *See BWP Media USA*, 852 F.3d at 442; *Aereo*, 573 U.S. at 442, 436–37 (describing that, “[b]y means of its technology (antennas, transcoders, and servers),” Aereo’s system “saves the data in a subscriber-specific folder” on its hard drive and then “stream[s] the saved copy . . . to the subscriber of the Internet”). Finally, as our court has also recognized, the Court in *Aereo* acknowledged that “other cases involving different kinds of service or technology providers” may require different analyses. *Id.* at 441 (quoting *Aereo*, 573 U.S. at 444).

¹² However, if the content was not transmitted from a source authorized to display it, then secondary liability may be implicated. *See Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913, 930 (2005) (describing secondary liability as when “[o]ne infringes contributorily by intentionally inducing or encouraging direct infringement, and infringes vicariously by profiting from direct infringement while declining to exercise a right to stop or limit it” (internal citations omitted)); *see also Cox Commc’ns, Inc. v. Sony Music Ent.*, 146 S. Ct. 959, 967 (2026) (discussing the applicability of *Grokster*).

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2. OPT-OUT SYSTEM

Statutorily re-grounded, the transmit requirement approach recognizes the difficulty in fitting the copyright scheme into the ever-changing world of the internet.

The internet exists as an opt-out system. It was “designed to be an open system in the sense that any computer, using a set of standard communication protocols, can communicate with other networked computers without explicit permission.” John S. Sieman, *Using the Implied License to Inject Common Sense into Digital Copyright*, 85 N.C. L. REV. 885, 889 (2007); see also Michael P. Goodyear, *The Server Test Quandary and Embedding Permission Culture*, 75 OKLA. L. REV. 263, 309 (2023). Yet, copyright is structured more as an opt-in system. For one, the creator or owner of a work only gains statutory copyright protections by registering their work. See, e.g., 17 U.S. Code § 412. But more relevant for our purposes, registered copyright owners have control over dissemination of their work; a copyright owner must provide permission (opt in) for another to use their content; otherwise, the owner holds certain exclusive rights. See 17 U.S.C. § 106 (providing that “[t]he owner of copyright under this title has the exclusive rights . . . to authorize” enumerated uses of a copyrighted work). The juxtaposition of imposing an opt-in rights framework on a ubiquitous opt-out platform generates, understandably, tension when these rights make their way to the internet. See Jie Lian, *Twitters Beware: The Display and Performance Rights*, 21 YALE J.L. & TECH. 227, 236 (2019) (“Such conflict between the opt-in copyright system and the opt-out Internet may explain many controversies about embedding in copyright law.”).

However, with the transmit requirement, we ease this inherent tension by shifting the focus to the statutory requirement that the content be transmitted by an authorized source, often the copyright owner—and,

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critically, that the source allow the transmission. To understand this, we draw on the opt-in aspect of copyright: authorizations or licenses. Copyright owners may grant a nonexclusive license to others. This can either be express or implied, wherein the copyright holder engages in conduct “from which [the] other [party] may properly infer that the owner consents to his use.” *De Forest Radio Tel. & Tel. Co. v. United States*, 273 U.S. 236 (1927). In *Field v. Google Inc.*, a district court in the District of Nevada applied the concept of implied license to copyrighted material in the age of the internet, “where the copyright holder knows of the use and encourages it.” 412 F. Supp. 2d 1106, 1116 (D. Nev. 2006). The court specifically found that “[w]eb site publishers typically communicate their permissions to Internet search engines (such as Google) using ‘meta-tags.’” *Id.* In turn, the lack of permission can be explicitly clear through the use of a “‘no-archive’ meta-tag.” *Id.*

As follows from the above, the transmit requirement rests on how the linking technology works: the communication that occurs at a coded level between webpages and servers can empower servers to block certain requests in the same way it can permit displays across pages.¹³

For example, paywalls can operate as one method of prohibiting viewers from accessing content that requires an account, subscription, or the

¹³ While this technology will continue to advance, this general approach, with the onus of protecting their work on the copyright owner or authorized source, has long been referenced by scholars. For example, Professor Walter Effross suggested a traffic light solution to “unwelcomed web-linking,” which entailed a website placing a traffic light icon on its page to indicate if it granted permission to all (green), some (yellow), or no (red) sites to embed its content externally. Walter A. Effross, *Withdrawal of the Reference: Rights, Rules, and Remedies for Unwelcomed Web-Linking*, 49 S.C. L. Rev. 651, 692 (1998). The equivalent to Effross’s traffic light happens behind-the-scenes here, in the back-end coding and communication that occurs between websites and servers.

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like to access.¹⁴ In the Seventh Circuit’s case, *Flava Works, Inc.*, the copyrighted content at issue was, in fact, behind a paywall. 689 F.3d at 757, 762. Users of the third-party website could only see the paywalled content because another user had uploaded a copy of it. *Id.* The court found insufficient grounds for an injunction against the third-party website’s embedding because it was not the source of the uploaded copies—or the party contravening the paywall. *Id.*

Additionally, news aggregators such as Particle rely on “web crawler” technology to index the internet for relevant content.¹⁵ This is similar to the technology behind search engines like Google, for example. And, as with Google, websites may block their content from being included in these indices. *Field*, 412 F. Supp. 2d at 1116. Further, HTML, which is the language Emmerich uses to relay instructions back to Particle, can also block the receiving site from embedding material. *See* Amicus Br. of Copyright Scholars at 23. Increasingly, these protections are also incorporated into websites that host but do not own the copyrighted material, such as social media websites. *See id.* at 23.

Thus, the transmit requirement approach, which looks for a permitted transmission, not only captures the statutory meaning, but also incorporates the interests and capabilities of the parties involved, both copyright owner and embedder alike.

¹⁴ We recognize that in the proceedings below, Emmerich provided that its site was paywalled. It argued that Particle, therefore, circumvented its paywall in order for the content to be transmitted. As discussed in the following section, the claim of circumvention was not a viable one. In any case, we note that whether or not a transmission was truly permitted is a question that district courts would need to consider in the first instance.

¹⁵ As described by the district court, “NewsBreak uses a ‘web crawler’ which systematically searches the internet for news content, then scans the pertinent websites, analyzes them for their content, copies the content verbatim and saves it on its website.”

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3. LIMITING PRINCIPLES

We recognize that the practical effects of this ruling may be consequential in a number of ways. However, because we resolve this case as a matter of law, without the benefit of facts to further inform the analysis, we must also recognize the ways in which our decision is limited, including how the approach will necessarily adapt outside the confines of a question of law, and how the statutory safeguards provide limitations.

For one, our decision leaves open the ways in which the “transmit requirement” approach will develop when applied to true factual circumstances. The interlocutory appeal before us only asks us how to interpret the Copyright Act’s display right. Our analysis has rested on two principles: (1) the transmission of the copy is from an authorized source, whereas the embedding webpage only makes a transmission request; and (2) the authorized source could have rejected the request. Yet, there is a lurking question of how this approach would need to transform if a copyright owner had no technological capability to reject the transmission request. We only address the circumstances generally presented in the underlying case here, wherein such permissions appear to be present, and we therefore do not pass on the application of this approach beyond these circumstances.

Additionally, the Copyright Act provides its own limiting principles with safeguards that further protect copyright owners’ rights. *See Goldman*, 302 F. Supp. 3d at 596 (rejecting the server test but finding that its decision would not have “dire consequences,” because there are “strong defenses to liability separate from this issue”). One such safeguard is the fair use doctrine. *See Google LLC v. Oracle Am., Inc.*, 593 U.S. 1, 18–19 (2021). This doctrine, as codified in the Copyright Act at 17 U.S.C. § 107, provides a “limited privilege in those other than the owner of a copyright to use the copyrighted material in a reasonable manner without the owner’s consent”

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where “rigid application of the copyright statute would stifle the very creativity it is meant to foster.” *Bell v. Eagle Mt. Saginaw Indep. Sch. Dist.*, 27 F.4th 313, 321 (5th Cir. 2022) (cleaned up). Fair use operates as an affirmative defense, thus the alleged infringers have “the burden of establishing fair use.” *Emmerich I*, 2022 WL 3222892, at *3. Illustratively, Particle’s Full-Text View versus Framed View structure demonstrates this. As the *Emmerich I* district court previously held in earlier litigation, Particle’s Full-Text View of Emmerich’s articles was unlawful because it was *not* a fair use, *see id.* at *5, even though it would not constitute a display right infringement under the server test (just as the Framed View articles would not). Thus, when linked according to formats such as Full-Text View or the like, fair use provides a viable pathway to prevent links that rise to the level of infringement, regardless of the test.

Finally, there are protections for circumventing copyright owners’ measures for guarding their own content. These protections come from Section 1201 of the DMCA, which provides that “[n]o person shall circumvent a technological measure that effectively controls access to a work protected under this title.” 17 U.S.C. § 1201(a)(1)(A).¹⁶ For example, though ultimately unsuccessful, Emmerich argued below that Particle’s way of indexing public information to pull into the NewsBreak newsfeed circumvented its server’s paywall. The district court found that Emmerich did “not demonstrate[] that Particle’s access was unauthorized,” and therefore found for Particle on Emmerich’s claims of circumvention. Nevertheless, this claim provides a viable pathway to hold accountable

¹⁶ The DMCA defines “circumvent[ing] a technological measure” as “to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner.” *Id.* § 1201(a)(3)(A).

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parties that *do* engage in demonstratable circumvention. Further, in *MGE UPS Systems, Inc. v. GE Consumer & Industrial, Inc.*, our court clarified that, under the DMCA, circumvention is concerned with the technological measure protecting the copyrighted material and “does not concern itself with the use of those materials after circumvention has occurred.” 622 F.3d 361, 366 (5th Cir. 2010) (quoting *Universal City Studios, Inc. v. Corley*, 273 F.3d 429, 443 (2d Cir. 2001)). This ultimately comports with the transmit requirement, which is similarly concerned with and premised upon there being a technological protection in place for the copyright holder.

* * *

In light of the foregoing discussion, our decision should not be understood to mean that embedding will always be permissible. We have focused on the first step of the analysis—whether there was infringement at all based on where the transmission originates. But even if the answer to that is in the negative, subsequent fact-specific analyses and accompanying statutory protections do not lose analytical importance.

V. COPYRIGHT MANAGEMENT INFORMATION

In its second issue on appeal, Emmerich asserts that its URL constitutes CMI; therefore, when Particle improperly used Full-Text View to show Emmerich articles, it removed Emmerich’s URL in violation of the DMCA. The issue is two-fold: first, whether URLs may be considered CMI under the DMCA and, second, if so, whether the intentional removal of that URL constitutes a violation of DMCA Section 1202(b)(1). At the outset, we note that Emmerich has identified no court that has found URLs to constitute CMI.

We have previously touched on a related issue, having to do with whether filenames are CMI. *Energy Intel. Grp., Inc. v. Kayne Anderson Cap. Advisors, L.P.*, 948 F.3d 261, 277 (5th Cir. 2020). There, we observed that

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“CMI is defined broadly.” *Id.* As applied to the question of PDF filenames, we found that nothing in the statute “indicates that a digital file name cannot be CMI” and concluded that filenames *may* constitute CMI, but only if they qualify under any of the delineated types of CMI, as provided by the DMCA and discussed below. *Id.*

The district court below held that URLs, as a matter of law, are not CMI.¹⁷ It found that “URLs fail to provide notice that any of the statutory information is associated with a particular (copyrighted) work that appears at the online location indicated in the URL.” Likewise, it observed that URLs are merely references to “where information can be retrieved, at a given time, but not necessarily permanently.” Thus, the district court distinguished our *Energy Intelligence Group* opinion on filenames, because filenames provide an “identifying name given to an electronically stored file” that is explicitly connected to the copyrighted work it stores, whereas URLs are a functional tool that directs a computer to a certain location.

We first turn to the plain meaning of the DMCA to discern whether URLs can ever meet the statutory definition of CMI, before considering whether the removal of URLs would constitute a violation of the statute.

A. PLAIN MEANING OF CMI

The DMCA protects certain information from being altered or removed without the copyright owner’s authorization. 17 U.S.C. § 1202(c).

¹⁷ The district court also held that, because it found no copyright infringement, there necessarily could be no unauthorized use of CMI as relates to those claims. *See Fischer v. Forrest*, 968 F.3d 216, 223 (2d Cir. 2020) (determining that, to state a Section 1202(b)(1) claim, plaintiffs must allege “(1) the existence of [CMI] *on the allegedly infringed work*, (2) the removal or alteration of that information and (3) that the removal was intentional”).

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Under Section 1202(c), CMI is defined as “any of the following information conveyed in connection” with a display of a work, including:

(1) The title and other information identifying the work, including the information set forth on a notice of copyright.

...

(3) The name of, and other identifying information about, the copyright owner of the work, including the information set forth in a notice of copyright.

...

(7) Identifying numbers or symbols referring to such information or links to such information.

17 U.S.C. § 1202(c). Classic examples of CMI include the script in books that includes “©” with the year of publication and the publisher’s name, watermarked Getty images, ISBN numbers that function as unique commercial identifiers for books, and the like. CMI must be “conveyed in connection with copies . . . or displays of a work, including in digital form.” *Id.*

The parties fundamentally disagree as to what the statutory language requires and how URLs compare. As with the Copyright Act analysis above, assessing whether information constitutes CMI under the DMCA begins with the “plain and unambiguous meaning of the statutory language.” *Orellana*, 405 F.3d at 365. Thus, we parse each of the three relevant provisions of the statutory CMI definition to develop an understanding of whether URLs can qualify as CMI under any provision, as a matter of law.

It bears underscoring that we are only tasked with answering the narrow legal issue here of whether URLs can *ever* constitute CMI. While this interlocutory appeal is certified only as to the question of law here, we use an example URL from Emmerich for reference throughout the analysis:

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<https://www.pressregister.com/jonestown-studies-speedbumps-safety-concerns>. Emmerich describes the components of its URL as follows: (1) the “domain name” is the text that provides a general link to the domain homepage (for its publication *The Press Register* in this example, “www.pressregister.com”), and (2) if the domain name is followed by a slash, the full URL now includes a description of the article, or the “website descriptor” (in this example, “jonestown-studies-speedbumps-safety-concerns”).

Incorporating this example, we consider whether any of the parts that makeup the URL could comport with a basis for CMI under § 1202(c).

1. NOTICE

First, we consider whether URLs meet the overarching statutory requirement, which is that CMI must be “*conveyed* in connection with copies . . . or displays of a work, including in digital form.” 17 U.S.C. § 1202(c) (emphasis added). There is no definition for “convey” in the DMCA, so we look to its ordinary meaning. *See Cotropia*, 978 F.3d at 289. By definition, to “convey” means “to impart or communicate by statement, suggestion, gesture, or appearance.” *Convey*, MERRIAM WEBSTER’S COLLEGIATE DICTIONARY (1998).

The district court reasoned that “the URLs fail to provide notice that any of the information set out in § 1202(c)(1)–(8) is associated with a particular (copyrighted) work that appears at the online location indicated in the URL,” and therefore, the URLs are not “conveyed in connection with a copyrighted work.” To reach the concept of an underlying notice requirement, the district court relied on a number of other district court cases regarding the purpose of CMI as an external information signal. *See, e.g., Fashion Nova, LLC v. Blush Mark, Inc.*, No. CV 22-6127 PSG (RAO), 2023 WL 4307646, at *4 (C.D. Cal. June 30, 2023) (“The central purpose of CMI

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is to inform the public that something is copyrighted and to prevent infringement.” (internal citation and quotation omitted); *FurnitureDealer.Net, Inc. v. Amazon.com, Inc.*, No. CV 18-232 (JRT/HB), 2022 WL 891473, at *19 (D. Minn. Mar. 25, 2022) (same); *Fischer v. Forrest*, 286 F. Supp. 3d 590, 610–11 (S.D.N.Y. 2018) (“CMI exists to inform the public that a work is copyrighted and by whom.”), *aff’d*, 968 F.3d 216 (2d Cir. 2020).

Emmerich takes issue with this approach because the “notice requirement is reflected nowhere within the text of the DMCA.” We disagree.

“Conveying” information is external-facing by nature. That is, to understand if something was conveyed, one would have to consider how the recipient would understand the information she received. Thus, we must return to the central question: whether URLs *convey* CMI or, said differently, whether URLs *impart* or *communicate* CMI. As purely a question of law before us, without factual nuance, we do not assert that URLs could never provide this notice. However, there are challenges that make this a high bar.

URLs first and foremost serve a function. As a locational reference tool, it stands to reason that one would not naturally come to expect a URL to contain CMI, but instead instructions of where to locate the copyright-protected work itself. Amici support this as well, noting that “[i]t defies reason to suggest that most authors, owners, or readers would rely on URLs to communicate the title of a work, much less its copyright owner.” Br. of Elec. Frontier Found. et al. as Amici Curiae Supporting Appellee, at 19 (No. 25-60550) (hereinafter “Amicus Br. of Elec. Frontier Found. et al.”).

Second, it follows from the very nature of URLs that they are not structured to convey CMI. URLs may be formatted in a variety of ways, often proprietary to the website owner or operator—much in the same way that

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filenames are. *See Energy Intel. Grp.*, 948 F.3d at 277. Some URLs may contain a website descriptor close to the title of an article, while others contain more general phrases or even numerical identifiers. With the focus placed on how the CMI would be perceived—that is, whether one would understand the URL to be conveying CMI—the very structure of the URL would have to provide such clarity.

Finally, many websites may be copyrighted under a group registration, making any conveyance of notice more difficult. As a publication, for example, Emmerich’s copyright registrations are group registrations that cover newspapers on a monthly basis, but not specific articles. In turn, a given URL may not necessarily be connected to the copyright that protects the article in general.

We return to the statutory provisions under which Emmerich asserts CMI, keeping in mind that to constitute CMI under any provision, URLs must be able to convey notice of the protected information it is connected to.

2. DOMAIN NAME

Emmerich first points to a basis for CMI under Section 1202(c)(3), which looks to “[t]he name of, and other identifying information about, the copyright owner of the work, including the information set forth in a notice of copyright.” 17 U.S.C. § 1202(c)(3). It asserts that the domain name in the URL provides identifying information about the “copyright owner” as set forth in its notice of copyright as well.

In the example, Emmerich would assert that *The Press Register*, as the domain name, is the copyright owner. However, this is made more complex by the fact that, according to Emmerich, its newspapers (or domains) can transfer or assign their copyright interests to Emmerich. For example, *The Press Register* has done exactly that, assigning its rights to Emmerich. Still,

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Emmerich contends that the “[o]wnership of a copyright can be evinced from the original copyright holder.”

Particle disagrees with this characterization, maintaining that even if the domain name matched the copyright owner, it does not trump the fact that “URLs are purely functional, associated with locations.” Moreover, Particle emphasizes that the domain name offers little insight precisely because it may not be the copyright owner, as evidenced here. Indeed, because of the wide variance in domain names, chain of title will be difficult to assess and, even if possible to trace, would likely contravene the plain text of the DMCA, which requires that the CMI relate to the copyright owner—not the prior owner. 17 U.S.C. §1202(c)(3).

For these reasons, which also diminish the notice the URL can provide, the domain name cannot provide a standalone basis for a URL to be CMI.

3. WEBSITE DESCRIPTOR

Further, we consider whether the URL’s website descriptor always qualifies as a title under Section 1202(c)(1), which provides that “[t]he title and other information identifying the work, including the information set forth on a notice of copyright,” constitutes CMI. 17 U.S.C. §1202(c)(1). In the *Press Register* example, Emmerich would assert that “jonestown-studies-speed-bumps-safety-concerns” is the title of the article, swapping out hyphens for spaces since URLs do not permit spaces.

This analysis most closely parallels our court’s analysis in *Energy Intelligence Group*, where we held that filenames may qualify as titles under Section 1202(c)(1). 948 F.3d at 277. The district court below drew a distinction between a filename that is a clear “identifier associated with a particular work” and a URL, which is a “reference directing a user to place on the Internet where information can be retrieved, at a given time, but not

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necessarily permanently.” In particular, because the “content at the URL may be deleted or moved, or the link itself may be deactivated,” the district court determined that it does not rise to the same level as a filename in what it conveys.

A key inquiry is whether the website descriptor in the URL is akin to a filename or not. In *Energy Intelligence Group*, we concluded that, because “CMI is defined broadly” and “[n]othing in § 1202 indicates that a digital file name cannot be CMI,” a “PDF’s file name *may be* CMI if it is ‘conveyed in connection with copies’ of the underlying work and contains a ‘title and other information identifying the work.’” 948 F.3d at 277 (quoting 17 U.S.C. § 1202(c)(1)) (emphasis added). Further, we recognized that evidence presented at trial supported the finding that the naming convention of the files at issue resulted in “‘information identifying’ each [] newsletter. Therefore, the PDF file names [] were CMI.” *Id.*

Emmerich asserts that *Energy Intelligence Group* is directly on point. In response, Particle argues that website descriptors are merely part of the larger URL that computers use to find locations on the internet and that website descriptors do not necessarily match the title of the copyrighted work syntactically.

Under the plain meaning of the terms at issue, and in light of the notice imperative, Particle has the stronger argument. However, because of our prior determination that filenames *may* constitute CMI, we similarly do not foreclose that URLs *may be* CMI in circumstances not presented here.

For one, dictionary definitions are informative. A filename, which may be protected CMI, is defined as “an identifying name given to an electronically stored computer file, conforming to limitations imposed by the operating system, as in length or restricted choice of characters.” *Filename*, DICTIONARY.COM, <https://www.dictionary.com/browse/filename> (Aug.

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25, 2026); *see also* *Filename*, CAMBRIDGE DICTIONARY, <https://dictionary.cambridge.org/us/dictionary/english/filename> (last accessed May 20, 2026) (“filename” is “a name that you give to a document or file on a computer”). By contrast, a URL is a “compact string of numbers, letters, and symbols that a computer uses to find a resource on a network and act upon it.” *URL*, ENCYCLOPEDIA BRITANNICA, <https://www.britannica.com/technology/URL> (Aug. 25, 2026). Taken together, the district court aptly summarized that “a file name describes data while a URL is akin to a roadmap to data on the Internet.” From the definitions alone, we conclude that URLs primarily operate as a functional utility of directing someone to the copyrighted work, as opposed to a filename, which is information inherent to the copyrighted work itself.

A second reason why Emmerich’s categorical reasoning falls short is that a URL’s website descriptor does not necessarily equate to the title of the copyrighted work.¹⁸ For one, the descriptor is unlikely to match the title of the work because of the syntax of URLs. It is also true that, website descriptors can vary widely, rendering it infeasible to determine that URLs always constitute CMI on account of the difficulty for such descriptors to convey notice of a copyrighted work’s title. *See, e.g.*, Amicus Br. of Elec. Frontier Found. et al. at 20 (noting that “many URLs provide even less information about the underlying website, files or resources they locate,” for example, YouTube generates random URLs with no information about the underlying content). Relatedly, as described in the prior section, Emmerich’s

¹⁸ Take, for example, a *New York Times* article. The title of the article was: “3 Ways Operas Speak to the Moment, With Success and Failure,” yet as evident in the URL, the website descriptor is different entirely. Gabrielle Ferrari, *3 Ways Operas Speak to the Moment, With Success and Failure*, N.Y. TIMES (May 19, 2026), <https://www.nytimes.com/2026/05/19/arts/music/american-opera-projects-experiments-in-opera-heartbeat-opera.html>.

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individual articles are not copyrighted works themselves, but are copyrighted in the aggregate. Thus, even the article title is not necessarily connected to a copyrighted work.

Perhaps most different from filenames, the core challenge in evaluating URL website descriptors is how URLs function as a whole. For example, the district court here emphasized that “it is perhaps conceivable that Emmerich could have named some kind of file (data) using the same information/characters contained in a URL,” but the distinction was that “Emmerich has never purported to identify the type of file, i.e., data, to which it has assigned a URL-file name.” Thus, when URLs serve a locational purpose only, it is insufficient to cross the threshold from a functional use to one that identifies a copyrighted work.

Again, we remain concerned solely with the question of law and not the application to Emmerich’s URLs specifically. Thus, we find that a future court could conceivably discern that the URL website descriptor as-applied meets the CMI requirements, similar to PDF filenames. Importantly, though, this question remains a fact-specific inquiry for district courts to conduct in the first instance.

4. LINKS

Finally, Emmerich points to Section 1202(c)(7) as a basis for a CMI designation, which defines CMI as “[i]dentifying numbers or symbols referring to such information or links to such information.” 17 U.S.C. § 1202(c)(7). It contends that “[t]here is no difference between the District Court’s view of a URL as an address, and a link.” The district court did not address the link argument because Emmerich failed to argue that it was an alternative category of CMI in its motions for summary judgment. With the broader statutory question before us on appeal, we nonetheless include this as a basis for consideration.

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Although intuitively a URL seems to be a link, the question remains whether we must construe “link” as a term of art in a particular way. Caselaw defining “link” under Section 1202(c)(7) is underdeveloped. Particle suggests that “the ‘link’ contemplated in § 1202(c)(7) is a link *from* copyrighted content *to* a page displaying CMI,” thus it would be circular to consider the URL of the page with copyrighted content to be the CMI itself.

We agree with Particle’s interpretation of the statute. To qualify as a link to CMI, the URL would have to connect to an address that displays CMI, such as a page that contained a website’s copyright, disclosures, and permissions. Even still, we recognize that the nature of links is that they can change if the pages they locate are altered. Particle’s expert testified to this, noting that “[a] URL by definition changes when the resource such as a news article is located on a different server or in a different folder. Whenever the location of any object on the Internet changes, the URL changes, by design, by function, by definition and by logic.”

However, should the link be more stable, should it connect to a qualifying page, and should it provide notice of the CMI it is linked to, the broad language in Section 1202(c)(7) could provide a basis for URLs to constitute CMI.

* * *

Following suit with our approach in *Energy Intelligence Group*, we leave open the possibility that certain URLs could possess the hallmarks of CMI. But, as described in the foregoing sections, several factors are essential to confirm before reaching that determination, including: whether the domain name corresponds with the copyright owner; whether the copyright is over the website as a whole or specific pages; whether the URL is sufficiently stable and not subject to change; and, above all, whether the URLs are clearly being conveyed for the purpose of communicating a copyrighted work.

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B. REMOVAL OF URLS

Finding that URLs may constitute CMI, we turn to the DMCA's second inquiry: whether the intentional removal of a URL constitutes a violation of Section 1202(b)(1). The statute provides, "No person shall, without the authority of the copyright owner or the law—(1) intentionally remove or alter any copyright management information." 17 U.S.C. § 1202(b). The district court did not reach this analysis because it deemed URLs did not constitute CMI.

In our parallel precedent, we held that if a filename is deemed to be CMI, then altering that filename would be an unauthorized alteration of CMI. *Energy Intel. Grp.*, 948 F.3d at 277. Here, having determined that URLs *may* constitute CMI, we leave open the analysis of whether the alteration or removal of a URL that is CMI would violate the DMCA.

We do so because of the different function of URLs as locational references. Particle points to the widespread impact of a decision holding that URLs constitute CMI, asserting that "the internet would become a DMCA quagmire overnight." In particular, it argues that "[p]recisely because they are functional, proxies are used for URLs all the time—either to shorten them, or to share them with others." Thus, shortening a URL would be a DMCA violation, even though the URL is just meant to take a user to the location of the copyrighted work. Our court, for example, incorporates permalinks of webpages into opinions to capture the source at the time of its citation. Emmerich attempts to temper the concern about commonplace URL shorteners, arguing that they would not create an issue because "[t]he proxy never takes the reader to a different website where the work appears under a different URL, as occurred here." Thoughtful examination of this issue would require factual development, so we cannot faithfully provide a definitive answer without such facts. Future cases will need to decide where

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the line is with respect to such commonplace practices, including whether there is a distinction between using a URL shortener that excludes CMI or removing a URL altogether (e.g., framing the content on another webpage, under a different URL).

In light of the necessity of a fact-specific inquiry, we recognize that workability concerns abound. If certain URLs, but not others, are deemed CMI, further frustrating the lack of notice given externally, we must anchor on whether any alteration or removal was “*intentional*” to “remove or alter [the] copyright management information.” 17 U.S.C. § 1202(b).

Thus, we remand not only for consideration of whether Emmerich’s URLs contain any of the CMI hallmarks as discussed above, but also, if so, whether the alteration or removal of them was done in such a way as to violate the DMCA.

VI. CONCLUSION

This interlocutory appeal asked two questions: (1) Is the server test the correct standard for a display infringement claim under the Copyright Act, and (2) Can a URL ever be CMI? We answer the former in the negative, and in the latter, we do not foreclose the affirmative. But we do so while seeking to strike a delicate balance and giving considerable statutory context to adjudicate that balance. Without the benefit of a completed, post-judgment appeal, with full factual development before us, our holdings are necessarily cabined by our interlocutory posture. We express no opinion on the ultimate resolution of Emmerich’s claims, and we leave open future challenges to come in this space. Nonetheless, these comprehensive answers should guide the district court in its next steps and provide a framework for courts in our circuit confronting these questions.

In accordance with the foregoing, we REMAND for proceedings consistent with this opinion.