

NOTE: This disposition is nonprecedential.

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

**AVAGO TECHNOLOGIES INTERNATIONAL SALES
PTE. LIMITED,**
Appellant

v.

NETFLIX, INC.,
Appellee

2023-1815

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2021-
01293.

Decided: February 27, 2025

DAN YOUNG, Quarles & Brady LLP, Highlands Ranch,
CO, argued for appellant. Also represented by KENT
DALLO, MATTHEW CHRISTIAN HOLOHAN.

HARPER BATTS, Sheppard Mullin Richter & Hampton
LLP, Menlo Park, CA, argued for appellee. Also repre-
sented by JEFFREY LIANG, CHRISTOPHER SCOTT PONDER.

Before TARANTO, STOLL, and STARK, *Circuit Judges*.

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TARANTO, *Circuit Judge*.

Avago Technologies International Sales Pte. Limited is the owner of U.S. Patent No. 9,402,098, titled “Fast Channel Change.” Netflix, Inc. successfully petitioned the Patent and Trademark Office (PTO) to institute an inter partes review of claims 1–5 and 7 of the ’098 patent, and the PTO’s Patent Trial and Appeal Board, upon conducting the review, concluded that all challenged claims were unpatentable, under 35 U.S.C. § 103, for obviousness. J.A. 1–69. Avago appeals, challenging certain factual findings that underlie the Board’s conclusion of obviousness. We conclude that the challenged findings are supported by substantial evidence. We therefore affirm.

I

A

Avago’s patent addresses the problem in “digital video systems” of a “latency time” (delay) between a user’s request for video information and the system’s presentation of the requested video information to the user. ’098 patent, col. 1, lines 15–18. Causes of this latency include “request processing delays, information communication delays and information processing delays.” *Id.*, col. 1, lines 26–30. To reduce latency time, the patent proposes (in one embodiment) a method in which a “video transmission system” sends “a first portion” of the requested video information to a “video receiver” at a rate that is “faster than a typical steady-state transmission rate.” *Id.*, col. 1, lines 41–43, 56–61. Representative claims 1 and 7 state as follows (with markings used by the Board and parties in brackets):

1. A method, comprising:

[1a] receiving, by a video transmission system having one or more processors, a request for a unit of video information from a remote video receiver;

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[1b] *determining an initial transmission rate for the unit of video information using a real-time determination of available communication bandwidth between the video transmission system and the remote video receiver* and a first steady-state transmission rate for the unit of video information, the initial transmission rate being higher than the first steady-state transmission rate;

[1c] *for a first time period after receiving the request, transmitting, by the video transmission system, a first portion of the unit of video information to the remote video receiver at the initial transmission rate*, [1d] wherein in response to a change in the available communication bandwidth between the video transmission system and the remote video receiver during the first time period, transmitting a remainder of the first portion of the unit of video information to the remote video receiver at a second transmission rate for a remainder of the first time period, *the second transmission rate being determined using the change in the available communication bandwidth and being different from the initial transmission rate and the first steady-state transmission rate*; and

[1e] for a second time period after the first time period, transmitting, by the video transmission system, a second portion of the unit of video information to the remote video receiver at the first steady-state transmission rate.

...

7. The method of claim 1, further comprising:

determining the first time period using a pre-determined latency goal; and

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determining the initial transmission rate for the unit of video information further using the determined first time period and an amount of video data to transmit.

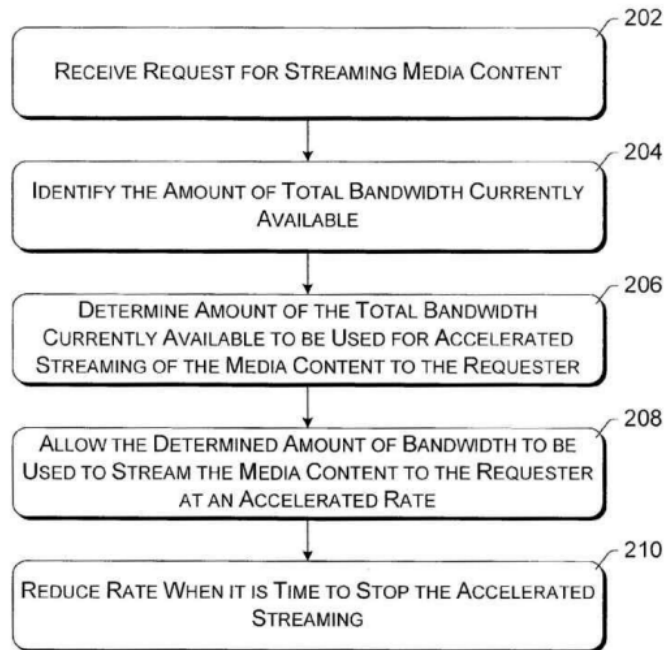
Id., col. 19, lines 6–62 (emphases added).

B

The main prior-art reference invoked against all the challenged claims is U.S. Patent App. Pub. No. 2004/0128396, titled “Adaptable Accelerated Content Streaming” and referred to as “Patrick” (the name of the lead inventor) by the parties and Board. J.A. 756–68. Patrick describes a problem that affects streaming media content over a network to a client device having a buffer: The client must “wait for the buffer to be initially filled before playback begins, thereby delaying the starting of the playback.” J.A. 761 ¶ 3. Patrick describes, among other things, the following solution: “When a server device is initially streaming media content to a client device, the streaming is performed at an accelerated rate so that the buffer on the client device can be filled quicker. When this initial buffer fill is finished, the rate of streaming is reduced to a steady state rate.” J.A. 761 ¶ 12. Figure 3 of Patrick “illustrat[es] an exemplary process for accelerated streaming”:

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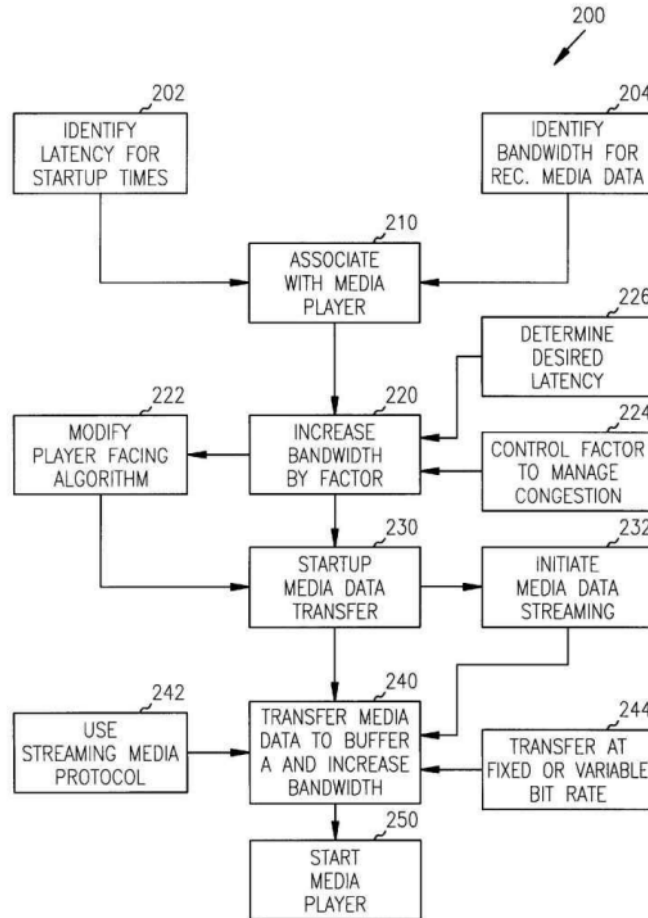
200



J.A. 759 fig.3, 761 ¶ 10. Most relevant to the dispute now before us are steps 206 (“Determine Amount of the Total Bandwidth Currently Available to be Used for Accelerated Streaming . . .”) and 208 (“Allow the Determined Amount of Bandwidth to be Used to Stream the Media Content . . . at an Accelerated Rate”). J.A. 759 fig.3.

A second prior-art reference is invoked by Netflix in challenging claim 7—U.S. Patent No. 6,801,964, titled “Methods and Systems to Fast Fill Media Players” and referred to as “Mahdavi” (the name of the inventor). J.A. 821–32. Figure 2 “shows a flowchart representing . . . method 200 of fast filling a media player”:

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J.A. 823 (Figure 2), 830 (col. 6, lines 8–9). “[I]n steps 202 and 204, latency associated with a startup of a media player/stream and a bandwidth associated with receiving media data into the media player’s buffer are identified.” J.A. 830 (col. 6, lines 9–13). “Next, the identified bandwidth is increased by a *factor*, in step 220.” J.A. 830 (col. 6, lines 36–37) (emphasis added). This factor “can be controlled,” including by “determining *the desired initial minimum latency* required by the media player or data communication protocol . . . as depicted in step 226.” J.A. 830 (col. 6, lines 58–65) (emphasis added). “Next, the *factor*

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is readily resolved by dividing the *minimum initial latency time* represented in seconds or milliseconds by the media player’s identified latency in like time units.” J.A. 830–31 (col. 6, line 65, through col. 7, line 2) (emphases added). Finally, “the media data are transferred at an increased . . . bandwidth” in step 240 and the media player begins to play the media data in step 250. J.A. 831 (col. 7, lines 12–13, 19–23).

C

In August 2021, Netflix petitioned the PTO for an inter partes review, under 35 U.S.C. §§ 311–319, of independent claim 1 and dependent claims 2–5 and 7 of the ’098 patent. [A87; A97] The Board, acting for the PTO’s Director, instituted the requested review in February 2022. J.A. 87; J.A. 1505–22.

On February 15, 2023, the Board issued a final written decision, holding all challenged claims unpatentable for obviousness—claim 1 in view of Patrick, claims 2–5 in view of Patrick and other references not relevant in the present appeal, and claim 7 in view of Patrick and Mahdavi. J.A. 1–69. The Board did not construe any claim terms, noting that Avago did not propose any constructions and finding no construction necessary. J.A. 7.

Avago timely appealed on April 18, 2023. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

II

“Obviousness is a question of law based on underlying facts.” *Virtek Vision International ULC v. Assembly Guidance Systems, Inc.*, 97 F.4th 882, 886 (Fed. Cir. 2024). We decide the correctness of the Board’s ultimate determination of obviousness de novo, and we review the underlying factual determinations for substantial-evidence support. *Personal Web Technologies, LLC v. Apple, Inc.*, 848 F.3d 987, 991 (Fed. Cir. 2017). “What the prior art teaches, whether a person of ordinary skill in the art would have

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been motivated to combine references, and whether a reference teaches away from the claimed invention are questions of fact.” *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. 2017).

Avago argues that the Board erred in finding that Patrick taught or rendered obvious claim limitations 1b, 1c, and 1d and that Patrick and Mahdavi taught claim 7. We disagree.

A

Claim limitation 1b requires, in relevant part, determining an initial transmission rate using a “real-time determination of available communication bandwidth between the video transmission system and the remote video receiver.” ’098 patent, col. 19, lines 10–13. The Board found that Patrick, in paragraphs 36–38, “teaches determining the amount of bandwidth available for accelerated streaming of the media content, and that [this] amount of bandwidth . . . can vary based on the current conditions of the network” J.A. 35; *see also* J.A. 18–19; J.A. 764 ¶¶ 36–38 (Patrick). The Board also found that, though Patrick did not disclose “measuring between server and client” as part of determining the amount of available bandwidth, doing so would have been obvious to a relevant artisan. J.A. 38–39.

On appeal, Avago argues that: (1) Patrick fails to teach the determination of an initial transmission rate based on the bandwidth between the server and client devices; (2) the Board misunderstood paragraph 38 of Patrick; and (3) the Board erred in finding that a relevant artisan would have modified Patrick to measure the available bandwidth between the server and the client. These arguments show no reversible error.

1

Citing paragraphs 19, 28, and 30–32 of Patrick, Avago argues that the “available bandwidth” for accelerated

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streaming in Patrick is based *solely* on the bandwidth load of the server device, because these paragraphs do not discuss the bandwidth between the server and client devices. Avago Opening Br. at 42–44. These paragraphs are not the ones (36–38) on which the Board relied, finding those paragraphs to teach that network conditions can affect the amount of available bandwidth. J.A. 34–35. The Avago-cited paragraphs, for their part, do not state that server load is the exclusive basis for determining the available bandwidth, J.A. 762–63 ¶¶ 19, 28, 30–32; Avago itself acknowledges that Patrick teaches that certain other factors may be used to calculate available bandwidth, J.A. 1959 (patent owner’s response). The Board did not err in finding that the Avago-cited paragraphs do not negate the disclosures of paragraphs 36–38. J.A. 34–35.

Avago argues that paragraphs 36–38 are actually irrelevant to the determination of the available bandwidth in Patrick. Avago Opening Br. at 44–50. It urges, in particular, that paragraphs 36–38 describe only step 208 in Patrick’s Figure 3 and teach only that the amount of bandwidth used in that step—*once* transmission has begun—can be based on network conditions, not that the determination of the *initial* transmission rate in step 206 is based on network conditions. *Id.* at 48–50. The Board had substantial evidence to read Patrick contrary to that view.

The first sentence of paragraph 38 states as follows:

Thus, it can be seen that the accelerated streaming is adaptable—the rate of accelerated streaming (and *the amount of bandwidth available for accelerated streaming of particular media content*) is adaptable and can vary based on the current conditions of the server device streaming the data and/or *the current conditions of the network coupling the server and client devices*.

J.A. 764 ¶ 38 (emphases added). As the Board noted, this language (“the amount of bandwidth available for

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accelerated streaming”), or similar language, is used in paragraphs 31 and 36 to expressly describe step 206, and thus paragraph 38 is reasonably understood as a continued description of the “bandwidth” discussed in those paragraphs. J.A. 29–30; J.A. 763–64 ¶¶ 31, 36. Patrick also states that “[t]he amount of bandwidth that is made available for accelerated streaming . . . can thus vary over time, *depending on the server load and/or network load* when the request for the content is made.” J.A. 764 ¶ 38 (emphases added). And Netflix’s expert testified that a relevant artisan reading Patrick would have understood that paragraphs 33–39 “provide[] additional details and teachings relevant to the invention as a whole.” J.A. 1934 ¶ 8; *see also* J.A. 30 (crediting Dr. Brody’s testimony). On this record, the Board did not err in finding that paragraph 38 “provides additional detail” regarding step 206 of Figure 3. J.A. 30.

2

Avago argues that the Board misunderstood paragraph 38. Avago’s Opening Br. at 50–53. In particular, Avago submits that a relevant artisan would recognize the use of “and/or” in the first sentence of paragraph 38 (reproduced above) to be “a drafting error” because Patrick “nowhere else” states that the available bandwidth is adaptable based on network conditions. *Id.* at 51–52. The Board, however, could reasonably find otherwise.

As Avago effectively acknowledges by turning to an argument that the language of the sentence in paragraph 38 is a drafting error, the language actually used does teach, as the Board found, that “both the rate of accelerated streaming *and* the amount of bandwidth available for accelerated streaming . . . can vary based on” either or both of (1) “the current conditions of the server device” and (2) “the current conditions of the network.” J.A. 31 (discussing J.A. 764 ¶ 38). Reading the paragraph 38 sentence as meaning what it says on its face is supported by, not

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undermined by, other disclosures in Patrick. Paragraph 37 states that the accelerated streaming rate “would not be able to exceed” “the network connection” and may be limited by “network congestion or other restrictions between server device . . . and client device,” J.A. 764 ¶ 37, and the second sentence of paragraph 38 states that the “amount of bandwidth . . . can thus vary over time, *depending on the server load and/or network load* when the request for the content is made,” J.A. 764 ¶ 38 (emphases added). *See* J.A. 31–32. The Board’s finding is also supported by expert testimony discussed in a part of the petition that the Board identified as “consistent” with its finding. *See* J.A. 32 (citing petition at J.A. 117–18 (discussing Brody decl. at J.A. 655–56 ¶¶ 81–82)). In these circumstances, which are sharply different from those of *LG Electronics Inc. v. ImmerVision, Inc.*, 39 F.4th 1364, 1371–73 (Fed. Cir. 2022) (relying on, *e.g.*, undisputed drafting error), the Board could readily find no drafting error here, giving “minimal weight” to testimony from Avago’s expert on this point as being “[un]supported by a sufficient factual basis” and “contrary to Patrick’s disclosure.” J.A. 32 (discussing Hayes decl. at J.A. 1664–66 ¶ 50, 1676–77 ¶¶ 63–64).

3

Avago contends that the Board erred in finding that a relevant artisan would have modified Patrick to measure the available bandwidth between the server and the client as part of determining the amount of bandwidth available for streaming. Avago Opening Br. at 53–56; J.A. 38–39, 42. Avago chiefly argues in support of that contention that “Patrick is directed to a different problem”: “preventing server overload.” Avago Opening Br. at 53. We see no reversible error in the Board’s motivation-to-modify finding.

The Board’s finding is supported by Patrick. In paragraphs 37 and 38, Patrick states that “network congestion or other restrictions between server device 146 and client device 102” may constrain the rate of streaming, J.A. 764

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¶ 37, and that “the amount of bandwidth available for accelerated streaming” “can vary based on . . . the current conditions of the network coupling the server and client devices,” J.A. 764 ¶ 38. In the next paragraph, Patrick then provides an example of a measurement technique. J.A. 764 ¶ 39. The Board reasonably found, in fact, based on cited testimony of Netflix’s expert, that “there were many well-known techniques available for . . . doing so in 2004.” J.A. 39 (citing Brody decl. at J.A. 655–56 ¶ 81); *see also* J.A. 34–35, 42.

Avago’s argument that the Board erred because Patrick’s “primary concern” is server overload is not a ground for deeming the Board’s finding unreasonable. This argument is predicated on Avago’s earlier argument that paragraph 38 (discussing network conditions) is irrelevant to determining the available bandwidth—an argument that the Board properly rejected, as already discussed. Moreover, prior-art teachings can reach beyond their primary purposes, and Avago has made no argument that Patrick’s concern with server overload would have discouraged a relevant artisan from modifying Patrick to prevent network overload. *See KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 420–21 (2007).

B

Turning to limitation 1c of claim 1, Avago contends that Patrick does not teach “determining an initial transmission rate” (as described in limitation 1b) *before* “a first portion of the unit of video information” is transmitted at that rate (as described in limitation 1c). Avago Opening Br. at 57. This contention rests on the argument that Patrick fails to teach the determination of the initial transmission rate in step 206 (of Patrick’s Figure 3)—and thus also fails to teach the making of this determination *before* streaming begins in step 208. *Id.* at 59. The Board had substantial evidence on which to find otherwise. J.A. 46–48.

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Patrick states that the server device has “an accelerated streaming control module 150 that *determines an appropriate rate for accelerated streaming.*” J.A. 762 ¶ 19 (emphasis added). Patrick then states that this rate is at least in some instances determined in step (“act”) 206:

In one implementation, the determined amount of bandwidth to be used for accelerated streaming of the media content to the requester is capped by the particular rate requested by the requester. Thus, the rate requested by the requester can serve to reduce the rate determined by control module 150, but not increase *the rate that would otherwise be determined by control module 150 in act 206.*

J.A. 763–64 ¶ 34 (emphasis added); *see also* J.A. 764 ¶ 35 (discussing “[t]he rate determined in act 206”). The Board could reasonably read these passages to teach the timing sequence stressed by Avago, especially in light of expert testimony to that effect that the Board credited. *See* J.A. 46 (citing Brody decl. at J.A. 653 ¶ 78, 658–60 ¶¶ 84–85, 87).

C

Limitation 1d requires that, upon a change in the available communication bandwidth, a second transmission rate that is “different from the initial transmission rate and the first steady-state transmission rate” is “*determined using the change in the available communication bandwidth.*” ’098 patent, col. 19, lines 20–30 (emphasis added). The Board read Patrick to teach this limitation through the statements that “the amount of bandwidth available for accelerated streaming . . . can vary based on . . . the current conditions of the network,” J.A. 764 ¶ 38; that the server device “may re-evaluate . . . the amount of bandwidth available to be used for accelerated streaming” and “[t]hus, steps 204-208 could be repeated multiple times while fast streaming,” J.A. 764 ¶ 45; and that “the accelerated rate may be reduced” when “a problem with the streaming,”

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such as a loss of data packets, is “detected,” J.A. 765 ¶ 48. J.A. 53–54. Avago has not shown reversible error in the Board’s finding on limitation 1d.

Avago acknowledges that “Patrick discloses reevaluating the available bandwidth” but maintains that “Patrick does not disclose changing the transmission rate in light of the reevaluated available bandwidth.” Avago Opening Br. at 64. These arguments are reiterations of Avago’s arguments regarding limitations 1b and 1c. *See id.* (arguing that “bandwidth” in Patrick refers only to server load, not network load, and that step 206 teaches the determination of an upper threshold, not the transmission rate). They fail for the reasons already set out.

Avago additionally argues that the Board’s reliance on paragraph 48 of Patrick is “misplaced” because that paragraph’s discussion of a loss of data packets is unrelated to bandwidth. *Id.* at 65. But the Board’s finding that paragraph 48 “discloses reducing the accelerated rate in response to a reduction in available bandwidth” is supported by substantial evidence. J.A. 53–54. The Board relied on Dr. Brody’s testimony that a relevant artisan “would have understood that a packet loss problem during video streaming is commonly caused by a reduction in the available bandwidth,” J.A. 667–68 ¶ 99. J.A. 53–54. By addressing this problem, Dr. Brody testified, “Patrick contemplates the reduction of available bandwidth during transmission” J.A. 66–68 ¶ 99. Avago has not shown error in the Board’s crediting of this testimony.

D

We turn to Avago’s challenges to the Board’s treatment of dependent claim 7, which requires, in relevant part, “determining the first time period using a predetermined latency goal.” ’098 patent, col. 19, lines 58–59. The Board found that “it would have been obvious” to a relevant artisan “to modify Patrick’s adaptable accelerated content streaming method with Mahdavi’s teachings regarding the

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use of a desired latency to determine the initial period and transmission rate for accelerated transmission of media to avoid data congestion and to improve customizability of the user experience.” J.A. 66. Avago argues, first, that the Board erred in finding that Mahdavi discloses a predetermined latency goal because a relevant artisan would not understand what Mahdavi’s “desired initial minimum latency” or “factor” meant and, second, that the Board erred in finding a motivation to combine Patrick and Mahdavi. Avago Opening Br. at 66–68. What Mahdavi would have taught a relevant artisan and whether a motivation to combine existed are factual questions, and Avago has not shown that the Board’s answers are unsupported by substantial evidence.

1

The Board found that “Mahdavi teaches identifying bandwidth and startup latency of a media device and increasing the identified bandwidth by a factor which is resolved by dividing the *minimum initial latency time* (e.g., *the latency goal*) by the media player’s identified latency time.” J.A. 66 (emphasis added). The Board’s finding is supported by steps 202, 204, 210, 220, and 226 in Figure 2 of Mahdavi and the corresponding portions of the specification, which are reasonably understood as a discussion of how the “minimum initial latency time,” or latency goal, is used to calculate the factor by which to increase the streaming bandwidth. See J.A. 823 fig.2, 830–31 (col. 6, lines 8–13, 34–46; col. 6, line 58, through col. 7, line 2; col. 7, lines 12–18); *supra* Part I.B. The Board’s finding is further supported by testimony from Netflix’s expert, Dr. Brody, that “the desired initial minimum latency is a latency goal and the latency goal is predetermined.” J.A. 707–12 ¶¶ 161–66 (Brody decl.); see J.A. 66 (citing petition at J.A. 156–59 (discussing Brody decl.)). Avago has not shown error in the Board’s decision to credit that expert testimony.

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Substantial evidence also supports the Board’s findings that a relevant artisan “would have understood [Mahdavi’s] description” of “using a ‘factor’ in its calculations,” J.A. 66, and that “the Petition explains sufficiently how Mahdavi’s factor is used,” J.A. 67. Mahdavi states that “the factor is readily resolved by dividing the minimum initial latency time represented in seconds or milliseconds by the media player’s identified latency in like time units.” J.A. 830–31 (col. 6, line 65, through col. 7, line 2). And Dr. Brody testified that a relevant artisan would understand this description and provided an example calculation. J.A. 701–02 ¶ 153 & n.3, 707–12 ¶¶ 161–66; *see* J.A. 66–67 (citing Netflix’s petition at J.A. 151, 156–57 (discussing Brody decl.)).

2

The Board’s finding of a motivation to combine Patrick and Mahdavi is also adequately supported. J.A. 66–67. The Board found that it would have been obvious “to modify Patrick’s adaptable accelerated content streaming method with Mahdavi’s teachings regarding the use of a desired latency to determine the initial period and transmission rate . . . *to avoid data congestion and to improve customizability of the user experience.*” J.A. 66 (emphasis added). Dr. Brody testified that Mahdavi disclosed a need to avoid data congestion; that “Patrick discloses a need to customize the video streaming to different users,” based on Patrick’s disclosure of how different percentages may be applied to the total bandwidth to calculate the currently available bandwidth; that a relevant artisan would have recognized that startup latency is “closely related” to the amount of bandwidth available for streaming; and that a relevant artisan thus would have been motivated to “adopt a solution that allows direct control of the startup latency.” J.A. 702–06 ¶¶ 155–57 (Brody decl.) (discussing Mahdavi at J.A. 830–31 and Patrick at J.A. 763 ¶ 33); *see* J.A. 66 (citing Brody decl.). Avago has not shown that the Board erred in relying on that testimony.

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III

We have considered Avago's other arguments and find them unpersuasive. We affirm the decision of the Board.

AFFIRMED