

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BJ'S WHOLESALE CLUB HOLDINGS, INC.,  
Petitioner,

v.

WALMART APOLLO, LLC,  
Patent Owner.

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IPR2022-01528  
Patent 10,803,435 B2

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Before PATRICK R. SCANLON, NEIL T. POWELL, and  
MITCHELL G. WEATHERLY, *Administrative Patent Judges*.

POWELL, *Administrative Patent Judge*.

JUDGMENT  
Final Written Decision  
Determining All Challenged Claims Unpatentable  
*35 U.S.C. § 318(a)*

## I. INTRODUCTION

### A. BACKGROUND

BJ's Wholesale Club Holdings, Inc. ("Petitioner") filed a Petition for *inter partes* review of claims 15–19 of U.S. Patent No. 10,803,435 B2 (Ex. 1001, "the '435 patent"). Paper 2 ("Pet."). Walmart Apollo, LLC ("Patent Owner") filed a Preliminary Response. Paper 8 ("Prelim. Resp."). Because Petitioner filed multiple other petitions challenging claims of the '435 patent, Petitioner also filed a Notice of Ranking Petitions for *Inter Partes* Review of U.S. Patent No. 10,803,435. Paper 7 ("Not."). With the Board's authorization, Petitioner filed a Reply to Patent Owner's Preliminary Response (Paper 9, "Reply to Prelim. Resp."), and Patent Owner filed a Preliminary Sur-reply (Paper 10, "Prelim. Sur-reply").

Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review of claims 15–19 of the '435 patent on all presented challenges. Paper 11 ("Institution Decision" or "Inst. Dec."). After institution, Patent Owner filed a Response (Paper 22, "PO Resp."), to which Petitioner filed a Reply (Paper 27 "Pet. Reply"), and Patent Owner thereafter filed a Sur-reply (Paper 29 "PO Sur-reply").

Additionally, with our authorization, Petitioner filed a Motion to Submit Supplemental Information. Paper 16 ("Mot." or "Motion to Submit Supplemental Information"). Patent Owner filed a Notice explaining that it did not oppose Petitioner's Motion. Paper 17, 2. We granted Petitioner's Motion. Paper 18, 3.

A consolidated oral hearing for this proceeding, IPR2022-01563, and IPR2022-01564 was held on January 11, 2024. Paper 36 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Decision is a final written decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons below, we determine that Petitioner has shown by a preponderance of the evidence that claims 15–19 of the ’435 patent are unpatentable.

B. RELATED PROCEEDINGS

The parties note that the ’435 patent is involved in *Sam’s West, Inc. v. BJ’s Wholesale Club Holdings, Inc.*, No. 6:22-cv-00587 (M.D. Fla. Mar. 22, 2022). Pet. 1; Paper 3, 1–2.

Additionally, the parties note that the ’435 patent has also been challenged by other petitions for *inter partes* review. Pet. 1; Paper 3, 1. Petitioner filed a petition challenging claims 1–14 of the ’435 patent in IPR2022-01561 (the “1561 IPR”). Ex. 3002. In that proceeding, we denied institution of *inter partes* review. Ex. 3001 (“1561 institution decision”). Petitioner also filed a petition challenging claims 1–14 of the ’435 patent in IPR2022-01563 (the “1563 IPR”). IPR2022-01563, Paper 2. In that proceeding, we instituted *inter partes* review. IPR2022-01563, Paper 11. Additionally, Petitioner filed a petition challenging claims 1–14 of the ’435 patent in IPR2022-01564 (the “1564 IPR”). IPR2022-01564, Paper 2. We instituted *inter partes* review in that proceeding, also. IPR2022-01564, Paper 9.

The parties also note that the ’435 patent is related to U.S. Patent No. 10,121,133 B2, the claims of which have been challenged in IPR2022-01471. Pet. 1; Paper 3, 1. The parties also note that the ’435 patent is related to pending U.S. Patent Application No. 17/004,819. Pet. 1; Paper 3, 1.

### C. THE '435 PATENT

To obviate scanning items at a retailer's traditional cashier or self-checkout station, the '435 patent discloses using a mobile device for self-checkout of a purchased item. Ex. 1001, 1:19–21, 1:41–54. The '435 patent discusses an embodiment in connection with Figure 1B, which is reproduced below. *Id.* at 2:45–48.

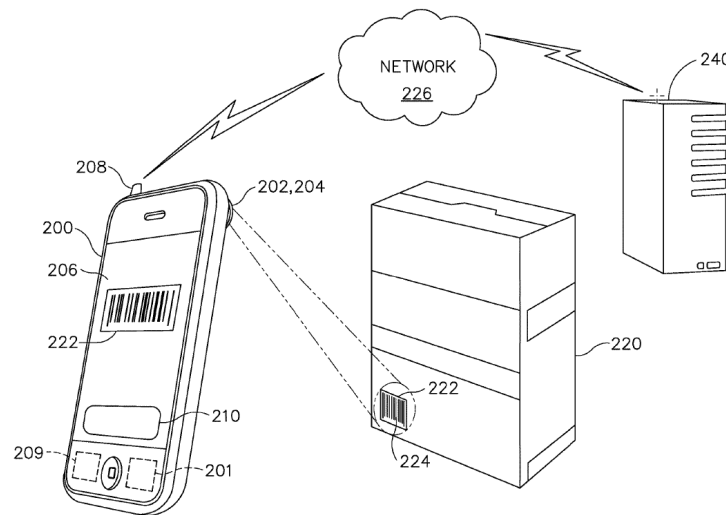


Fig. 1B

Figure 1B shows mobile device 200 getting information from item 220 and communicating over network 226 with remote server 240.

Ex. 1001, 2:44–47, 4:39–41, 5:30–33.

Mobile device 200 includes processor 201, scanning module 202, display 206, and communications device 208. Ex. 1001, 4:41–44, 4:52–53. Scanning module 202 can receive item 220's identifying information 222 and convert it to a format readable by processor 201. *Id.* at 4:61–64. Processor 201 is connected with communications device 208, which can communicate with remote server 240 via network 226. *Id.* at 4:54–60, 5:3–5.

In Figures 3–18, the '435 patent shows miscellaneous schematic illustrations of mobile device 200 executing a mobile self-checkout application. Ex. 1001, 2:55–58. Figure 3 is reproduced below.

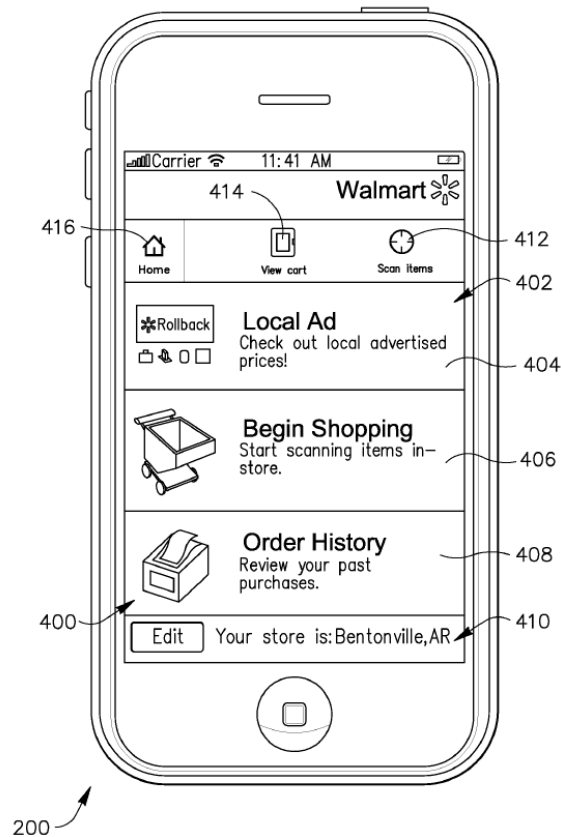


Fig.3

Figure 3 shows mobile device 200 with mobile self-checkout application 400 displaying home screen 402. *Id.* at 6:22–25.

Among other things, home screen 402 includes begin shopping button 406, “which allows the user to communicate his intention to begin shopping.” Ex. 1001, 6:26–30. “[W]hen selected, the begin shopping button 406 presents the user with a shopping screen 418,” as shown in Figure 4, which is reproduced below. *Id.* at 7:17–19.

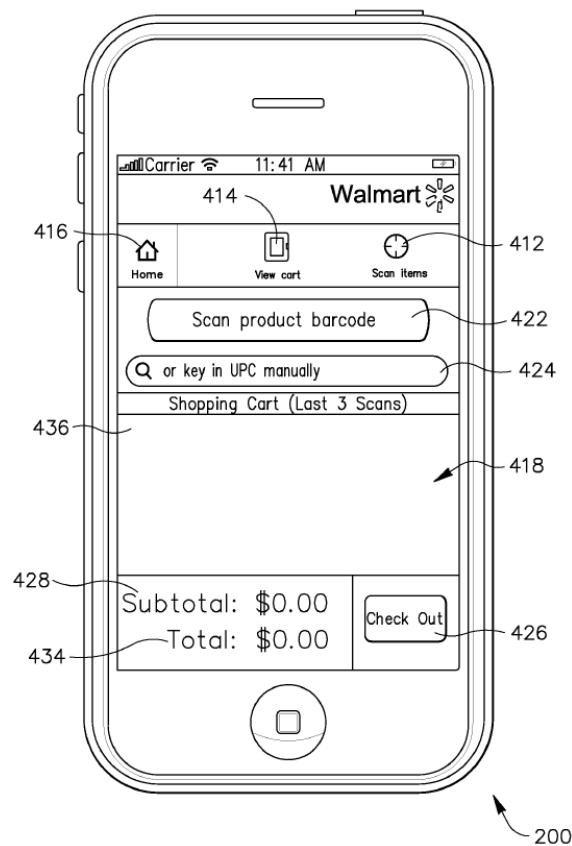


Fig.4

Figure 4 shows mobile device 200 displaying shopping screen 418, which presents various information and buttons. Ex. 1001, 7:17–23.

Shopping screen 418 includes scan items button 412 and scan product barcode button 422. Ex. 1001, 6:49–53, 7:17–20, Fig. 4. Selecting either of these buttons activates scanning module 202 and displays scan item screen 420, as shown in Figure 5, which is reproduced below.

*Id.* at 6:54–58, 7:23–26.

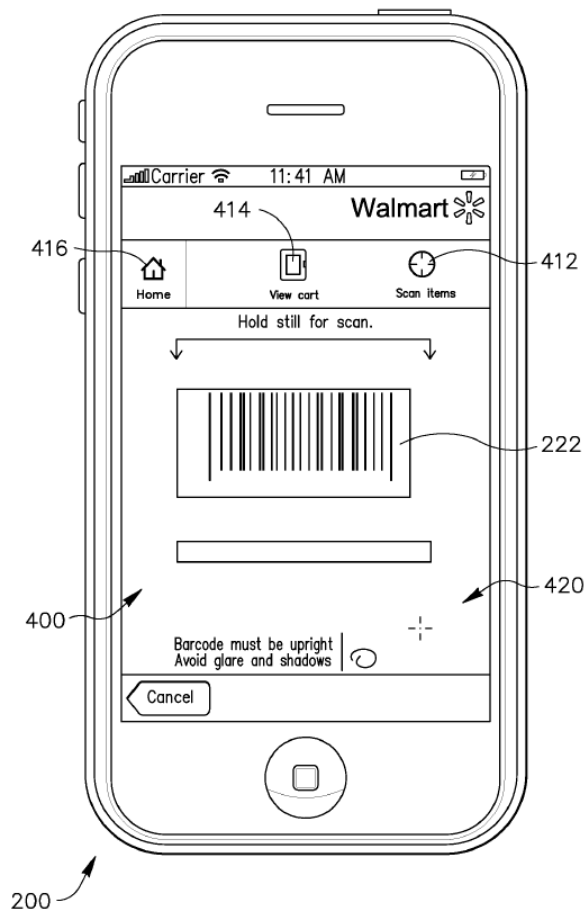


Fig.5

Figure 5 shows mobile device 200 with scan items screen 420 displayed.  
Ex. 1001, 6:54–56, 7:23–26.

Scan items screen 420 lets a user capture and enter item 220's identification information 222. Ex. 1001, 6:54–58. For example, a user can activate scanning module 202, which then receives item 220's identification information 222 and transforms it into a format that processor 201 can read and process. *Id.* at 7:64–8:2. Communications device 208 sends inputted identification information 222 to remote server 240. *Id.* at 8:7–11.

Then, remote server 240 may use identification information 222 to retrieve item information 432 that represents item 220, such as an item name, an item price and other item-related information. Ex. 1001, 8:11–19.

Remote server 240 may send item information 432 to mobile device 200.

*Id.* at 8:20–22. Item information 432 may be displayed on mobile device 200, as shown in Figure 6, which is reproduced below.

*Id.* at 8:20–25.

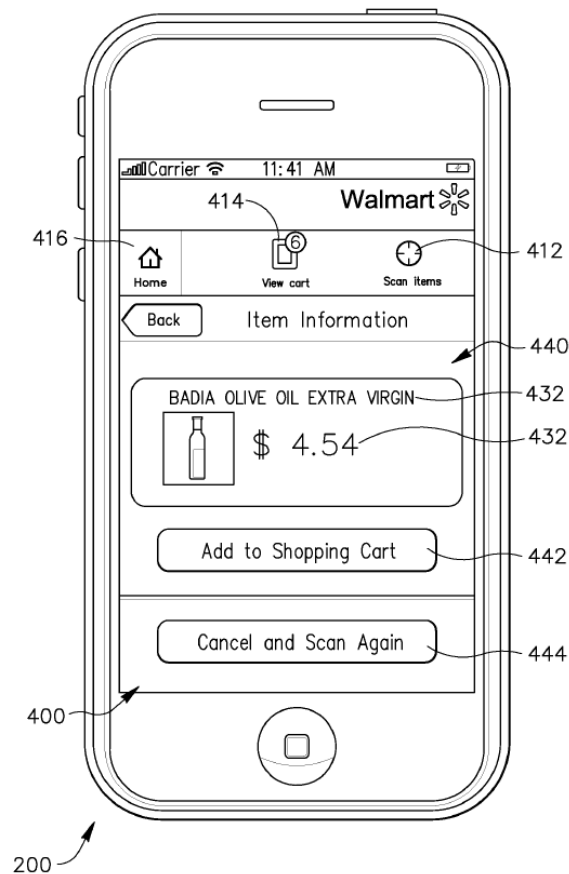


Fig.6

Figure 6 shows mobile device 200 with mobile self-checkout application presenting item information screen 440, which shows item information 432 for item 220. Ex. 1001, 8:22–25.

Among other options, item information screen 440 presents an add to shopping cart button 442. Ex. 1001, 8:35–37. If the user verifies that he or she wants to purchase item 220, mobile device 200 or remote server 240 may generate virtual shopping cart 433 with item information 432 for

item 220. *Id.* at 8:63–9:8. Mobile device 200 may display virtual shopping cart 433, as shown in Figure 8, which is reproduced below. *Id.* at 9:43–50.

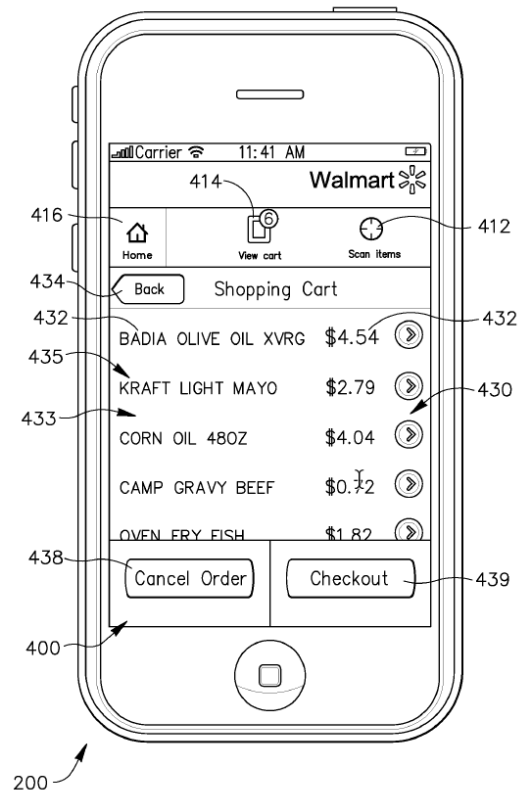


Fig.8

Figure 8 shows mobile device 200 with mobile self-checkout application 400 displaying shopping cart screen 430, which shows virtual shopping cart 433 and its contents 435. Ex. 1001, 9:40–49.

Shopping cart screen 430 provides a number of options, including the option to purchase, such as by selecting checkout button 439.

Ex. 1001, 9:50–53. When the user elects to check out, “a total amount for all the contents of the virtual shopping cart 433 is calculated and an order 452 is generated” by mobile device 200 or remote server 240.

*Id.* at 10:37–47.

After verifying accuracy of order 452 and an intent to buy, the user may choose to tender payment in various ways, including “via the mobile device 200 using mobile self-checkout application 400 or providing payment at either a traditional cashier or self-checkout station.” Ex. 1001, 10:52–11:4. Depending on which of these options the user elects, the cashier, the self-checkout station, mobile device 200, and/or mobile self-checkout application 400 interact with one another and server 240 in the payment process. *Id.* at 11:5–13:9. Once the user has paid, “virtual shopping cart 433 is then marked paid and a receipt is generated by the remote server 240, the traditional cashier, and/or the self-checkout station. The receipt is then provided to the user.” *Id.* at 12:30–37, 13:9–15.

D. ILLUSTRATIVE CLAIM

Of the challenged claims, claim 15 is independent. Each of claims 16–19 depends, directly or indirectly, from independent claim 15. Claim 15 is illustrative and is reproduced below with certain reformatting:<sup>1</sup>

15. [15p] A method of converting a mobile phone into a mobile point-of-sale device, the method comprising:

[15a] executing a mobile self-checkout application on the mobile phone, the mobile self-checkout application, allowing a user of the mobile phone to select items in a store and tender payment for the selected items via a user interface rendered by the mobile self-checkout application on a display of the mobile phone;

[15b] rendering the user interface on the mobile device by the mobile self-checkout application;

[15c] in response to selection of a scanning function via the user interface, activating an imaging device of the mobile

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<sup>1</sup> We have added the same labels that Petitioner applies to different portions of claim 15. *See* Pet. 15–26.

phone to capture identification information associated with a physical object;

[15d] determining, by the mobile phone, item information associated with the physical object;

[15e] generating, by the mobile phone, a virtual shopping cart to save the item information associated with the physical object;

[15f] adding the item information of the physical object to the virtual shopping cart to maintain the order;

[15g] receiving instructions via the user interface of the mobile self-checkout application to check out,

[15h] retrieving, by the server, payment information to complete the transaction;

[15i] completing, by the server, the transaction based on the payment information; and

[15j] transmitting, by the server, a confirmation receipt to the mobile phone in response to completion of payment for the transaction.

Ex. 1001, 23:21–24:5.

E. EVIDENCE

Petitioner relies on the following evidence:

(1) U.S. Patent No. 8,751,316 B1, issued June 10, 2014 (Ex. 1008, “Fletcher”).

(2) Korean Patent Publication No. 10-2007-087811, published Aug. 29, 2007 (Ex. 1009, “Yong,” with translation at Exs. 1010, 1021).

(3) U.S. Patent Application Publication No. 2009/0094100 A1, published Apr. 9, 2009 (Ex. 1011, “Xavier”).

(4) U.S. Patent Application Publication No. 2009/0192892 A1, published July 30, 2009 (Ex. 1012, “Cason”).

(5) U.S. Patent Application Publication No. 2010/0082444 A1, published Apr. 1, 2010 (Ex. 1013, “Lin”).

(6) Declaration of Michael I. Shamos, Ph.D. (Ex. 1002).

F. ASSERTED GROUNDS OF UNPATENTABILITY

Petitioner challenges the patentability of claims 15–19 of the '435 patent on the following grounds (Pet. 13–14):

| Claim(s) Challenged | 35 U.S.C. § | Reference(s)/Basis    |
|---------------------|-------------|-----------------------|
| 15                  | 102         | Fletchall             |
| 15                  | 103         | Fletchall, Lin        |
| 16                  | 103         | Fletchall, Lin, Yong  |
| 17                  | 103         | Fletchall, Lin, Cason |
| 15                  | 102         | Yong                  |
| 15, 16, 18, 19      | 103         | Yong, Xavier          |
| 17                  | 103         | Yong, Xavier, Cason   |

## II. ANALYSIS

A. LEVEL OF ORDINARY SKILL

Regarding the level of ordinary skill, Petitioner asserts the following:

[a] person having ordinary skill in the art (“POSITA”) as of the claimed priority date would have had a Bachelor’s degree in computer science, computer engineering, electrical engineering, or a related field or equivalent coursework or experience, and one to two years of experience with mobile device applications and retail POS systems. (Shamos ¶ 34.) More education can supplement practical experience and vice versa. (*Id.*)

Pet. 12. “For purposes of the IPR proceedings related to the ’435 Patent only, [Patent Owner] does not dispute this definition.” PO Resp. 8.

We find that the ’435 patent and the cited prior art references reflect the appropriate level of skill at the time of the claimed invention and that the level of appropriate skill reflected by those sources is consistent with the definition of a person of ordinary skill in the art proposed by Petitioner. *See*

*Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Accordingly, for purposes of this Decision, we adopt Petitioner’s asserted level of ordinary skill in the art.

B. DR. WILLIAMS’S RETAIL TECHNOLOGY KNOWLEDGE AND EXPERIENCE

Petitioner argues that Dr. Williams “has limited knowledge of retail technologies, [and he admits] that his only retail technology experience is limited to MBA case studies from the early 1990s.” Pet. Reply 3 (citing Ex. 1022, 15:20–22, 16:3–7, 17:22–23; Ex. 2010). Based on this, Petitioner advances that we “should afford little weight to Dr. Williams’ testimony.” *Id.*

Patent Owner counters that we should afford full weight to Dr. Williams’s testimony. PO Sur-reply 2. Patent Owner contends that Dr. Williams meets Petitioner’s definition of a person of ordinary skill in the art. *Id.* According to Patent Owner, “Dr. Williams surpasses the education requirement” and meets the experience requirements. *Id.* at 3. Addressing Petitioner’s concerns about retail technology experience, Patent Owner asserts that “Dr. Williams testified that his MBA curriculum contained coursework that included study of POS systems, particularly though case studies.” *Id.* (citing Ex. 2009 ¶ 3; Ex. 1022 16:3–7). “This is precisely the ‘more education’ in the [person of ordinary skill in the art] definition that can ‘supplement practical experience,’” Patent Owner argues. *Id.* (citing Pet. 12).

Patent Owner persuades us that Petitioner’s concerns regarding Dr. Williams’s retail technology and knowledge and experience are not a basis for affording less weight to Dr. Williams’s testimony.

C. CLAIM CONSTRUCTION

In an *inter partes* review proceeding, a claim of a patent is construed using the same standard used in federal district court, including construing the claim in accordance with the ordinary and customary meaning of the claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b). According to the applicable standard, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citations omitted). Only those terms that are in controversy need be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. America Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

In view of the parties’ patentability disputes, we observe three claim-construction subjects warranting discussion. The first relates to the claims’ repeated recitations of “the server.” *E.g.*, Pet. 30–34, 55–57; PO Resp. 6–7; Pet. Reply 3–4; PO Sur-reply 5–15, 27–30. The second relates to claim 16’s recitation of “user identification information.” *E.g.*, Pet. 29; PO Resp. 71–73; Pet. Reply 24–25; PO Sur-reply 30. The third relates to the timing of claim 16’s “optically scanning” step. *E.g.*, Pet. 54–56; PO Resp. 59–62; Pet. Reply 18–19; PO Sur-reply 22–23. We turn now to detailed discussions of those disputes.

1. “the server”

In challenged claims 15, 16, and 17, there are multiple recitations of “the server.” Ex. 1001, 23:43, 24:1, 24:3, 24:15, 24:18, 24:22. An issue in

this proceeding is whether all of those recitations of “the server” refer to the same server. The parties agree that every recitation of “the server” in claims 15, 16, and 17 refers to the same server. PO Resp. 6–7; Pet.

Reply 3–4. We agree with the parties that every recitation of “the server” in claims 15, 16, and 17 refers to the same server. Grammatically, each time the claims recite “the server,” it refers to the same “server.” Thus, according to the claims’ plain meaning, each and every recitation of “the server” refers to the same server. *See Salazar v. AT&T Mobility LLC*, 64 F.4th 1311, 1315–16 (Fed. Cir. 2023) (explaining claim language reciting element with definite article refers to same element previously recited) (citing *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342–43 (Fed. Cir. 2008); *Harari v. Lee*, 655 F.3d 1331, 1341 (Fed. Cir. 2011)). We construe every recitation of “the server” in claims 15, 16, and 17 as referring to the same server (the “same-server requirement”).

2. “user identification information”

Limitation 16a recites “generating a machine readable representation associated with the order in the virtual shopping cart and a user identification information.” Ex. 1001, 24:7–9. One of the parties’ disputes turns on the meaning of the claimed “user identification information.” Pet. 29–30; PO Resp. 71–73; Pet. Reply 24–25.

Patent Owner suggests that the claimed “user identification information” is limited to a “username, a password, or both a username and a password.” PO Resp. 72. Patent Owner contends that “Petitioner’s reliance on Lin to teach of the claimed ‘user identification information’ fails” (*id.* at 73), arguing that Petitioner relies on a portion of Lin that “fails to mention a username, a password, or a combination of both” (*id.* at 72).

Patent Owner explains that “the ’435 Patent describes ‘[u]ser identification information may include a username, a password, [or] both a username and password.’” *Id.* (citing Ex. 1001, 6:2–4) (first alteration in original).

Petitioner counters that the ’435 patent allows for user identification that includes attributes other than a username, a password, or both. Pet. Reply 24. Petitioner emphasizes that “[t]he ’435 Patent states that ‘[u]ser identification information **may include** a username, a password, [or] both a username and a password.’” *Id.* (citing Ex. 1001, 6:2–4) (second alteration in original).

In response, Patent Owner accuses Petitioner of “violating the principle that ‘claims *must be read in view of the specification, of which they are a part.*’” PO Sur-reply 30. According to Patent Owner, Petitioner invites us to construe “user identification information” more broadly than described in the ’435 patent. *Id.*

Contrary to Patent Owner’s argument, the ’435 patent’s Specification supports Petitioner’s position. As Petitioner argues, the Specification’s disclosure that “[u]ser identification information *may include* a username, a password, [or] both a username and password” conveys that “a username, a password, [or] both a username and password” is a short, non-exhaustive list of user identification information according to the ’435 patent. Ex. 1001, 6:2–4 (emphasis added). This comports with the plain meaning of “user identification information,” which seemingly would refer to information that identifies a user. Consistent with this, the claim language does not convey any meaning of “user identification information” other than its plain meaning. *See, e.g., id.* at 24:7–9.

Accordingly, we do not adopt Patent Owner's suggestion that limitation 16a's "user identification information" requires a username, a password, or both. PO Resp. 72; PO Sur-reply 30. Instead, we conclude that "user identification information" encompasses information that identifies a user.

3. *timing of claim 16's "optically scanning" step*

The parties dispute the timing of claim 16's "optically scanning" step. Pet. 54–56; PO Resp. 59–62; Pet. Reply 18–19; PO Sur-reply 22–23. Patent Owner takes the position that claim 16's optical scanning must happen before the user pays for any purchased item(s). PO Resp. 59–62; PO Sur-reply 22–23. In Patent Owner's view, limitation 15f's "adding the item information . . . to the virtual shopping cart" precedes limitation 15g's "receiving instructions . . . to check out." PO Sur-reply 22–23. Asserting that "claim 16 is an elaboration of limitation [15g]," Patent Owner suggests that the actions recited in claim 16 must happen after limitation 15g's "adding the item information . . . to the virtual shopping cart" and before limitation 15h's "receiving instructions . . . to check out." *Id.* at 23. According to Patent Owner, these timing requirements are "evidenced by claim 16's starting point (the virtual shopping cart) and ending point (checkout) precisely matching [15g]." *Id.*

Patent Owner further asserts that the payment referenced in limitations 15h and 15i follows limitation 15g's "receiving instructions . . . to check out" and all of the actions recited in claim 16. PO Sur-reply 22–23. Accordingly, claim 16's "optically scanning" step must happen prior to the payment referenced in limitations 15h and 15i, Patent Owner indicates. *Id.* According to Patent Owner, claim 16 captures the series of events described

“[i]n an embodiment of the ’435 Patent” that involves an employee scanning machine-readable representation 460 of an order to learn how much payment to collect from the buyer. PO Resp. 59–60 (citing Ex. 1001, 11:5–11, 11:23–36, 11:40–57, 12:12–18, 12:20–24; Ex. 2009 ¶¶ 104–105).

Petitioner counters that “claim 16 . . . does not specify any pre-payment requirement, nor does PO point to any.” Pet. Reply 18–19. “To support its conclusion, [Patent Owner] relies on a single embodiment of the ’435 Patent,” Petitioner argues. *Id.* at 18.

Petitioner has the better position. We begin with the claim language. With respect to that, Patent Owner’s reasoning hinges on a suggestion that the step recited in limitation 16d happens after each of the steps recited in limitations 16a, 16b, and 16c. PO Sur-reply 23. This suggestion comes from Patent Owner’s reference to “claim 16’s . . . ending point (checkout),” by which Patent Owner apparently means that limitation 16d’s “transferring . . . the virtual shopping cart information . . . in response to receiving instructions . . . to check out” occurs after all of the other actions recited in claim 16. *Id.*

Patent Owner does not provide persuasive support for this suggestion. Patent Owner rehashes the steps recited in claim 16, following the sequential order in which the steps appear in claim 16. PO Sur-reply 22. But “[u]nless the steps of a method actually recite an order, the steps are not ordinarily construed to require one.” *Interactive Gift Express, Inc. v. CompuServe Inc.*, 256 F.3d 1323, 1342 (Fed. Cir. 2001). Here, claim 16 does not recite any temporal order for its steps. Ex. 1001, 24:6–20. And Patent Owner does not identify anything else in the claim language that would limit the temporal

relationship between the step recited in limitation 16d and any of the steps recited in limitations 16a, 16b, and 16c.

Because the claim language does not require the “optically scanning” step in limitation 16c to occur before limitation 16d, the claim language also does not limit the “optically scanning” step to occurring before payment. Even if Patent Owner were right that limitation 16d temporally coincides with limitation 15g, nothing in the language of claims 15 and 16 limits the timing of the “optically scanning” step relative to limitation 16d, much less relative to limitations 15g, 15h, 15i, and 15j.

Patent Owner is right that an embodiment in the Specification describes pre-payment optical scanning. PO Resp. 59–61. In view of the broad claim language, though, we consider it improper to import that single embodiment from the Specification as a claim limitation. *See SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (holding that “a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.”). At the oral hearing, Patent Owner suggested that Petitioner’s claim-construction position here conflicts with its arguments in the 1564 IPR regarding lack of written description support for certain limitations. Tr. 64:4–15 We disagree with Patent Owner on this point, at least because Patent Owner is conflating the distinct issues of claim construction and written description support.

In sum, we conclude that, contrary to Patent Owner’s argument, the claims do not require claim 16’s “optically scanning” step to happen pre-payment.

D. YONG TRANSLATION DISPUTE

In its Preliminary Response, Patent Owner alleged that Petitioner's translation of Yong had certain flaws. Prelim. Resp. 23–30. Having fully considered those alleged flaws, we determined that the Petition had demonstrated a reasonable likelihood of prevailing on its patentability challenges based on Yong, and we instituted an *inter partes* review. Inst. Dec. 19–31.

As noted above, following institution of *inter partes* review, we granted Petitioner's Motion to Submit Supplemental Information, which sought to enter supplemental information related to the translation of Yong. Mot. 1; Paper 18, 3. Given this, Petitioner entered certain additional exhibits related to the translation of Yong, specifically Exhibits 1027–1030 (“supplemental exhibits”).

At this stage, Petitioner has entered multiple exhibits containing translations of Yong. With the Petition, Petitioner entered (1) Exhibit 1010, which is a translation of Yong's text, including the text of Yong's drawings (without the illustrations of Yong's drawings) and (2) Exhibit 1021, which includes the schematics of Yong's drawings, along with translation of the text in Yong's drawings. Hereafter, we refer to Exhibits 1010 and 1021 as “initial Yong translation materials.” The supplemental exhibits also include a translation of Yong, specifically in Exhibit 1028 (“second Yong translation”).

Following Petitioner's entry of the supplemental exhibits, Patent Owner contends that Petitioner's translation of Yong remains flawed,

arguing that “Yong should be disregarded in its entirety.”<sup>2</sup> PO Sur-reply 18. In support of this position, Patent Owner identifies certain differences between the second Yong translation and the initial Yong translation materials. PO Resp. 53–58. For example, Patent Owner identifies certain differences between (1) Figure 2 in the second Yong translation and (2) Figure 2 in Exhibit 1021 of the initial Yong translation materials. *Id.* at 53–54. Additionally Patent Owner identifies certain differences between (1) Figure 11 in the second Yong translation and (2) Figure 11 in Exhibit 1021 of the initial Yong translation materials. *Id.* at 54–58. Based on these observations, Patent Owner contends that the initial Yong translation materials and the second Yong translation are “conflicting on important points.” *Id.* at 58.

Petitioner counters that Patent Owner identifies only insignificant wording differences between the second Yong translation and the initial Yong translation materials. Pet. Reply 5. Petitioner further argues that the differences “do not undermine any of the unpatentability grounds based on Yong,” after which Petitioner addresses each of the differences in greater detail. *Id.* at 5–7.

Petitioner has the better position. Pet. 10–11; PO Resp. 53–58; Pet. Reply 5–7; PO Sur-reply 16–18. Having carefully reviewed the identified differences and the parties’ arguments about them, we find the differences do not rise to a level that would justify disregarding Yong, as Patent Owner would have us do. PO Sur-reply 18. Indeed, Patent Owner does not persuasively explain why any of the differences would undermine

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<sup>2</sup> Patent Owner did not file a motion to exclude Yong.

Petitioner’s anticipation and/or obviousness challenges based on Yong. PO Resp. 53–58; PO Sur-reply 16–18. To the extent any of the differences identified by Patent Owner may affect any particular aspect of Petitioner’s challenges, we have factored that into our analysis of Petitioner’s anticipation and obviousness challenges based on Yong.

E. FLETCHALL-BASED GROUNDS

1. *Alleged Anticipation by Fletchall*

a) *Overview of Fletchall*

Fletchall relates to a system and method involving a user employing a mobile device when buying a product in a retail store. Ex. 1008, 1:23–46. In addition to the mobile device, “[t]he system includes a product database accessible based on a reference of the retail store to store product information of the product indexed by a product identifier of the product and provide the product information based on the product identifier of the product.” *Id.* at 1:33–38. The mobile device has a product scanner operable to acquire a product identifier of the product. *Id.* at 1:38–40. The mobile device also includes a mobile point-of-sale (POS) application configured to interact with the product scanner and the product database to obtain product information based on the retail store’s reference and the product identifier.

*Id.* at 1:38–46. Fletchall explains the following:

[t]he method steps include obtaining a reference of the retail store using a mobile device of the user, accessing a product database for the retail store based on the reference of the retail store, obtaining, in the retail store, a product identifier of the product using the mobile device, retrieving product information from the product database based on the product identifier; and displaying the product information on the mobile device[.]

*Id.* at 1:24–31.

Fletchall shows an exemplary system in Figure 1, which is reproduced below. Ex. 1008, 1:64–65.

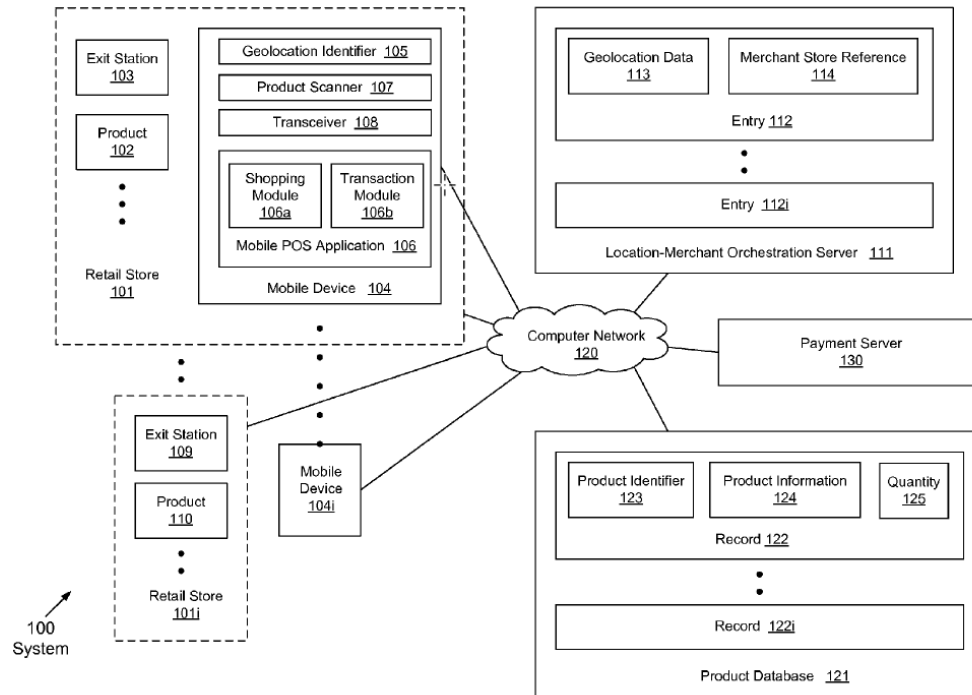


FIG. 1

Figure 1 shows system (100), which “includes one or more retail stores (101, 101*i*), one or more mobile devices (104, 104*i*), a location-merchant orchestration server (111), a product database (121), and a payment server (130).” Ex. 1008, 2:40–43. Fletchall explains that “[t]he modules shown in FIG. 1 may be omitted, repeated, and/or substituted among different embodiments of the invention. Accordingly, embodiments of the invention should not be considered limited to the specific arrangements of modules shown in [Figure] 1.” *Id.* at 2:35–39.

Computer network (120) may couple the components of system (100), such that system (100)’s components may use known protocols to communicate with one another. Ex. 1008, 2:43–48. “[C]omputer network (120) may include the Internet, enterprise Intranet, mobile phone

service provider network, the public switched telephone network (PSTN), etc.” *Id.* at 2:53–56.

Mobile device (104) “includes a geolocation identifier (105), a product scanner (107), a transceiver (108), and a mobile POS application (106) having a shopping module (106a) and a transaction module (106b).” Ex. 1008, 5:48–52. Transceiver (108) is adapted to communicate via computer network (120) “with the location-merchant orchestration se[r]ver (111), the product database (121), the payment server (130), and/or other components of the system (100).” *Id.* at 3:59–64.

In one or more embodiments, in response to a user command when entering retail store (101), mobile POS application (106) may trigger geolocation identifier (105) to acquire mobile device (104)’s location, which represents retail store (101)’s location. Ex. 1008, 6:55–62. Mobile POS application (106) may transmit the geolocation data to location-merchant orchestration server (111) to acquire retail store (101)’s merchant store reference (114). *Id.* at 7:14–18.

When product (102) interests the user, the user may use mobile POS application (106) to activate product scanner (107) and acquire a product ID for product (102). Ex. 1008, 8:6–21. Using merchant store reference (114) and product (102)’s product ID, mobile POS application (106) may obtain product information (124) from product database (121). *Id.* at 8:39–58. Mobile POS application (106)’s shopping module (106a) may show product information (124) on mobile device (104). *Id.* at 9:1–3. Mobile POS application (106)’s transaction module (106b) may be adapted to perform the following actions:

(i) send payment information of the user to the payment server (130) for executing a payment of the purchase; (ii) provide an electronic receipt (not shown) to the mobile device (104) based on the executed payment; (iii) notify the product database (121) to adjust inventory information reflecting the purchase; and (iv) interact with the exit station (103) for payment confirmation when exiting the retail store (101).

*Id.* at 9:17–25.

Fletchall discusses an example of a shopping experience in connection with Figure 3A, which is reproduced below. Ex. 1008, 12:52–54.

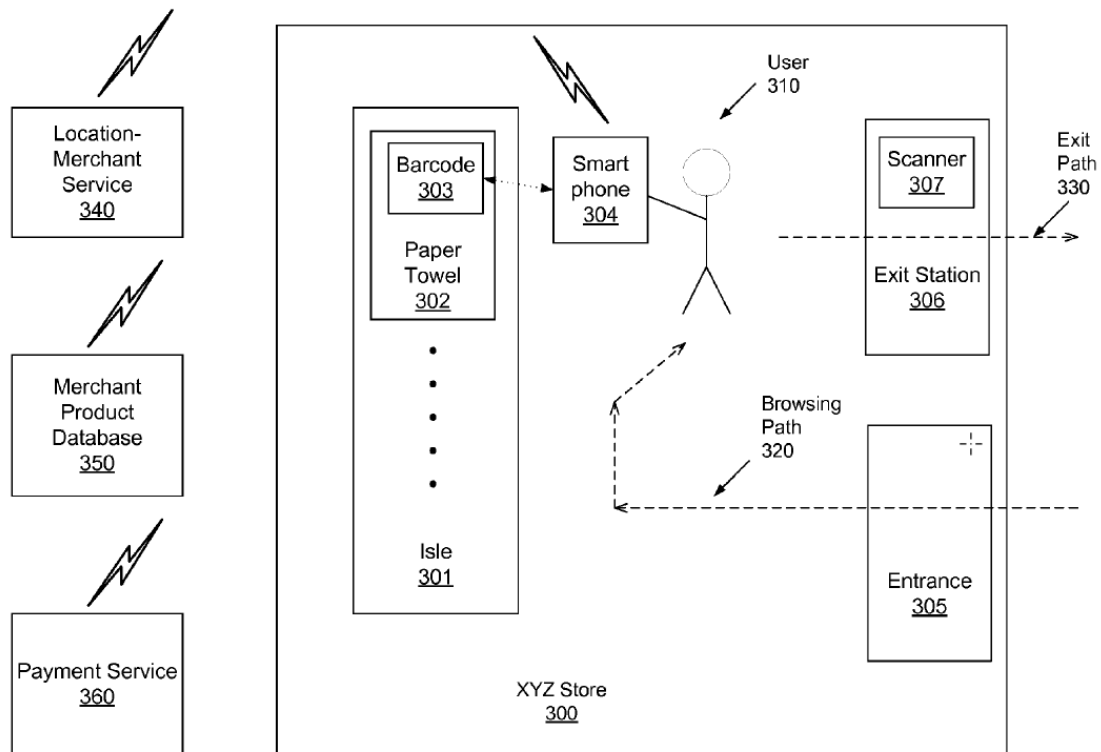


FIG. 3A

Figure 3A shows user (310) with smart phone (304) in XYZ store (300). Ex. 1008, 12:52–58.

When going into XYZ store (300), user (310) starts the mobile POS application, which uses smart phone (304)'s GPS sensor to acquire GPS

coordinates. Ex. 1008, 12:54–58. Employing location-merchant service (340), the mobile POS application matches the smartphone’s position to “that of the merchant operating the XYZ store (300).” *Id.* at 12:61–64. “The location-merchant service (340) is a web service hosted on a location-merchant orchestration server (e.g., location-merchant orchestration server (111) described above in reference to FIG. 1).” *Id.* at 12:12–15.

Having matched smart phone (304)’s location to XYZ store (300)’s location, the mobile POS application “connects to that merchant’s product database (350).” Ex. 1008, 12:61–65. Fletchall explains the following:

[t]he merchant product database (350) is a database containing product information such as price and product description. The merchant product database (350) can be updated by the merchant operating the XYZ store (300) allowing customers (e.g., the user (310)) to instantly have the most up-to-date listings of products (e.g., paper towel (302)). The merchant product database (350) may be essentially the same as the product database (121), discussed above in reference to [Figure] 1.

*Id.* at 12:21–29.

“When the user (310) wishes to checkout, payment information may be entered into the smart phone (304) and submitted to the merchant through the payment service (360).” Ex. 1008, 13:9–11. When the payment is executed, an electronic receipt may be produced and supplied to smart phone 304. *Id.* at 13:14–16. Fletchall explains that “[t]he payment service (360) may be essentially the same as the payment server (130) discussed above in reference to [Figure] 1.” *Id.* at 12:45–47.

*b) Discussion*

Petitioner argues that “Fletchall discloses each and every element of Claim 15.” Pet. 15. Petitioner then explains in detail which disclosures of Fletchall allegedly disclose each of claim 15’s limitations. *Id.* at 15–27. Petitioner also cites Dr. Shamos’s testimony, in which Dr. Shamos details which disclosures of Fletchall he believes disclose each of claim 15’s limitations. Pet. 15–27; Ex. 1002 ¶¶ 148–215.

In response, Patent Owner focuses on “the server” recited in claim 15. PO Resp. 62–68. Suggesting that each recitation of “the server” refers to the same server, Patent Owner indicates that Fletchall does not disclose performing the actions of claim 15’s method using the same server. *Id.* at 63–68.

Having reviewed all of the parties’ arguments and evidence, we find that Petitioner demonstrates by a preponderance of the evidence that Fletchall anticipates claim 15. Pet. 15–27; PO Resp. 62–68; Pet. Reply 8; PO Sur-reply 26–30. We turn now to a detailed discussion of the parties’ dispute regarding “the server” in claim 15.

*(1) “the server” dispute*

Claim 15 recites “the server” in each of limitations 15h–15j, which require performing certain actions “by the server.” Ex. 1001, 23:43–24:5. As discussed above in Section II.C.1, we agree with the parties that each of claim 15’s recitations of “the server” refer to the same server. PO Resp. 63–64; Pet. Reply 3–4. Thus, limitations 15h–15j require performing certain actions by the same server. Ex. 1001, 23:43–24:5.

According to Petitioner, Fletchall discloses limitations 15h–15j, even under a claim interpretation requiring all of the actions to be performed by

the same server. Pet. 24–27; Pet. Reply 8–9. Responding that “Petitioner . . . cites to functionality of multiple Fletchall servers in addressing claim 15” (PO Sur-reply 27 n.12), Patent Owner argues that Petitioner does not show that it would have been obvious to combine functionalities of different servers in Fletchall’s system (PO Resp. 62–68; PO Sur-reply 27–30).

Weighing all of the parties’ arguments and evidence, we find Petitioner has shown that Fletchall discloses performing all of limitations 15h–15j’s actions by the same server, specifically payment server 130. For example, Petitioner persuades us that Fletchall discloses payment server 130 performing the actions of limitations 15h and 15i: “retrieving . . . payment information to complete the transaction” and “completing . . . the transaction based on the payment information.” Ex. 1001, 23:43–24:2; Pet. 24–26 (citing Ex. 1008, 4:35–49, 11:3–12, 12:42–45, 13:9–14, 13:45–47; Ex. 1002 ¶¶ 199–204, 206–208, 210; Ex. 1001, 10:59–11:3, Fig. 2B).

Petitioner’s evidence also shows that Fletchall discloses limitation 15j’s “transmitting . . . a confirmation receipt to the mobile phone in response to completion of payment for the transaction” by payment server 130 on its own. Ex. 1001, 24:3–5; Pet. 26–27 (citing Ex. 1008, 9:26–32, 11:57–61; Ex. 1002 ¶¶ 213–214). For example, Petitioner cites Fletchall’s disclosure of at least one embodiment in which “the electronic receipt is generated by the payment server (130) and provided to the transaction module (106b) of the mobile POS application (106).” Ex. 1008, 9:26–29; Pet. 27. Thus, Petitioner demonstrates that Fletchall discloses performing all of limitations 15h–15j by payment server 130.

This showing is not diminished by Patent Owner's observation that the Petition mentions Fletchall's product database 121 when discussing limitation 15j. PO Sur-reply 27 n.12 (citing Pet. 26–27). In the passages Petitioner cites, Fletchall contains multiple, alternative disclosures about creating and sending a receipt. Ex. 1008, 9:26–32, 11:57–61; Pet. 27. For example, Fletchall contains (1) a disclosure that a receipt can be generated and transmitted by payment server 130 on its own (Ex. 1008, 9:26–29) and (2) an alternate disclosure that “[t]he electronic receipt may be generated by the product database (121) in cooperation with the payment server (130) and provided to the transaction module 106(b) of the mobile POS application (106)” (*id.* at 9:29–32). As Dr. Shamos notes, Fletchall also discloses that “[t]he electronic receipt may be generated by the payment server.” Ex. 1008, 11:19–20; Ex. 1002 ¶ 213. Immediately following this disclosure, Fletchall describes handling the electronic receipt by payment server 130 and product database 121 working in cooperation as an alternative to handling the electronic receipt by payment server 130 on its own:

The electronic receipt may be generated by the payment server, by the product database in cooperation with the payment server and/or by a mobile application installed on the mobile device directly. Once generated, the electronic receipt may be sent to the mobile device to be stored in a memory or in a storage device of the mobile device.

Ex. 1008, 11:19–25 (emphasis added). Petitioner's reliance on Fletchall's disclosure of handling the electronic receipt by payment server 130 on its own supports Petitioner's case, regardless of Fletchall's alternate disclosure of handling the electronic receipt by payment server 130 in cooperation with product database 121.

Additionally, because Petitioner shows that Fletchall discloses each of limitations 15h–15j’s actions performed by payment server 130, Patent Owner’s arguments about combining server functions are inapposite to anticipation of claim 15 by Fletchall. *See* PO Resp. 62–68.

2. *Alleged Obviousness of Claim 15 over Fletchall and Lin*

Building on its arguments that Fletchall anticipates claim 15, Petitioner adds that claim 15 also would have been obvious over Fletchall and Lin:

Fletchall teaches each and every element of Claim 15 for the reasons in Ground 1 above. (Shamos ¶ 219.) However, with respect to step 15f, if the Board finds that Fletchall’s adding of items in a cart did not teach to maintain an order, adding items in Fletchall to maintain the order would have been obvious in view of Lin. (Shamos ¶ 220.)

Pet. 27. Petitioner cites Lin for allegedly disclosing “adding items and saving the added items as an order before checkout.” *Id.* (citing Ex. 1013 ¶ 133, Fig. 9; Ex. 1002 ¶ 221). Petitioner argues that “[i]t would have been obvious to a [person of ordinary skill in the art] to maintain an order of the added item information in a virtual shopping cart of Fletchall as taught by Lin.” *Id.*

To traverse Petitioner’s position that claim 15 would have been obvious over Fletchall and Lin, Patent Owner only presents the arguments discussed above in Section II.E.1.b).(1) that Petitioner does not address persuasively limitations 15h–15j’s recitation of certain actions performed by the same server. PO Resp. 62–68; PO Sur-reply 27–30. As explained above in Section II.E.1.b).(1), these Patent Owner arguments are unavailing because Petitioner shows that Fletchall discloses limitations 15h–15j.

Having reviewed all of the parties' arguments and evidence, we find that Petitioner demonstrates by a preponderance of the evidence that claim 15 would have been obvious over Fletchall and Lin. Pet. 15–28; PO Resp. 62–68; Pet. Reply 8–9; PO Sur-reply 26–30.

3. *Alleged Obviousness of Claim 16 over Fletchall, Lin, and Yong*

Building from its challenge of claim 15 as allegedly obvious over Fletchall and Lin, Petitioner argues that claim 16 was obvious over Fletchall, Lin, and Yong. Pet. 28–36. In this challenge, when addressing limitation 16a's recitation of "user identification information," Petitioner argues that "Lin teaches that '[t]he order identifier may be a **customer's name, credit card number, biometric feature, or other identifier** that may allow subsequent retrieval of the order.'" *Id.* at 29 (quoting Ex. 1013 ¶ 226) (alteration in original). Additionally, addressing limitation 16d's recitation of "transferring . . . the virtual shopping cart information," Petitioner argues that "Yong teaches transferring virtual shopping cart information (a shopping list) from a mobile phone to a remote server at checkout." *Id.* at 34. When addressing limitation 16d, Petitioner also argues that it would have been obvious to combine functionality of certain Fletchall servers. *Id.*

Patent Owner faults multiple aspects of Petitioner's challenge. PO Resp. 5, 62–68, 71–73. For example, Patent Owner criticizes the quality of Petitioner's Yong translation. *Id.* at 52–62. Also, Patent Owner disputes Petitioner's argument about combining functionality of Fletchall's servers. *Id.* at 62–68. Additionally, Patent Owner also argues that "the Petition's mapping [for limitation 16c] violates Petitioner's construction [of] the

virtual terminal sales application.” *Id.* at 5. Patent Owner also disputes Petitioner’s position that Lin teaches user identification information, as recited in limitation 16a. *Id.* at 71–73.<sup>3</sup>

Having reviewed all of the parties’ arguments and evidence, we find that Petitioner demonstrates by a preponderance of the evidence that claim 16 would have been obvious over Fletchall, Lin, and Yong. Pet. 28–36; PO Resp. 5, 62–68, 71–73; Pet. Reply 21–25; PO Sur-reply 26–30.

Regarding the quality of Petitioner’s Yong translation, as discussed above in Section II.D, we do not agree with Patent Owner’s argument that we should disregard Yong entirely. PO Sur-reply 18. Additionally, having carefully reviewed the specific translation issues raised by Patent Owner, we find none of the translation issues materially undermines Petitioner’s arguments and evidence that claim 16 would have been obvious over Fletchall, Lin, and Yong. Pet. 8–11, 15–36; PO Resp. 52–58, 62–73; Pet. Reply 5–9, 21–24; PO Sur-reply 16–18, 26–31. Nor has Patent Owner

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<sup>3</sup> As discussed above in Section II.C.3, Patent Owner argues that “claim 16 recites pre-payment optical scanning functionality.” PO Sur-reply 22. In its challenge of claim 16 over Yong and Xavier, Petitioner cites Yong as disclosing the claimed scanning. Pet. 54–56. Patent Owner argues that Petitioner’s challenge of claim 16 over Yong and Xavier fails because “Yong’s barcode scan is post-payment,” rather than pre-payment, as discussed more in Section II.F.2.b).(2) below. PO Resp. 61. In its challenge of claim 16 as obvious over Fletchall, Lin, and Yong, Petitioner cites Fletchall (not Yong) as disclosing the claimed scanning. Pet. 30–31. Patent Owner has not presented, and therefore has waived, any argument that Fletchall’s scanning is post-payment, rather than pre-payment. *See generally* PO Resp.; *see also* Paper 12, 9 (Scheduling Order cautioning “that any arguments not raised in the [Patent Owner Response] may be deemed waived.”).

identified any specific translation issue as being probative of the patentability of claim 16. PO Resp. 52–58, 62–73; PO Sur-reply 16–18, 26–31.

We turn now to a detailed discussions of the parties’ other disputes regarding Petitioner’s challenge of claim 16 over Fletchall, Lin, and Yong.

*a) alleged obviousness of same server in Fletchall*

Adding to claim 15’s recitations of certain actions performed “by the server,” claim 16 recites certain additional actions related to “the server” in limitations 16c and 16d. For example, limitation 16d recites “transferring, by the mobile phone, the virtual shopping cart information to the virtual terminal sales application on the server in response to receiving instructions via the user interface of the mobile self-checkout application to check out.” *Id.* at 24:16–20.

*(1) the parties’ arguments and evidence*

*(a) Petition*

Asserting that “Fletchall describes processing on one or more remote servers which carry out POS terminal functions such as shopping (adding items in virtual shopping cart), payment, and receipt generation” (Pet. 33), Petitioner argues that “Yong teaches transferring virtual shopping cart information (a shopping list) from a mobile phone to a remote server at checkout” (*id.* at 34). Petitioner contends that “[i]t would have been obvious to a [person of ordinary skill in the art] to transfer a shopping list to checkout, as taught by Yong, to the VTSA on the server disclosed in the Fletchall-Lin combination.” *Id.* at 35.

Petitioner further argues that if “the server” recited in claim 16 is the same server as “the server” recited in independent claim 15, (1) “Fletchall

teaches that” and (2) “a [person of ordinary skill in the art] would find it obvious to combine functions of the server 111, the server 130, and the merchant server hosting the product database 121 on the same server.”

Pet. 34. In connection with these assertions, the Petition notes that “Fletchall teaches that the product database 121 can be hosted on a merchant server . . . , and be part of a common system 100 that includes the payment server 130.” *Id.* at 31. Petitioner similarly argues that “Fletchall teaches that the location-merchant orchestration server 111, the payment server 130 and the product database 121 can be part of a common system 100.” *Id.* The Petition also notes that components of Fletchall’s system 100, including payment server 130 and product database 121, can communicate with one another. *Id.* Also, stating that “[i]t was well-understood in the art at the time that functionality of different servers can be combined in the same server,” the Petition argues that combining functionality of Fletchall’s location-merchant orchestration server 111, payment server 130, and product database 121 would have been obvious because of considerations relevant to “software implementations and combining functionality of components.” *Id.* at 34.

*(b) Patent Owner’s Response*

In its Response, Patent Owner counters that Petitioner does not support its positions regarding Fletchall’s system with respect to the “same server” limitation of the claims. PO Resp. 62–68. According to Patent Owner, “Petitioner’s positions are contrary to Fletchall’s teachings.” *Id.* at 64. Patent Owner explains that “Fletchall [Figure] 1 illustrates a computing architecture having multiple, separate computing devices including a payment server 130 . . . and a product database 121.” *Id.* Noting

that “Fletchall’s claims distinctly recite ‘a product database’ and ‘a payment server’ as two distinct system components,” Patent Owner emphasizes that “Fletchall issued only after the Applicant argued that the ‘location-merchant orchestration server,’ ‘retail store,’ and ‘mobile device’ components of [Figure] 1 were ‘separate from each other and the Examiner added in the ‘payment server’ as a separate element of the claims.” *Id.* at 67–68.

Patent Owner dismisses Petitioner’s citation of Fletchall hosting product database 121 on a merchant server for the following reasons:

Fletchall does not describe that a merchant server is equivalent to the payment server 130. Nor does Fletchall include in its description that payment server 130 is hosted on a merchant server. This is likely because a product database is typically handled at a local, merchant level and a payment server is typically handled at a higher level (e.g., by payment service provider). Ex. 2009 at ¶ 113.

PO Resp. 68.

Additionally, Patent Owner argues that Petitioner has not provided a persuasive reason that combining multiple of Fletchall’s computing devices “with different functionalities into the ‘same server’” would have been obvious. PO Resp. 68. According to Patent Owner, Petitioner’s observation that product database 121, payment server 130, and other system components communicate with one another does not support Petitioner’s position. *Id.* at 66–67. Arguing that Petitioner suggests all of Fletchall’s communicatively linked components are part of the same server, Patent Owner contends this contradicts Petitioner’s position that “requiring a ‘phone to contain a complete, up-to-date database of every product in the store’ would be illogical when there is no such requirement or suggestion within Fletchall.” *Id.* And Patent Owner contends that Petitioner does not

otherwise provide supporting rationale for its obviousness position.

*E.g., id.* at 65. In sum, Patent Owner contends that “Petitioner fails to prove the obviousness of the ‘same server’ based on Fletchall for claims 15-19 just as it did in its IPR2022-01561 with Fletchall for claims 1-14.” *Id.* at 63.

*(c) Petitioner’s Reply*

In its Reply, Petitioner maintains that it would have been obvious to combine functionalities of Fletchall’s servers. Pet. Reply 21–24. Petitioner argues that Fletchall does not require separate servers. *Id.* at 22. Petitioner contends that “Fletchall teaches . . . embodiments that place servers under the control of a merchant, and in particular, teaches putting the payment server functionality on a merchant server, and the product database 121 onto a merchant server.” *Id.* Petitioner also argues that Fletchall’s disclosure of having product database 121 and payment server 130 communicate with one another as part of system 100 would have provided reason for combining their functionalities into the same server. *Id.* at 22–23. Citing evidence of known latency when servers communicate, Petitioner asserts that combining server functions into the same server would reduce communication latency. *Id.* at 23.

*(d) Patent Owner’s Sur-reply*

In its Sur-reply, Patent Owner maintains that it would not have been obvious to combine the functionalities of Fletchall’s servers. PO Sur-reply 1, 27–30. “Fletchall . . . teach[es] intentionally separate servers, controlled by different parties, having distinct functionality,” Patent Owner asserts. *Id.* Patent Owner asserts that Petitioner does not explain how servers controlled by different entities could have been combined. PO Resp. 12.

Patent Owner also argues that “Petitioner’s position for [claim 16] directly contradicts this Panel’s finding in IPR2022-01561, and Petitioner fails to take this point head on.” PO Sur-reply 28. Patent Owner asserts that the idea of combining servers with a mobile communication device because those components communicate with one another in the same system “illustrates why Petitioner’s rationale for combining is plainly insufficient.” *Id.* at 8.

Additionally, Patent Owner argues that Petitioner’s explanation and evidence of communication latency in the Reply are untimely and unavailing. PO Sur-reply 13–15, 29–30. Patent Owner asserts that “[l]atency is not mentioned as a consideration in the Petition and Dr. Shamos does not at any point back this argument.” *Id.* at 30. Furthermore, without disputing evidence of knowledge that consolidating servers to reduce latency sometimes makes sense, Patent Owner argues that it would not have made sense to consolidate intentionally separate servers controlled by different parties in different locations. *Id.* at 15.

## (2) Discussion

As an initial matter, we will resolve some confusion regarding our 1561 institution decision. Patent Owner apparently reads the 1561 institution decision as explaining that Petitioner’s challenge of claim 1 over Fletchall and Xavier had argued but failed to show that it would have been obvious to combine functionalities of Fletchall’s servers. *See, e.g.,* Ex. 3001, 23–24; PO Resp. 62–63 (“Just like the Petition denied in IPR2022-01561, Petitioner fails to support why a [person of ordinary skill in the art] would have considered it obvious to combine the functionality of Fletchall’s payment server 130 and product database 121 to provide the

‘server’ system recited in the claims.”); PO Sur-reply 26 (“Petitioner still has not shown that combining Fletchall’s disparate servers controlled by different parties would have been obvious to a [person of ordinary skill in the art], which is opposite what this Panel has already decided.”). Patent Owner misapprehends the facts in the 1561 IPR, possibly due to potential ambiguity in our 1561 institution decision.

To clarify, unlike the Petition in this proceeding, the petition in the 1561 IPR did not argue that “a [person of ordinary skill in the art] would find it *obvious to combine functions*” of Fletchall’s servers when challenging claim 1 based on Fletchall and Xavier. Pet. 34 (emphasis added); Ex. 3002, 15–35; Ex. 3001, 23–24. Instead, when challenging claim 1 of the ’435 patent over Fletchall and Xavier, the petition in the 1561 IPR argued that “[e]ven if ‘the server’ in [step 1i] were construed by the Board to be limited to the same server as in antecedent steps 1e-1f, Fletchall *teaches* that also.” Ex. 3002, 30 (emphasis added).

The 1561 institution decision explained that Petitioner had not supported its position that Fletchall “teaches [using the same server].” Ex. 3001, 23–24. That does not contradict Petitioner’s arguments in this proceeding that it would have been obvious to combine functionalities of Fletchall’s servers, contrary to Patent Owner’s arguments. PO Sur-reply 28.

Turning to the merits in this proceeding, having considered all of the parties’ arguments and evidence, we determine that a preponderance of the evidence supports Petitioner’s position that it would have been “obvious to combine functions of the server 111, the server 130, and the merchant server hosting the product database 121 on the same server.” *E.g.*, Pet. 8–9, 30–34; PO Resp. 2–4, 6–7, 21–24, 31–33, 62–68; Pet. Reply 1–2, 21–24; PO

Sur-reply 1–2, 13–15, 26–30. It is undisputed that “[i]t was well-understood in the art at the time that functionality of different servers can be combined in the same server.” Pet. 34 (citing Ex. 1002 ¶ 249); *see generally* PO Resp.; PO Sur-reply.

The Petition persuades us that it would have been obvious to implement this known approach in Fletchall’s system, notwithstanding Patent Owner’s arguments about intentionally keeping servers separate. Pet. 8–9, 30–34; PO Resp. 2–4, 32–33, 62–68; PO Sur-reply 1, 13–15, 26–28. The Petition and its evidence demonstrate that a person of ordinary skill in the art would have recognized that modifying Fletchall’s disclosure by combining the functionalities of the servers would have produced one logical variation on Fletchall’s system. Pet. 8–9, 30–34; Ex. 1002 ¶¶ 85–102, 238–241, 244–249. As the Petition and Dr. Shamos note, Fletchall’s servers cooperatively perform functions of Fletchall’s system by communicating with one another and other system components, such that consolidating the functionality into the same server would result in that server performing all of the same functions that Fletchall’s servers do separately. Pet. 8–9, 30–34; Ex. 1002 ¶¶ 85–102, 238–241, 244–249; *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (combination of known devices according to established functions normally obvious); *id.* at 417 (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious”) (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)).

The Petition and its evidence also persuade us that such a modification would have been well within the ability of a person of ordinary

skill in the art and there would have been a reasonable expectation of success. *E.g.*, Pet. 12, 30–34; Ex. 1002 ¶¶ 31–35, 40–43, 240, 249. As Dr. Shamos notes, Fletchall itself explains that “[t]he modules shown in [Figure] 1 may be omitted, repeated, and/or substituted among different embodiment of the invention. Accordingly, embodiments of the invention should not be considered limited to the specific arrangements of modules shown in [Figure] 1.” Ex. 1008, 2:35–39; Ex. 1002 ¶ 240. On the whole, the Petition persuades us that combining the functions of Fletchall’s servers would have involved no more than an obvious application of a known approach with predictable results. *See KSR*, 550 U.S. at 416 (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

Additionally, Petitioner persuades us that Patent Owner overestimates certain alleged concerns driving the use of different servers by different business entities. Pet. Reply 11–14, 21–22; PO Resp. 32–33, 44–46, 64–65, 67–68; PO Sur-reply 1, 12–13, 26–29. According to Patent Owner and Dr. Williams, “Fletchall does not include in its description that payment server 130 is hosted on a merchant server,” “likely because a product database is typically handled at a local, merchant level and a payment server is typically handled at a higher level (e.g., by payment service provider).” PO Resp. 68; Ex. 2009 ¶ 113. Patent Owner further argues that a person of ordinary skill in the art would have kept any payment server separate from a merchant server to prevent a merchant from learning a user’s credit card number. PO Resp. 45 (citing Ex. 2011, 40:18–19; Ex. 2009 ¶ 83).

As Petitioner notes, Patent Owner and Dr. Williams overlook Fletchall’s express disclosure of embodiments with the functionality of

payment server 130 and the functionality of product database 121 included on a merchant server. Ex. 1008, 3:51–52, 4:47–49; Pet. Reply 22. This overlooked disclosure undermines Patent Owner’s argument and significantly diminishes the credibility of Dr. Williams’s view that using the same server, as recited in the ’435 patent’s claims, would not have been obvious.

Fletchall’s disclosure also dispels Patent Owner’s concerns that a person of ordinary skill in the art would have experienced difficulty implementing the proposed modification due to different business entities controlling different servers. *E.g.*, PO Sur-reply 12–13. Given Fletchall’s disclosure that the merchant can control all of payment server 130, product database 121, and location-merchant orchestration server 111, Petitioner persuades us that it would have been straightforward to apply the known approach of combining server functions into the same server. Ex. 1008, 3:51–52, 4:27–30, 4:47–49; Pet. 30–34; Pet. Reply 1–2, 21–24.

Additionally, to the extent that Patent Owner and Dr. Williams are correct that Petitioner’s proposed modification may not have produced the most desirable system, that does not diminish Petitioner’s sound evidence that the proposed modification would have been obvious. Even if “better alternatives exist in the prior art,” that does not make Petitioner’s proposed combination “inapt for obviousness.” *In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)). Moreover, in contrast to technological considerations, the business concerns alleged by Patent Owner have little or no bearing on § 103 obviousness. *Orthopedic Equip. Co., Inc. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir.

1983); PO Resp. 44–46, 64, 67–68; Pet. Reply 1–2, 11–13, 19, 22–23; PO Sur-reply 11–13, 28.

Also, we agree with Petitioner that Patent Owner’s arguments about the claims and the prosecution history of Fletchall are unavailing, if not wholly inapposite. PO Resp. 32–33, 67–68; Pet. Reply 22. To the extent Fletchall’s claims were allowed because they were narrowed to require separate servers, Patent Owner does not identify persuasive authority for its suggestion that Fletchall’s prosecution history and claims somehow limit what Fletchall teaches to a person of ordinary skill in the art. *See, e.g., Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“[A]ll disclosures of the prior art, including unpreferred embodiments, must be considered.”).

We do agree with Patent Owner that Fletchall’s disclosure of having payment server 130, product database 121, location-merchant orchestration server 111, and mobile device 104 communicate with one another as part of one system does not make payment server 130, product database 121, and location-merchant orchestration server 111 part of the same server, much less make mobile device 104 part of the same server. PO Resp. 66–68; PO Sur-reply 29. But the salient question here is not whether separate components constitute part of the same server; it is whether it would have been obvious to combine the functionalities of payment server 130, product database 121, and location-merchant orchestration server 111 into the same server.

For the foregoing reasons, we find that a preponderance of the evidence supports Petitioner’s position that it would have been obvious to combine the functionalities of payment server 130, product database 121,

and location-merchant orchestration server 111 the same server. We reach this result even without factoring in the evidence and arguments in Petitioner's Reply regarding latency.

Furthermore, we do not agree with Patent Owner's suggestion that Petitioner's latency arguments and evidence are untimely. PO Sur-reply 29–30. To the contrary, Petitioner's latency arguments and evidence properly respond to Patent Owner's arguments by expanding on arguments and evidence entered with the Petition. Pet. 30–34; Pet. Reply 22–23. For example, in the Petition, Petitioner argues that combining the functions of Fletchall's communicatively linked servers would have been obvious due to design considerations for “software implementations and combining functionality of components,” among other things. Pet. 31–34. Petitioner's Reply properly elaborates on this position by providing greater detail regarding one such well-known design consideration: latency between communicatively linked components. Pet. Reply 22–23. Even Patent Owner recognizes that the explanation and evidence regarding communication latency in the Reply is just Petitioner “doubling-down on” the arguments and evidence presented in the Petition. PO Sur-reply 1.

Additionally, the obviousness position presented in the Petition, which is persuasive on its own, is enhanced by the Reply's explanation and evidence regarding latency with Fletchall's communicatively linked servers. Petitioner persuades us that a person of ordinary skill in the art would have recognized that combining the functionalities of Fletchall's servers would have reduced communication latency. Pet. Reply 22–23.

Indeed, Patent Owner does not dispute that it was recognized in the art that combining server functions would reduce latency associated with

separate, communicatively linked servers interacting. *See generally* PO Sur-reply. Rather, Patent Owner argues that this approach would have had drawbacks in some applications, such as systems with intentionally separated servers controlled by different business entities. *Id.* at 13–15.

Again, compared to Petitioner’s evidence that it was known and would have been straightforward and advantageous to combine server functions in Fletchall’s system, we find unpersuasive Patent Owner’s arguments and evidence about intentionally keeping servers separated. Pet. 30–34; PO Resp. 67–68; Pet. Reply 21–24; PO Sur-reply 13–15, 27–30. Even if the proposed combination would not have produced the most desirable system, that does not negate Petitioner’s sound arguments and evidence that it would have been obvious to combine server functions in Fletchall’s system in view of certain recognized benefits of doing so. *See In re Fulton*, 391 F.3d 1195, 1202 (Fed. Cir. 2004) (The prior art need not “teach that a particular combination is preferred or ‘optimal,’ for the combination to be obvious.”).

*b) VTSA/peripheral dispute*

Limitation 16c recites “optically scanning the machine-readable element rendered on the display of the mobile phone, by an optical scanning device in communication with the server.” Ex. 1001, 24:13–15. Addressing this, Petitioner argues that “Fletchall discloses that ‘[t]he barcode displayed on the mobile device may be scanned by a barcode scanner of the exit station in order to perform the match and confirm payment,’ and that the barcode scanner is coupled to the exit station in communication with the server.” Pet. 30–31 (quoting Ex. 1008, 11:61–63; also citing Ex. 1008, 5:22–44, Figs. 1, 3A; Ex. 1002 ¶ 238) (alteration in original). Petitioner

elaborates that “[b]ecause the barcode scanner (scanner 307) is in communication with exit station 306, 103, 109, which communicates with the payment server 130 or as part of the common system 100, Fletchall teaches a barcode recognizer in communication with the server (payment server 130).” *Id.* at 31 (citing Ex. 1002 ¶ 241).

Petitioner then addresses limitation 16d’s recitation of “transferring, by the mobile phone, the virtual shopping cart information to the virtual terminal sales application on the server in response to receiving instructions via the user interface of the mobile self-checkout application to check out.” Ex. 1001, 24:16–20; Pet. 32–36. Among other things, Petitioner argues that a person of ordinary skill in the art would have understood “that Fletchall teaches a [virtual terminal sales application] on the server.” Pet. 32. For example, asserting that “a [person of ordinary skill in the art] would find it obvious to combine the functions of the server 111, the server 130, and the merchant server hosting the product database 121 into the same server” (*id.* at 33), Petitioner contends that “the combination of any of the payment server 130, product database 121 on a server, or location-merchant orchestration server 111 in Fletchall also has processing on a remote server that meets the [virtual terminal sales application] on a server claim limitation” (*id.* at 32).

Patent Owner contends that Petitioner’s arguments about the claimed “virtual terminal sales application on the server” conflict with Petitioner’s arguments about the claimed “scanning device in communication with the server.” PO Resp. 5. Patent Owner emphasizes that Petitioner construes “virtual terminal sales application” as an application that “mirrors functions of a point-of-sale (POS) terminal *without the peripheral devices of a POS*

*terminal.”* *Id.* According to Patent Owner, Petitioner then violates this construction by arguing that it would have been obvious to modify Fletchall in a way that would include Fletchall’s barcode scanner (i.e., a peripheral device) as part of a virtual terminal sales application on the server. *Id.* In support of this view, Patent Owner argues that “a barcode scanner [is] present on the exit stations 103, 109” and “payment server 130, product database 121, and exit stations 103, 109 make up Petitioner’s alleged ‘server.’” *Id.*

In its Reply, Petitioner asserts that Patent Owner misrepresents Petitioner’s position, elaborating that “Petitioner only asserts it would have been obvious to combine the server functions in Fletchall on a single server because of their ability to communicate including with the exit stations 103, 109.” Pet. Reply 23 (citing Pet. 32–34). Petitioner adds that “[e]ven when Fletchall’s server functionalities are implemented on a single server, that server implements the VTSA without the barcode scanner in Fletchall, consistent with Petitioner’s VTSA construction.” *Id.* at 23 n.6.

Weighing the parties’ arguments and evidence, we find Petitioner’s more persuasive than Patent Owner’s. As discussed above in Section II.E.3.a), Petitioner argues and shows that “a [person of ordinary skill in the art] would find it obvious to combine functions of the server 111, the server 130, and the merchant server hosting the product database 121 on the same server.” Pet. 34. Petitioner also shows that the resulting server would have been in communication with Fletchall’s exit stations and scanning device, meeting limitation 16c’s requirement for “an optical scanning device in communication with the server.” Ex. 1001, 24:14–15; Pet. 30–31. Patent Owner’s counter arguments fail because they depend on

the misrepresentation that Petitioner argues it would have been obvious to include Fletchall's exit stations as part of the server. PO Resp. 5.

*c) user identification dispute*

To address limitation 16a's "user identification information," Petitioner cites Fletchall and Lin. Pet. 29–30. Petitioner argues that "Fletchall teaches generating a machine readable representation (barcode) associated with the order in the virtual shopping cart (a receipt associated with the purchased order in the virtual shopping cart) and a unique identifier." *Id.* at 29. Petitioner further argues that, to the extent Fletchall does not disclose expressly user identification information, Lin does:

Lin teaches that "[t]he order identifier may be a **customer's name, credit card number, biometric feature, or other identifier** that may allow subsequent retrieval of the order." (Ex. 1013 ¶ [0226] (emphasis added); Shamos ¶ 234.) "The device **10** may save and store the order and the corresponding order identifier within storage **54** (Fig. 3) of the device **10**." (Ex. 1013 ¶ [0227]; Shamos ¶ 234.)

*Id.* (alteration in original).

Patent Owner disputes Petitioner's position that Lin teaches limitation 16a's "user identification information." PO Resp. 71–73. As discussed above in Section II.C.2, Patent Owner contends that the claimed "user identification information" requires "a username, a password, or a combination of both." *Id.* at 72. Patent Owner further argues that Petitioner's citation of Lin's disclosure of an order identifier does not teach a username, a password, or a combination of both. *Id.* at 72–73.

Weighing the parties' arguments and evidence, we find Petitioner's more persuasive. Pet. 29–30; PO Resp. 71–73; Pet. Reply 24–25. Specifically, Petitioner persuades us that Lin's discussion of an order

identifier with the “customer’s name, credit card number, biometric feature, or other identifier” discloses limitation 16a’s “user identification information.” Pet. 29–30; Pet. Reply 24–25. We credit Dr. Shamos’s testimony that the cited passage of Lin teaches user identification information. Ex. 1002 ¶ 234. We find that at least the customer’s name and biometric information would identify the user, such that they constitute “user identification information.” Indeed, even Dr. Williams recognizes that biometric information would identify a user. Ex. 1022, 76:20–77:3.

Patent Owner’s argument that Lin does not disclose user identification information rests on the premise that “user identification information” includes only a password, a username, or a combination of both, which misconstrues the claim for the reasons explained above in Section II.C.2. PO Resp. 71–73; PO Sur-reply 30. Accordingly, we disagree with Patent Owner’s argument.

4. *Alleged Obviousness of Claim 17 over Fletchall, Lin, and Cason*

Building from its challenge of claim 15 as allegedly obvious over Fletchall and Lin, Petitioner argues that claim 17 was obvious over Fletchall, Lin, and Cason. Pet. 36–40. Regarding claim 17’s “virtual terminal sales application,” the Petition states that “[t]he discussion of Fletchall teaching a VTSA on a remote server in step 16d applies to Claim 17 and is incorporated” in the challenge of claim 17. *Id.* at 37. Regarding claim 17’s recitation of “determining, by the server, whether the order exists on the virtual terminal sales application,” Petitioner takes the position that “[t]he Fletchall-Lin combination does not expressly teach determining whether an

order exists on a VTSA, but Cason teaches determining whether an instance of an order (such as a stored shopping cart) exists.” *Id.*

Petitioner argues that “it would have been obvious to a [person of ordinary skill in the art] to determine whether an order exists on the VTSA in the Fletchall-Lin combination” (Pet. 38), as well as “to combine functions of the server 111, the server 130, and merchant server hosting the product database 121 into the same server in the Fletchall-Lin-Cason combination” (*id.* at 39). Petitioner elaborates that “[a]s described above with respect to step 16d, Fletchall discloses processing payment for an order of items in a virtual shopping cart and updating inventory of purchased items by a VTSA on the remote server.” *Id.* at 38. According to Petitioner, certain considerations and advantages would have motivated a person of ordinary skill in the art to apply Cason’s disclosure to the combination of Fletchall and Lin:

Because both Fletchall and Lin teach aspects of processing an order and storage for later retrieval, a [person of ordinary skill in the art] given the Fletchall-Lin combination would have been motivated to look to Cason to determine whether an order already exists, to use existing order data, and to avoid creating two orders.

*Id.*

In its Response, Patent Owner counters that “Petitioner fails to prove how Cason’s teachings fill the admitted void in . . . the Fletchall-Lin combination.” PO Resp. 69. Patent Owner asserts that Cason’s teachings related to checking for an order “relate to a **wireless device**, not a server as required by limitation [17a].” *Id.* at 70. Patent Owner elaborates that, in the portion of Cason cited by Petitioner, the disclosed actions “occur on the wireless device, by the wireless device, not by the required server.”

*Id.* at 71. Patent Owner further argues that “[t]o the extent that Petitioner relies upon the teachings of Cason for determining whether an order exists and [Fletchall] for the required server, Petitioner has failed to provide any rationale supporting how Cason’s functionality would have allegedly been integrated across the disparate servers of Fletchall.”<sup>4</sup> *Id.* at 71 n.9.

In its Reply, Petitioner counters that it “combines the determining step taught in Cason into the same server of Fletchall not Cason’s mobile device itself.” Pet. Reply 25. Petitioner adds that Patent Owner “errs . . . by arguing that no rationale is provided for integrating . . . Cason’s functionality across disparate servers in Fletchall and ignores extensive explanation of the rationale to integrate Cason’s functionality into the same server in the Fletchall-Lin combination.” *Id.* at 25–26.

In its Sur-reply, Patent Owner reiterates that Petitioner has not provided a rationale for applying Cason’s teachings to a server:

[Nowhere] in [Petitioner’s] “extensive explanation” is any rationale as to why a POSITA would have been motivated to combine *mobile device* functionality with a *server*. And assuming *arguendo* such explanation was present, this is the exact “non-sensical combination of devices and business control considerations” that Petitioner vehemently protested against to tailor its motivation to combine rationale for Yong.

PO Sur-reply 25.

Weighing the parties’ arguments and evidence, we determine Petitioner has demonstrated by a preponderance of the evidence that claim 17 would have been obvious over Fletchall, Lin, and Cason. Pet. 8–9, 12, 15–28, 32–40; PO Resp. 69–71; Pet. Reply 25–26; PO Sur-reply 25–26,

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<sup>4</sup> Our alteration replaces a reference to “Yong” with a reference to “Fletchall,” which we believe is what Patent Owner intended.

30–31. Petitioner persuades us that Cason teaches claim 17’s actions related to checking for, generating, and updating an order, provided that Cason teaches performing those actions on a mobile device, not on a server.

Pet. 12, 37–40.

In view of Fletchall, Lin, and Cason, collectively, Petitioner also persuades us that it would have been obvious to apply Cason’s order-processing steps to the server side of Fletchall’s system. Pet. 8–9, 12, 32–40; Pet. Reply 25–26. Petitioner’s evidence persuades us that Fletchall discloses server-side order-processing, which provides a sound reason that a person of ordinary skill in the art would have found it obvious to apply Cason’s order-processing on the server side of Fletchall’s system. Pet. 32–40. For example, Dr. Shamos explains that “[a]s described above with respect to step 16d, Fletchall discloses processing payment for an order of items in a virtual shopping cart and updating an inventory of purchased items by a VTSA on the remote server.” Ex. 1002 ¶ 269 (citing Ex. 1008, 9:10–23). When discussing limitation 16d, Dr. Shamos also explains that “Fletchall describes processing on one or more remote servers that carry out POS terminal functions such as shopping (adding items in a virtual shopping cart), payment and receipt generation.” *Id.* ¶ 246 (citing Ex. 1008, 2:40–43, 9:1–37, 12:1–11). Dr. Shamos further explains that Fletchall’s “payment server 130 or payment service 360 processes payment for items in a virtual shopping cart at checkout.” *Id.* ¶ 256 (citing Ex. 1008, 9:10–20). Additionally, Dr. Shamos further explains that “Fletchall describes the need to transfer virtual shopping cart information in response to a checkout to update an inventory of products on a remote server.” *Id.* ¶ 257 (citing Ex. 1008, 9:21–23).

Petitioner also persuades us that a person of ordinary skill in the art would have recognized that server-side order-processing in Fletchall's system would have benefitted from Cason's order-processing steps. Pet. 37–40; Pet. Reply 25–26. For example, as Petitioner and Dr. Shamos explain, a person of ordinary skill in the art would have recognized that Cason's approach would have benefitted Fletchall's server-side order-processing by preventing creation of multiple orders for one customer. Pet. 37–38; Ex. 1002 ¶¶ 267, 268, 270.

Additionally, we disagree with Patent Owner's view that Petitioner contradicts itself by taking the positions that (1) it would have been obvious to apply certain order-processing techniques from a mobile device to order-processing on a server (Pet. 36–40; Pet. Reply 25–26) and (2) it would not have made sense to combine a mobile device into a server (Pet. Reply 11). PO Sur-reply 25–26, 30–31. These two positions address different issues: (1) addresses whether it would have made sense to collapse a mobile device's role into servers, whereas (2) addresses whether it would have made sense to apply useful order-processing techniques to types of order-processing devices other than Cason's mobile device. Contrary to Patent Owner's contentions, Petitioner's arguments and evidence are consistent and persuasive.

F. YONG-BASED GROUNDS

1. *Alleged Anticipation by Yong*

a) *Overview of Yong*

Yong discloses “a commercial transaction system and a commercial transaction method using a mobile communication network in which a mobile communication terminal that has already been widely distributed to

consumers may be linked to a conventional POS system of a retail store.”

Ex. 1010, 3.<sup>5</sup> Yong shows a commercial transaction system in Figure 1.

*Id.* at 12. Figure 1 is reproduced below.

FIG. 1

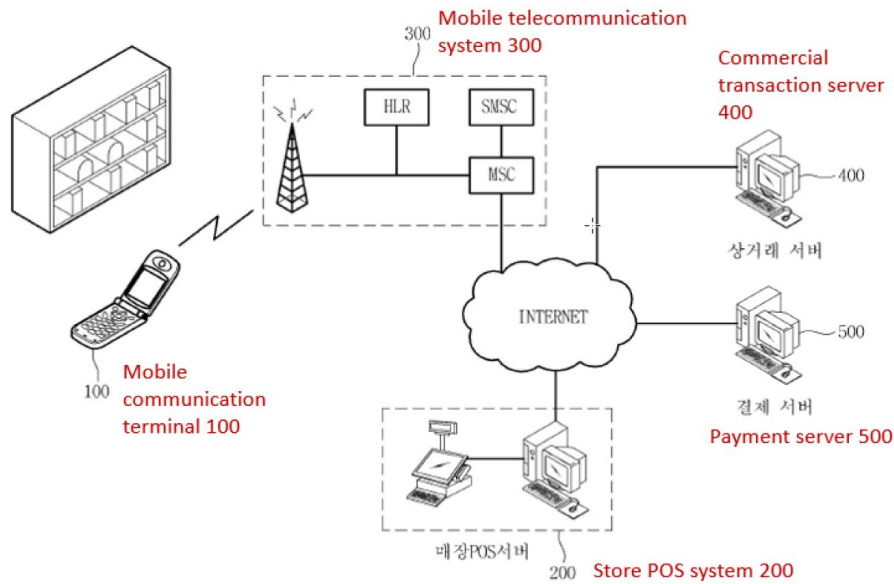


Figure 1 shows a commercial transaction system that includes “a mobile communication terminal 100, a store POS system 200, and a mobile telecommunication system 300.” Ex. 1010, 12; Ex. 1021, Fig. 1. “More preferably, a commercial transaction server 400 and a payment server 500 may be further included.” Ex. 1010, 12; Ex. 1021, Fig. 1.

Yong shows one embodiment of mobile communication terminal 100 in Figure 2. Ex. 1010, 12; Ex. 1021, Fig. 2. Figure 2 is reproduced below.

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<sup>5</sup> When discussing Yong’s disclosure, we cite to the translation in Exhibits 1010 and 1021.

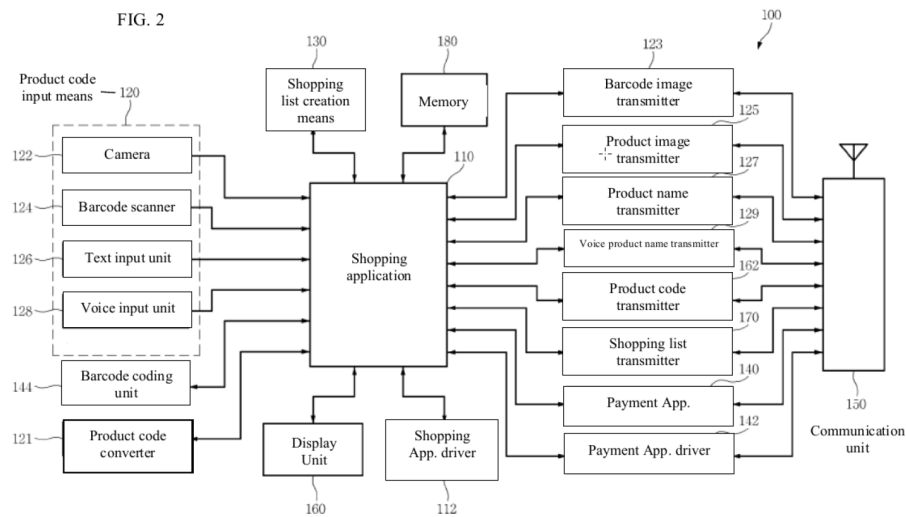


Figure 2 shows mobile communication terminal 100 having “a product code input means 120, a shopping list creation means 130, a shopping list transmitter 170, a shopping application 110, and a payment application 140.” Ex. 1010, 12; Ex. 1021, Fig. 2.

“[P]roduct code input means 120 serves a function of recognizing a product code (mc\_code) of a product to be purchased.” Ex. 1010, 12.

Product code input means 120 may use different approaches to extract the product code (mc\_code), including the following:

in an embodiment where the product code (mc\_code) is extracted by photographing a barcode image, the product code input means 120 is configured including the camera 122 for photographing a barcode image (b-code image) and a product code converter 121 for decoding the barcode image (b-code image) into a product code (mc\_code).

*Id.* at 13.

“The shopping list creation means 130 serves a function of creating a shopping list by storing the product code (mc\_code) input through the product code input means 120.” Ex. 1010, 17–18. “The shopping list is a

table” that stores the product codes (mc\_code) that have been selected in “a memory or the like.” *Id.* at 18.

Mobile communication terminal 100 preferably also includes display unit 160. Ex. 1010, 18; Ex. 1021, Fig. 2. Display unit 160 may show “a product name (mc\_name: 164) corresponding to the product[] code (mc\_code) input through the product code input means, and a product code (mc\_code) included in the shopping list (shopping\_list: 166).” Ex. 1010, 18. Along with the product name (mc\_name), display unit 160 may show “a product price (mc\_price) and an accumulated product price (mc\_price: 168) of the products included in the shopping list (shopping\_list).” *Id.* To facilitate this, Yong discloses searching a database for product information:

[i]n order for the mobile communication terminal 100 to display the product name (mc\_name) and the product price (mc\_price), a product database 240, 440 including product names and product prices of products corresponding to the product codes (mc\_code) should be searched. Three embodiments may be possible depending on the implementation location of the product database, for example, the mobile communication terminal 100, the commercial transaction server 400, and the store POS server 200.

*Id.* at 18–19. In one example, store POS server 200 stores product information:

in an embodiment in which the mobile communication terminal 100 retains the product information, the store POS server 200 further includes a product database 240 for storing product codes (mc\_code) of products, including products being sold in the retail store, and product names (mc\_name) and/or product prices (mc\_price) corresponding thereto, and the mobile communication terminal 100 accesses the store POS server 200 through a communication network to receive product data including the product names (mc\_name) and/or the product prices (mc\_price), stores it in the memory 180, and displays a

product name (mc\_name) and/or a product price (mc\_price) corresponding to the product code (mc\_code) input through the product code input means 120 by retrieving the product name and the product code from the memory 180.

*Id.* at 19. In another example, commercial transaction server 400 stores product information:

in an embodiment in which the mobile communication terminal 100 retrieves the product information from the commercial transaction server 400, the mobile communication terminal 100 further includes a product code transmitter 162 for transmitting the product code input through the product code input means to the mobile communication network, and the commercial transaction system further includes . . . a commercial transaction server 400 accessible to the mobile communication network 300 and including a product database 440 for storing the product codes (mc\_code) of products, including products being sold in the retail store, and the product names (mc\_name) and/or the product prices (mc\_price) corresponding thereto; and a product retrieval unit 432 for transmitting, to the mobile communication terminal 100, a product name (mc\_name) and/or a product price (mc\_price) corresponding to the product code (mc\_code) received from the mobile communication terminal 100 through the mobile communication network 300.

*Id.* at 19–20.

Mobile communication terminal 100 may retrieve product information from commercial transaction server 400 or from store POS server 200.

Ex. 1010, 20–21. For example, mobile communication terminal 100 may use the following process to retrieve product information from commercial transaction server 400:

the mobile communication terminal 100 may transmit the store ID (mart\_ID) together with the product code when the product code (mc\_code) is transmitted, and the product retrieval unit 432 of the commercial transaction server 400 may select the product database (441, 442, 443) corresponding to the transmitted store

ID (mart\_ID) to retrieve the product name (mc\_name) and/or the product price (mc\_price).

*Id.* As another example, mobile communication terminal 100 may use the following process when retrieving product information from store POS server 200:

in an embodiment in which the mobile communication terminal 100 retrieves the product information from the store POS server 200, the mobile communication terminal 100 further includes a product code transmitter 162 for transmitting the product code (mc\_code) input through the product code input means 120 to the store POS server 200, and the store POS server 200 further includes a product database 240 for storing the product codes (mc\_code) of products, including products being sold in the retail store, and the product names (mc\_name) and/or the product prices (mc\_price) corresponding thereto; and a product retrieval unit 232 for transmitting, to the mobile communication terminal 100, a product name (mc\_name) and/or a product price (mc\_price) corresponding to the product code (mc\_code) received from the mobile communication terminal 100.

*Id.* at 21.

Mobile communication terminal 100's shopping list transmitter 170 "serves a function of transmitting the shopping list (shopping\_list) created by the shopping list creation means 130 to the store POS server 200."

Ex. 1010, 23. "[S]hopping list transmitter 170 may transmit the shopping list (shopping\_list) through any one of the mobile communication network 300, WiBro, wireless LAN, Bluetooth, ZigBee, IrDA, and the like, or a data cable." *Id.*

"[P]ayment application 140 serves a function of making a payment according to the shopping list (shopping\_list) using the mobile communication network 300." Ex. 1010, 25. "[P]ayment application 140

accesses a payment server 500 used for normal mobile payment through a communication network to perform payment.” *Id.* at 26. When payment has occurred, a payment approval result may be transmitted directly or indirectly from payment server 500 to store POS server 200. *Id.* at 26–27. Payment server 500 may transmit the payment approval result to mobile application terminal 100. *Id.* at 28. Such an embodiment may include certain provisions for mobile communication terminal 100 and store POS server 200 to interact with one another regarding the payment approval result:

further includes a barcode coding unit 144 for coding the payment approval result into a predetermined barcode, the display unit 160 displays the payment approval result barcode, and the store POS server 200 further includes a barcode recognizer 270 for recognizing the payment approval result barcode, or that the mobile communication terminal 100 further includes a payment approval result transmitter to transmit the payment approval result to the store POS server 200.

*Id.*

*b) Discussion*

Petitioner argues that “Yong teaches each and every element of Claim 15.” Pet. 40. Petitioner then explains in detail which disclosures of Yong allegedly teach each of claim 15’s limitations. *Id.* at 41–51. Petitioner also cites Dr. Shamos’s testimony, in which Dr. Shamos details which disclosures of Yong he believes teach each of claim 15’s limitations. Pet. 41–51; Ex. 1002 ¶¶ 280–345.

In its Response, Patent Owner argues that “Petitioner’s Yong-based grounds (Grounds 5-7) fail” for a number of reasons. PO Resp. 35. For example, Patent Owner faults Petitioner’s translation of Yong. *Id.* at 36. As discussed above in Section II.D, we do not agree with Patent Owner’s argument that we should disregard Yong entirely. PO Sur-reply 18. Also,

having carefully reviewed the specific translation issues raised by Patent Owner, we find none of the translation issues materially undermines Petitioner’s arguments and evidence that Yong anticipates claim 15. Pet. 10–11, 40–51; PO Resp. 24–27, 35–49, 52–58; Pet. Reply 5–8; PO Sur-reply 5 n.2, 16–18.

Additionally, asserting that we should construe claim 15 as referring to the same server each time the claim recites “the server,” Patent Owner argues that “Yong fails to teach or suggest a server that meets the . . . “same-server requirement.” PO Resp. 37. Petitioner responds that its Yong anticipation challenge consistently cites to payment server 500 (and no other Yong server) when addressing each recitation of “the server” in Yong. Pet. Reply 7–8. In its Sur-reply, Patent Owner “agrees that Petitioner only cites to Yong’s payment server 500 in addressing claim 15. Thus, the ‘same server’ argument is limited to claims 16-17.” PO Sur-reply 5 n.2. This resolves in Petitioner’s favor any “same server” concerns with respect to the Yong anticipation challenge.

Aside from the foregoing, Patent Owner does not dispute Petitioner’s position that Yong anticipates claim 15. *See generally* PO Resp. Having reviewed all of the parties’ arguments and evidence, we determine Petitioner has demonstrated by a preponderance of the evidence that Yong anticipates claim 15.

2. *Alleged Obviousness Based on Yong and Xavier*

Petitioner argues that claims 15, 16, 18, and 19 would have been obvious over Yong and Xavier. Pet. 51–60. In this challenge, Petitioner argues that “Yong teaches each and every element of Claim 15 for the reasons stated in [the challenge of claim 15 as anticipated by Yong].”

*Id.* at 51. Petitioner adds that “with respect to claim steps 15h and 15i, if the Board were to find Yong did not disclose that payment information is retrieved and used to complete the transaction, such server actions are taught by Xavier.” *Id.* Patent Owner asserts “several reasons” that Petitioner does not show obviousness of the challenged claims. PO Resp. 35–62.

Having reviewed all of the parties’ arguments and evidence, we find that Petitioner demonstrates by a preponderance of the evidence that each of claims 15, 16, 18, and 19 would have been obvious over Yong and Xavier. Pet. 10–11, 40–60; PO Resp. 3–8, 24–29, 35–62; Pet. Reply 5–21; PO Sur-reply 3–26.

As with Petitioner’s challenge of claim 15 as anticipated by Yong, the parties’ dispute regarding the quality of Petitioner’s Yong translation applies to Petitioner’s challenge of claims 15, 16, 18, and 19 as allegedly obvious over Yong and Xavier. PO Resp. 52–58; Pet. Reply 5–7; PO Sur-reply 16–18. As discussed above in Section II.D, we do not agree with Patent Owner’s argument that we should disregard Yong entirely. PO Sur-reply 18. Additionally, having carefully reviewed the specific translation issues raised by Patent Owner, we find none of the translation issues materially undermines Petitioner’s arguments and evidence that claims 15, 16, 18, and 19 would have been obvious over Yong and Xavier. Pet. 10–11, 40–60; PO Resp. 3–5, 24–29, 35–62, 71–73; Pet. Reply 5–20; PO Sur-reply 3–24.

We discuss certain other considerations related to claims 15, 16, 18, and 19 in more detail below.

a) *Claim 15*

Patent Owner argues that Petitioner has not addressed persuasively the “same server” requirement of limitations 15h–15j. Patent Owner argues that “Yong fails to teach or suggest a server that meets the Panel’s ‘same-server requirement’” (PO Resp. 37) and that “Yong and Xavier discloses a disparate computing architecture that goes against the [Panel’s] ‘same server’ claim construction” (*id.* at 35). Patent Owner asserts that “Petitioner cobbles together the functionality of a variety of different machines, i.e., store POS system 200, commercial transaction server 400, and a third-party payment server 500, to allege that the ’435 Patent’s single server is obvious.” *Id.* at 39–40. According to Patent Owner, however, “Petitioner fails to support why a [person of ordinary skill in the art] allegedly would have considered it obvious to combine the functionality of [Yong’s] POS system 200, commercial transaction server 400, and payment server 500 to meet the claim language.” *Id.* at 35. Patent Owner further argues that Petitioner’s citations to Xavier “do nothing to cure Yong’s failure to meet the Panel’s ‘same server’ construction” because “like Yong, Xavier delegates payment to a disparate, third-party payment server for processing.” *Id.* at 47.

Petitioner argues that Yong teaches using its payment server 500 to perform all of the actions recited in limitations 15h–15j. Pet. 49–51; Pet. Reply 7–9.

Weighing the parties’ arguments and evidence, we find Petitioner has demonstrated by a preponderance of the evidence that Young teaches limitations 15h–15j. Pet. 10–11, 49–51; PO Resp. 35–49; Pet. Reply 7–9; PO Sur-reply 24. These limitations recite performing the following actions:

“retrieving . . . payment information to complete the transaction; completing . . . the transaction based on the payment information; and transmitting . . . a confirmation receipt to the mobile phone in response to completion of payment for the transaction.” Ex. 1001, 23:44–24:5. Petitioner persuades us that Yong teaches performing these actions recited in limitations 15h–15j. Pet. 10–11, 49–51; Pet. Reply 7–9.

Indeed, Patent Owner does not dispute Petitioner’s arguments and evidence that Yong discloses performing these actions. *See generally* PO Resp.; PO Sur-reply. Instead, in its Response, Patent Owner suggests that Petitioner has not shown Yong uses the same server. PO Resp. 35–49.

As discussed above in Section II.F.1.b), however, Petitioner does demonstrate that the same server, specifically Yong’s payment server 500, performs all of the actions of limitations 15h–15j. Pet. 49–51; Pet. Reply 7–9; PO Sur-reply 5 n.2. Accordingly, Petitioner demonstrates that Yong teaches everything required by limitations 15h–15j.

Thus, contrary to Patent Owner’s argument, there is no “failure [of Yong] to meet the Panel’s ‘same server’ requirement” with respect to claim 15. PO Resp. 47. Additionally, because Petitioner demonstrates that Yong teaches everything required by limitations 15h–15j, Patent Owner’s arguments about Xavier failing to teach limitations 15h–15i are moot. PO Sur-reply 24.

*b) Claim 16*

*(1) alleged obviousness of same server in Yong*

*(a) the parties' arguments and evidence*

*(i) Petition*

As discussed above in Section II.F.1.b), when addressing the recitations of “the server” in limitations 15h–15j, Petitioner cites Yong’s payment server 500. Pet. 49–51. When addressing the recitations of “the server” in limitations 16c and 16d, Petitioner also cites Yong’s POS store server 200 and commercial transaction server 400. *Id.* at 54–57.

Petitioner also argues that if “the server” recited in claim 16 is the same server as “the server” recited in independent claim 15, (1) “Yong teaches that” and (2) “a [person of ordinary skill in the art] would find it obvious to combine functions of any [of] its servers 200, 400 or 500 into the same server.” Pet. 57. In connection with these assertions, the Petition notes that “Yong teaches that the communication extends from store POS server 200 to the payment server 500 through direct connection (‘the store POS server 200 may directly connect to the payment server 500’ (Ex. 1010 26:19- 21)) or as part of a common commercial transaction system.” *Id.* at 55. Petitioner similarly argues that “Yong teaches that its server components (store POS server 200, commercial transaction server 400, and payment server 500) can be part of a common commercial transaction system.” *Id.* at 57. Also, stating that “[i]t was well-understood in the art at the time that functionality of different servers can be combined in the same server,” the Petition argues that combining functionality of Yong’s store POS server 200, commercial transaction server 400, and payment server 500 would have been obvious because of considerations

relevant to “software implementations and combining functionality of components.”<sup>6</sup> *Id.*

(ii) *Patent Owner’s Response*

In its Response, Patent Owner counters that Petitioner does not support its positions regarding Yong’s system with respect to the “same server” of the claims. PO Resp. 36–49. Patent Owner argues that “Petitioner’s grounds fail to show why a POSITA would have been motivated to combine the functionality of three different Yong entities loosely connected through the internet (*see* Figure 1) to implement the ‘same server.’” *Id.* at 37. According to Patent Owner, Petitioner’s observation that store POS server 200, commercial transaction server 400, and payment server 500 communicate with one another does not support Petitioner’s position. *Id.* at 42–43.

Patent Owner contends that “Yong’s system is intentionally designed with distinct components.” PO Resp. 44. Patent Owner argues that “Yong’s POS system 200 is in store,” whereas “Yong’s payment server is controlled by a third-party separated from the store merchant.” *Id.* at 45. According to Patent Owner, Petitioner does not demonstrate that it would have been obvious to a person of ordinary skill in the art “to combine Yong’s merchant-controlled, in-store POS system with a third-party payment server that is ‘outside the store system.’” *Id.* In sum, Patent Owner argues that

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<sup>6</sup> There is a dispute regarding whether the Petition included Yong’s barcode recognizer as part of this combination. We address that dispute in Section II.F.2.b).(3) below.

“Petitioner fails to prove the obviousness of the ‘same server’ based on Yong just as it did in its IPR2022-01561 Petition with Fletchall.” *Id.* at 36.

(iii) *Petitioner’s Reply*

In its Reply, Petitioner maintains that it would have been obvious to combine functionalities of Yong’s servers. Pet. Reply 10–14. Petitioner argues that Patent Owner “is mistaken that Yong’s system was ‘intentionally designed with distinct components’ to be kept separate.” *Id.* at 11.

Asserting that Patent Owner “relies on selective testimony from Dr. Shamos,” Petitioner argues that “a complete review of Dr. Shamos’s testimony reveals what a [person of ordinary skill in the art] would have recognized: that the servers in Yong, such as the payment server 500, could be under the control of a single merchant.” *Id.* at 12. Petitioner maintains that Yong’s disclosure of the servers communicating with one another as part of a common system would have provided a reason to combine the server’s functionalities, asserting that “Yong also describes an embodiment where POS server 200 and payment server 500 are directly connected, making the combination of their functionality even more obvious.” *Id.* at 10. Citing evidence of known latency when servers communicate, Petitioner asserts that combining server functions into the same server would reduce communication latency. *Id.* at 12–14.

(iv) *Patent Owner’s Sur-reply*

In its Sur-reply, Patent Owner maintains that it would not have been obvious to combine the functionalities of Yong’s servers. PO Sur-reply 1, 5–15. “Yong disclosed separate servers, in different locations, controlled by different parties intentionally,” Patent Owner asserts. *Id.* at 6. Patent Owner

disputes Petitioner's argument that Yong discloses directly connecting store POS server 200 and payment server 500. *Id.* at 9–12. Patent Owner asserts that Petitioner does not explain how servers controlled by different entities could have been combined. *Id.* at 12.

Patent Owner also argues that “Petitioner’s position directly contradicts this Panel’s finding in IPR2022-01561, and Petitioner fails to take this point head on.” PO Sur-reply 7. Patent Owner asserts that the idea of combining servers with a mobile communication device because those components communicate with one another in the same system “illustrates why Petitioner’s rationale for combining is plainly insufficient.” *Id.* at 8. Additionally, Patent Owner argues that Petitioner’s explanation and evidence of communication latency in the Reply are untimely and unavailing. *Id.* at 13–15. Patent Owner asserts that “[l]atency is not mentioned as a consideration in the Petition, and Dr. Shamos does not at any point back this argument.” *Id.* at 14. Furthermore, without disputing evidence of knowledge that consolidating servers to reduce latency sometimes makes sense, Patent Owner argues that it would not have made sense to consolidate intentionally separate servers controlled by different parties in different locations. *Id.* at 14–15.

(b) *Discussion*

As an initial matter, for substantially the reasons explained above in Section II.E.3.a).(2), the 1561 institution decision does not contradict Petitioner’s contention that it would have been *obvious* to combine functionalities of Yong’s servers, contrary to Patent Owner’s contention. PO Sur-reply 7.

Turning to the merits in this proceeding, having considered all of the parties' arguments and evidence, we determine that a preponderance of the evidence supports Petitioner's position that it would have been "obvious to combine functions of any [of] its servers 200, 400, 500 into the same server." *E.g.*, Pet. 10–11, 55–57; PO Resp. 2–4, 6–7, 24–27, 35–46; Pet. Reply 1–2, 10–14; PO Sur-reply 1–2, 5–15. It is undisputed that "[i]t was well-understood in the art at the time that functionality of different servers can be combined in the same server." Pet. 57 (citing Ex. 1002 ¶ 379); *see generally* PO Resp.; PO Sur-reply.

The Petition persuades us that it would have been obvious to implement this known approach in Yong's system, notwithstanding Patent Owner's arguments about intentionally keeping servers separate. Pet. 10–11, 55–57; PO Resp. 2–4, 26–27, 35–46; PO Sur-reply 1, 5–15. The Petition and its evidence demonstrate that a person of ordinary skill in the art would have recognized that modifying Yong's disclosure by combining the functionalities of the servers would have produced one logical variation on Yong's system. Pet. 10–11, 55–57; Ex. 1002 ¶¶ 115–132, 368–371, 374–379. As the Petition and Dr. Shamos note, Yong's servers cooperatively perform functions of Yong's system by communicating with one another and other system components, such that consolidating the functionality into the same server would result in that server performing all of the same functions that Yong's servers do separately. Pet. 10–11, 55–57; Ex. 1002 ¶¶ 115–132, 368–371, 374–379; *See KSR*, 550 U.S. at 418 (combination of known devices according to established functions normally obvious); *id.* at 417 ("[W]hen a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields

no more than one would expect from such an arrangement, the combination is obvious”).

The Petition and its evidence also persuade us that such a modification would have been well within the ability of a person of ordinary skill in the art and there would have been a reasonable expectation of success. *E.g.*, Pet. 12, 55–57; Ex. 1002 ¶¶ 31–35, 40–43, 370, 379. As Dr. Shamos notes, Yong itself indicates that the system could use different components on its server side, disclosing that “[a] commercial transaction system (*e.g.*, a commerce system) according to the present invention is configured to include a mobile communication terminal 100, a store POS system 200, and a mobile telecommunication system 300. More preferably, a commercial transaction server 400 and a payment server 500 may be further included.” Ex. 1010, 12; Ex. 1002 ¶ 270. On the whole, the Petition persuades us that combining the functions of Yong’s servers would have involved no more than an obvious application of a known approach with predictable results. *See KSR*, 550 U.S. at 416 (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”).

Additionally, Petitioner persuades us that Patent Owner overestimates certain alleged concerns driving the use of different servers by different business entities. Pet. Reply 11–14; PO Resp. 26–27, 44–46; PO Sur-reply 1, 12–13. As Petitioner notes, Dr. Shamos explained that a person of ordinary skill in the art would have understood that all of the functions of Yong’s servers, including payment server 500, could be owned by the merchant. Ex. 2011, 45:12–14. On the whole, Petitioner persuades us that it

would have been straightforward to apply the known approach of combining server functions into the same server. Pet. 55–57; Pet. Reply 1–2, 10–14.

Additionally, to the extent that Patent Owner and Dr. Williams are correct that Petitioner’s proposed modification may not have produced the most desirable system, that does not diminish Petitioner’s sound evidence that the proposed modification would have been obvious. Even if “better alternatives exist in the prior art,” that does not make Petitioner’s proposed combination “inapt for obviousness.” *Mouttet*, 686 F.3d at 1334. Moreover, in contrast to technological considerations, the business concerns alleged by Patent Owner have little or no bearing on § 103 obviousness. *Orthopedic Equip.*, 702 F.2d at 1013; PO Resp. 44–46, 64; Pet. Reply 1–2, 11–13, 19; PO Sur-reply 11–13.

We do agree with Patent Owner that Yong’s disclosure of having store POS server 200, commercial transaction server 400, and payment server 500 communicate with one another as part of one system does not make store POS server 200, commercial transaction server 400, and payment server 500 part of the same server, much less make mobile communication terminal 100 part of the same server. PO Resp. 41–44; PO Sur-reply 8. But the salient question here is not whether separate components constitute part of the same server; it is whether it would have been obvious to combine the functionalities of store POS server 200, commercial transaction server 400, and payment server 500 into the same server.

For the foregoing reasons, we find that a preponderance of the evidence supports Petitioner’s position that it would have been obvious to combine the functionalities of store POS server 200, commercial transaction server 400, and payment server 500 the same server. We reach this result

even without factoring in the evidence and arguments in Petitioner's Reply regarding latency.

Furthermore, we do not agree with Patent Owner's suggestion that Petitioner's latency arguments and evidence are untimely. PO Sur-reply 13–15. To the contrary, Petitioner's latency arguments and evidence properly respond to Patent Owner's arguments by expanding on arguments and evidence entered with the Petition. Pet. 55–57; Pet. Reply 12–13. For example, in the Petition, Petitioner argues that combining the functions of Yong's communicatively linked servers would have been obvious due to design considerations for “software implementations and combining functionality of components,” among other things. Pet. 55–57. Petitioner's Reply properly elaborates on this position by providing greater detail regarding one such well-known design consideration: latency between communicatively linked components. Pet. Reply 12–13. Even Patent Owner recognizes that the explanation and evidence regarding communication latency in the Reply is just Petitioner “doubling-down on” the arguments and evidence presented in the Petition. PO Sur-reply 1.

Additionally, the obviousness position presented in the Petition, which is persuasive on its own, is enhanced by the Reply's explanation and evidence regarding latency with Yong's communicatively linked servers. Petitioner persuades us that a person of ordinary skill in the art would have recognized that combining the functionalities of Yong's servers would have reduced communication latency. Pet. Reply 12–13.

Indeed, Patent Owner does not dispute that it was recognized in the art that combining server functions would reduce latency associated with separate, communicatively linked servers interacting. *See generally* PO

Sur-reply. Rather, Patent Owner argues that this approach would have had drawbacks in some applications, such as systems with intentionally separated servers controlled by different business entities. PO Sur-reply 13–15.

Again, compared to Petitioner’s evidence that it was known and would have been straightforward and advantageous to combine server functions in Yong’s system, we find unpersuasive Patent Owner’s arguments and evidence about intentionally keeping servers separated. Pet. 55–57; PO Resp. 44–46; Pet. Reply 10–14; PO Sur-reply 5–15. Even if the proposed combination would not have produced the most desirable system, that does not negate Petitioner’s sound arguments and evidence that it would have been obvious to combine server functions in Yong’s system in view of certain recognized benefits of doing so. *Fulton*, 391 F.3d at 1202 (Fed. Cir. 2004) (The prior art need not “teach that a particular combination is preferred or ‘optimal,’ for the combination to be obvious.”).

(2) “*optically scanning*” dispute

The parties dispute whether Petitioner has persuasively addressed limitation 16c’s recitation of “optically scanning the machine-readable element rendered on the display of the mobile phone, by an optical scanning device in communication with the server.” Ex. 1001, 24:13–15; Pet. 54–56; PO Resp. 59–62; Pet. Reply 18–19; PO Sur-reply 22–23.

Petitioner contends that “Yong teaches this step.” Pet. 54. In support of this position, Petitioner argues that “Yong discloses optically scanning the displayed barcoded payment approval result with an optical scanning device (‘a conventional barcode recognizer’) in communication with the server (store POS server).” *Id.*

Patent Owner counters that “[t]he Yong grounds fail to teach or suggest the pre-payment functionality recited in dependent claim 16.” PO Resp. 59. According to Patent Owner, claim 16 requires the “optically scanning” step to occur “pre-payment,” i.e., before the shopper pays. PO Resp. 59–61; PO Sur-reply 22–23. Patent Owner argues that “Yong’s barcode scan is post-payment.” PO Resp. 61–62.

Weighing the parties’ arguments and evidence, we find Petitioner has demonstrated by a preponderance of the evidence that Yong teaches limitation 16c. Ex. 1001, 24:13–15; Pet. 54–56; PO Resp. 59–62; Pet. Reply 18–19; PO Sur-reply 22–23. Petitioner’s evidence persuades us that Yong teaches an optical scanning device, specifically its “conventional barcode recognizer,” in communication with its server. Ex. 1010, 8, 28, 34; Ex. 1002 ¶¶ 368–369. Petitioner’s evidence also persuades us that Yong teaches using its optical scanning device to optically scan a machine-readable element rendered on a mobile phone’s display. Ex. 1010, 8, 28, 34; Ex. 1002 ¶¶ 368–369. Patent Owner’s argument that Yong fails to teach pre-payment optical scanning does not undermine Petitioner’s position because we do not agree with Patent Owner’s position that claim 16’s scanning must occur pre-payment, as we explain above in Section II.C.3. PO Resp. 59–62; PO Sur-reply 22–23.

(3) *VTSA/peripheral dispute*

The parties dispute whether Petitioner’s challenge of claim 16 as obvious over Yong and Xavier comports with Petitioner’s construction of the claim language “virtual terminal sales application.” Pet. 10–11, 14–15, 53–57; PO Resp. 7–8, 24–27, 49–52; Pet. Reply 17–18; PO Sur-reply 18–22. This dispute primarily involves the same issues raised by Patent Owner’s

argument that Petitioner’s challenge of claim 16 over Fletchall, Lin, and Yong conflicts with Petitioner’s construction of “virtual terminal sales application,” as discussed above in Section II.E.3.b).

As noted above in Section II.F.2.b).(2), in addressing limitation 16c’s recitation of “optically scanning the machine-readable element rendered on the display of the mobile phone, by an optical scanning device in communication with the server,” Petitioner argues that “Yong discloses optically scanning the displayed barcoded payment approval result with an optical scanning device (‘a conventional barcode recognizer’) in communication with the server (store POS server).” Pet. 54. In support of this, Petitioner cites, among other things, Yong’s disclosure that “the specific payment approval result may be decoded and displayed as a specific payment approval barcode, and a store POS server may check it using a conventional barcode recognizer.” Ex. 1010, 8; Pet. 54. Petitioner also cites Yong’s disclosure that “the store POS server 200 further includes a barcode recognizer 270 for recognizing the payment approval result barcode.” Ex. 1010, 28; Pet. 54.

Patent Owner argues that “Petitioner’s mapping of Yong for claim 16 cites to a barcode scanner that its construction of [virtual terminal sales application] forbids.” PO Resp. 50. Patent Owner asserts that “Petitioner argues that Yong’s POS server 200’s barcode recognizer 270 is equivalent to the claimed ‘optical scanning device.’” *Id.* Patent Owner further argues that “Yong describes barcode recognizer 270, shown in [Figure] 3, as being part of the store POS system 200 (Ex. 1010, 28:9-11), which Petitioner also relies on, in part, as teaching the claimed ‘server.’” *Id.* at 51. Based on these assertions, Patent Owner contends that Petitioner’s position regarding

claim 16 “is plainly inconsistent with its construction of [virtual terminal sales application] as ‘an application running on the server which mirrors functions of a point-of-sale (POS) terminal *without the peripheral devices of a POS terminal.*’” *Id.* at 52.

In its Reply, Petitioner counters that “Petitioner’s [virtual terminal sales application] construction does not undermine Petitioner’s claim mapping with respect to Yong.” Pet. Reply 18. In support of this position, Petitioner argues that Yong’s barcode recognizer is in communication with its cash register, which is in communication with its server. *Id.* at 17–18. “This element separation, confirmed by PO’s expert . . . , results in the computer executing the [virtual terminal sales application] without any peripheral devices, such as [Yong’s] barcode recognizer 270, which is a peripheral of the cash register (traditional POS terminal) rather than a server,” Petitioner asserts. *Id.* at 18.

Patent Owner responds that Petitioner’s Reply presents a new argument by “mak[ing] a distinction that it is the cash register component that has a peripheral device of the barcode recognizer 270, such that there is no peripheral device within Yong’s POS system 200 that Petitioner cited,” “despite Petitioner’s expert clearly citing to the entirety of Yong’s ‘store POS system 200’ in his expert declaration.” PO Sur-reply 19. Patent Owner contends that “Petitioner’s new position that certain of the Petition’s citations were only to the ‘server portion’ of Yong reference 200 is not supported by the Petition, its own expert, or Yong’s disclosure and it should be disregarded.” *Id.* Patent Owner also argues that “Yong fails to support” Petitioner’s position. *Id.* at 20. In support of this contention, Patent Owner

argues that Yong discloses barcode recognizer is part of “store POS server 200.” *Id.* at 20–21 (emphasis omitted).

Weighing the parties’ arguments and evidence, we find Petitioner has the better position. Pet. 10–11, 14–15, 53–57; PO Resp. 7–8, 24–27, 49–52; Pet. Reply 17–18; PO Sur-reply 18–22. As Petitioner notes, Dr. Shamos and Dr. Williams agree that Yong’s Figure 1 shows that the components identified with reference numeral 200 include both a computer and a cash register. Ex. 2011, 25:8–13; Ex. 1022, 60:17–18, 60:21–23; Pet. Reply 14–15. And Petitioner persuades us that a person of ordinary skill in the art would have understood that Yong’s barcode recognizer 270 and cash register are peripheral devices separate from the computer, as Dr. Williams recognizes. Pet. Reply 14–16; Ex. 1022, 60:2–5, 60:17–18, 60:21–23.

Additionally, contrary to Patent Owner’s argument, the Reply is a persuasive, procedurally proper rebuttal of Patent Owner’s argument that the Petition and Dr. Shamos cited either of Yong’s cash register and barcode scanner 270 peripherals (as opposed to the computer in Figure 1) as part of “the server” in the challenged claims. PO Resp. 50–52; Pet. Reply 17–18; PO Sur-reply 18–20. Patent Owner’s argument rests on a tortured interpretation of the Petition and Dr. Shamos’s Declaration. PO Resp. 50–52; PO Sur-reply 18–20. The Petition and Dr. Shamos both take the position that Yong’s barcode scanner 270 is “in communication with the server.” *E.g.*, Pet. 54–56; Ex. 1002 ¶¶ 368–371. This conveys that Petitioner and Dr. Shamos do not cite barcode scanner 270 as part of “the server,” as it would defy logic to suggest that barcode scanner is both (1) in communication with “the server” and (2) part of “the server.” Thus, Petitioner’s Reply properly responds to Patent Owner’s arguments by

confirming what was already clear from the Petition and Dr. Shamos's declaration: neither the Petition nor Dr. Shamos cites Yong's barcode scanner 270 as part of "the server." PO Resp. 50–52; Pet. Reply 17–18; PO Sur-reply 18–20. In sum, Petitioner persuades us that, contrary to Patent Owner's arguments, the Petition's arguments about Yong's barcode scanner 270 and server comport with Petitioner's construction of "virtual terminal sales application."

*c) Claims 18 and 19*

Claim 18 depends from claim 15. Ex. 1001, 24:32. When addressing claim 18, Petitioner starts by noting that "[t]he discussion of claim 15 above with respect to Yong-Xavier is incorporated here." Pet. 57. Petitioner then outlines its evidence that Yong discloses the limitations that claim 18 adds to the limitations of claim 15. *Id.* at 57–59.

Claim 19 depends from claim 18. Ex. 1001, 24:42. When addressing claim 19, Petitioner starts by noting that "[t]he discussion of claim 18 above with respect to Yong-Xavier is incorporated here." Pet. 59. Petitioner then outlines its evidence that Yong discloses the limitation that claim 19 adds to the limitations of claims 15 and 18. *Id.* at 59–60.

With respect to Petitioner's challenge of claims 18 and 19 as allegedly obvious over Yong and Xavier, Patent Owner relies on arguments it presented with respect to Petitioner's challenge of independent claim 15 as allegedly obvious over Yong and Xavier. *E.g.*, PO Sur-reply 24. For example, Patent Owner argues that Xavier fails to teach limitations 15h and 15i of independent claim 15. *Id.* This argument is moot because Petitioner shows that Yong teaches limitations 15h and 15i, as discussed above in Section II.F.2.a).

Weighing all of the parties’ arguments and evidence, we find Petitioner has demonstrated by a preponderance of the evidence that claims 18 and 19 would have been obvious over Yong and Xavier. Pet. 10–11, 40–53, 57–60; PO Resp. 3–5, 24–29, 35–49, 52–58; Pet. Reply 5–14, 19–20; PO Sur-reply 3–18, 24.

3. *Alleged Obviousness Based on Yong, Xavier, and Cason*

Petitioner asserts that claim 17 would have been obvious over Yong, Xavier, and Cason. Pet. 59–66. As discussed above in Section II.E.4, Petitioner has shown obviousness of claim 17 over Fletchall, Lin, and Cason. Accordingly, we do not reach Petitioner’s challenge of claim 17 as allegedly obvious over Yong, Xavier, and Cason. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”).

### III. CONCLUSION

In summary:

| <b>Claim(s)</b>   | <b>35 U.S.C. §</b> | <b>Reference(s)/<br/>Basis</b>      | <b>Claim(s)<br/>Shown<br/>Unpatentable</b> | <b>Claim(s) Not<br/>Shown<br/>Unpatentable</b> |
|-------------------|--------------------|-------------------------------------|--------------------------------------------|------------------------------------------------|
| 15                | 102                | Fletchall                           | 15                                         |                                                |
| 15                | 103                | Fletchall, Lin                      | 15                                         |                                                |
| 16                | 103                | Fletchall, Lin,<br>Yong             | 16                                         |                                                |
| 17                | 103                | Fletchall, Lin,<br>Cason            | 17                                         |                                                |
| 15                | 102                | Yong                                | 15                                         |                                                |
| 15, 16,<br>18, 19 | 103                | Yong, Xavier                        | 15, 16, 18, 19                             |                                                |
| 17                | 103                | Yong, Xavier,<br>Cason <sup>7</sup> |                                            |                                                |

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<sup>7</sup> As explained above in Section II.F.3, we do not reach this challenge.

|                        |  |  |                    |  |
|------------------------|--|--|--------------------|--|
| <b>Overall Outcome</b> |  |  | 15–19 <sup>8</sup> |  |
|------------------------|--|--|--------------------|--|

#### IV. ORDER

In consideration of the foregoing, it is:

ORDERED that claims 15–19 of U.S. Patent No. 10,803,435 B2 have been shown, by a preponderance of the evidence, to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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<sup>8</sup> Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding, 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

IPR2022-01528  
Patent 10,803,435 B2

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