

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FACEBOOK, INC., INSTAGRAM, LLC, and WHATSAPP INC.,
Petitioner,

v.

BLACKBERRY LIMITED,
Patent Owner.

IPR2019-00941
Patent 8,296,351 B2

Before MIRIAM L. QUINN, GREGG I. ANDERSON, and
ROBERT L. KINDER, *Administrative Patent Judges*.

KINDER, *Administrative Patent Judge*.

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

Facebook, Inc., Instagram, LLC, and WhatsApp Inc. (collectively, “Petitioner”) filed a Petition pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 1, 2, 9, 14, 15, and 21 (“the challenged claims”) of U.S. Patent No. 8,296,351 B2, issued on October 23, 2012 (Ex. 1001, “the ’351 patent”). Paper 2 (“Pet.”). BlackBerry Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 6.

We instituted *inter partes* review of the challenged claims pursuant to 35 U.S.C. § 314. Paper 11 (“Dec.”). Subsequent to our institution of review, Patent Owner disclaimed claims 9 and 15 of the ’351 patent. Ex. 2006 (Disclaimer in Patent Under 37 C.F.R. § 1.321(a) signed Dec. 18, 2019). This Final Decision does not address the claims that were disclaimed.

During the trial, Blackberry filed a Patent Owner Response (Paper 24, “PO Resp.”), and Petitioner filed a Reply (Paper 33, “Pet. Reply”). Patent Owner thereafter filed a Sur-reply (Paper 45, “Sur-reply”). An oral hearing was conducted on September 3, 2020. Paper 47 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that claims 1, 2, 14, and 21 of the ’351 patent are unpatentable.

I. BACKGROUND

A. The ’351 Patent (Ex. 1001)

The ’351 patent is directed to a “System and Method for Pushing Information to a Mobile Device.” Ex. 1001, code (54). The ’351 patent claims priority through a series of continuation applications to provisional

application No. 60/307,265, filed on July 23, 2001. *Id.* at codes (63), (60). The “invention relates to pushing information to a mobile handheld communication device,” through the use of “an information source, a wireless network, and a proxy content server.” *Id.* at 1:18–24, 47–49.

The ’351 patent conveys that “[t]he proxy content server is coupled to [an] information source and the wireless network and receives information from the information source.” *Id.* at code (57). The Specification describes storing information received from an information source in a “proxy content server” that sorts the information into a “plurality of channels based on pre-defined information categories.” *Id.* at 1:50–57. The proxy content server may receive and aggregate different types of information from different information sources, such as content servers 10a, advertising servers 10b, and other advertising sources 10c. *Id.* at 3:6–10, 2:31–33, Fig. 1. These concepts are shown below in Figure 1:

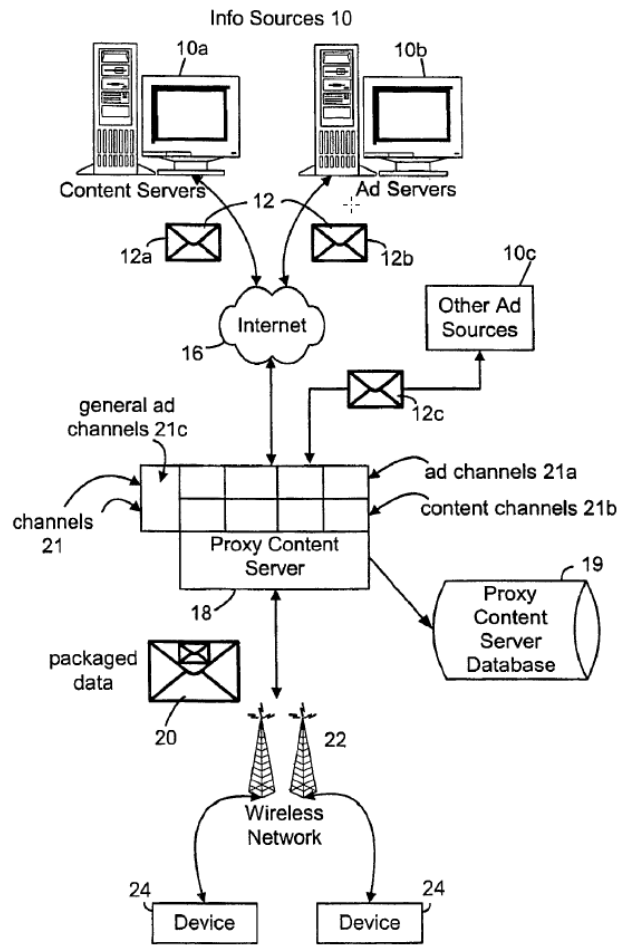


FIG. 1

Figure 1 of the '351 patent depicts a block diagram of an embodiment of the system for pushing information to a mobile device. *Id.* at 1:61–62.

The “proxy content server” functions as a gateway between computer network 16 and wireless network 22. *Id.* at 2:57–59. The “proxy content server” receives information from one or more “information sources” and pushes that information to one or more mobile devices. *Id.* at 2:59–63. In addition, “Proxy Content Server 18 stores received information 12 to a particular channel 21 based on user[-]specific information categories.” *Id.* at 4:28–30. As described in the Specification, “Proxy Content Server 18 also provides a method of combining the information so that the mobile device

user has a consistent and transparent experience of receiving both information content and advertising content.” *Id.* at 2:63–66.

The Specification notes that information may be transmitted from a selected channel over a wireless network and to the mobile device, resulting in targeted advertising. *Id.* at 1:56–58. These concepts are illustrated in Figure 8 below:

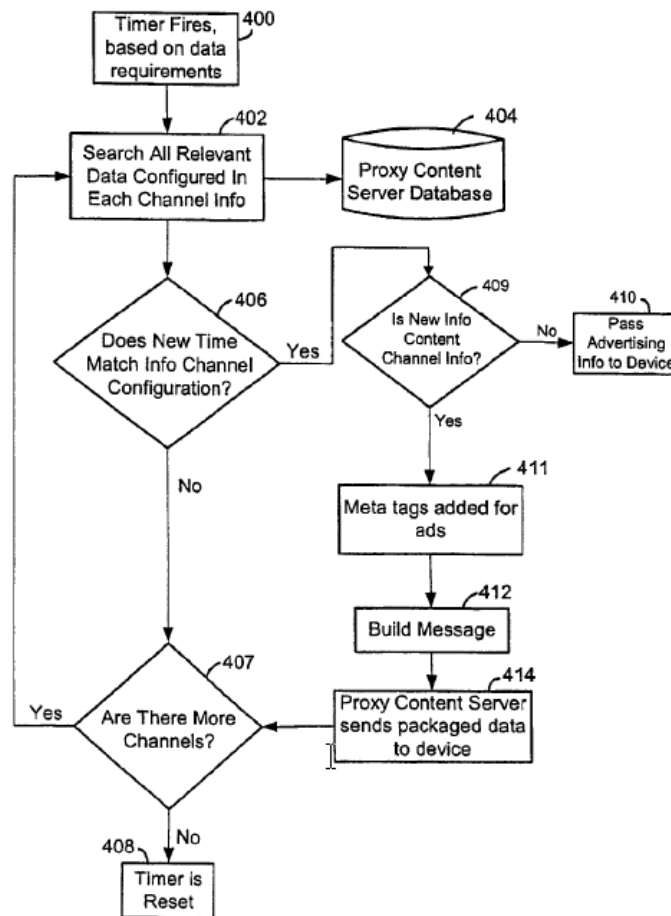


FIG. 8

Figure 8 of the '351 patent represents a flow diagram illustrating an exemplary method of pushing information to a mobile device based on a triggering event.

As depicted in Figure 8, information is pushed to the mobile device based on a “triggering event.” One example of a triggering event is a timer firing (block 400 above), controlled by the Proxy Content Server. *Id.* at 13:24–27. Examples of significant time intervals that might trigger a timer are lunchtime, supertime, and other significant times of the day. *Id.* at 13:26–30. If a triggering event is detected, Proxy Content Server 18 determines if any of the information categories assigned to a particular channel 21 are relevant to the triggering event. *Id.* at 13:36–39. If the Proxy Content Server determines that the triggering event is relevant to information in a channel, the Proxy Content Server then determines the type of information. *Id.* at 13:36–47. If it is advertising information, it is passed on to the mobile device; if it is content meta tags for advertising, then meta tags are added. *Id.* at 13:47–51. The ’351 patent provides one example of meta tags as “embedded control sequences that the Proxy Content Server 18 has inserted to indicate when advertising should be inserted.” *Id.* at 8:27–29.

The Specification further describes transmission of different types of “advertising and information,” including “static” and “dynamic” advertising information, that combine to form an advertisement. Ex. 1001, 6:41–59. “[S]tatic advertising content . . . may include static information relating to the identity of an advertiser, such as a logo, a company banner, a location sensitive address, or other information that does not often change.” *Id.* at 7:35–39. The Specification describes “dynamic advertising content” as information that “*may change or vary at any given time.*” *Id.* at 7:39–44 (emphasis added). “For example, the dynamic advertising content 52B may include regularly changing advertising information, such as a special offering, a discount, a discount coupon, a sale, or other time-sensitive

information.” *Id.* The proxy content server may also combine advertising information from different advertising channels and/or different types of advertising information “in order to generate a complete advertisement or information bulletin.” *Id.* at 8:49–59. For example, the proxy content server may combine static advertising information with dynamic advertising information or default advertising information for display as a complete advertisement. *Id.* at 11:2–10.

B. Illustrative Claim

Claim 1, reproduced below, is illustrative of the claims at issue:

1. A system for pushing information to a mobile device, comprising:

a proxy content server that receives information over a computer network from an information source and stores the information to one of a plurality of channels based on pre-defined information categories, wherein the plurality of channels comprise memory locations included in at least one of the proxy content server or a proxy content server database;

the proxy content server to receive a feedback signal over a wireless network that indicates a position of the mobile device, and to use the feedback signal to select a channel for transmission of the information from the selected channel over the wireless network to the mobile device, wherein the information comprises at least one of static advertising information, dynamic advertising information, default advertising information, or content information, and wherein a combination of the static advertising information with one of the dynamic or default advertising information comprises an advertisement or an information bulletin.

Ex. 1001, 14:7–28. Independent claim 14 (also challenged) is similar in scope to claim 1. *Id.* at 15:9–27.

C. Related Proceedings

According to Patent Owner, the following matters are related proceedings involving the '351 patent or related patents. Paper 4.

- i. BlackBerry Ltd. v. Snap, Inc., No. 2:18-cv-02693 (C.D. Cal.)
- ii. BlackBerry Ltd. v. Facebook, Inc. et al., No. 2:18-cv-01844 (C.D. Cal.), and related appeal, Blackberry Ltd. v. Facebook, Inc., No. 20-1256 (Fed. Cir.). Ex. 1039.
- iii. BlackBerry Ltd. v. Twitter, Inc., No. 2:19-cv-1444 (C.D. Cal)
- iv. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00516
- v. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00528
- vi. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00706
- vii. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00787
- viii. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00899
- ix. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00923
- x. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00924
- xi. Facebook, Inc. et al., v. Blackberry Limited, IPR2019-00925
- xii. Facebook, Inc. et al., v. Blackberry Limited, IPR2019-00941
- xiii. Facebook, Inc. et al. v. BlackBerry Limited, IPR2019-00942
- xiv. Snap, Inc. v. BlackBerry Limited, IPR2019-00830.

D. Evidence Relied Upon

Petitioner relies on the following references:

Noble, WO 01/61559 A1, published Aug. 23, 2001 (Ex. 1003, “Noble”);

Hassett, US 6,807,558 B1, issued Oct. 19, 2004, (Ex. 1004, “Hassett”);

Excerpts from Anthony T. Mann, *Microsoft SQL Server 7 for Dummies* (1998) (Ex. 1005, “Mann”);

Johnson, US 6,456,234 B1, issued Sept. 24, 2002 (Ex. 1006, “Johnson”); and,

De Boor, WO 99/59283, filed May 7, 1999, published Nov. 18, 1999 (Ex. 1007, “De Boor”).

Petitioner also relies on Declarations of Sandeep Chatterjee, Ph.D., filed as Exhibits 1002 and 1038. Patent Owner relies on a Declaration of Matthew B. Shoemake, Ph.D., filed as Exhibit 2008.

E. Grounds Asserted

Petitioner challenges claims 1, 2, 9, 14, 15, 21 of the '351 patent on the following grounds (Pet. 3–4):

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 9, ¹ 14, 15, 21	§ 103(a) ²	Noble, Hassett
1, 2, 9, 14, 15, 21	§ 103(a)	Noble, Mann, Johnson
1, 2, 9, 14, 15, 21	§ 103(a)	Noble, Hassett, De Boor
1, 2, 9, 14, 15, 21	§ 103(a)	Noble, Mann, Johnson, De Boor

II. ANALYSIS

A petition must show how the challenged claims are unpatentable under the statutory grounds it identifies. 37 C.F.R. § 42.104(b)(4). Petitioner has “the burden of proving a proposition of unpatentability by a preponderance of the evidence.” 35 U.S.C. 316(e) (2018).

Once a trial is instituted, we will “issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner.” 35 U.S.C. § 318(a). Because Patent Owner disclaimed claims 9 and 15 of the '351 patent (Ex. 2006), however, we will not address these claims in this

¹ Claims 9 and 15 are disclaimed. Ex. 2006.

² The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (Sept. 16, 2011), took effect on March 16, 2013. Because the application from which the '351 patent issued was filed before that date, our citations to Title 35 are to its pre-AIA version.

Final Decision because they are treated as though they never existed. *See Sanofi-Aventis U.S., LLC v. Dr. Reddy's Labs., Inc.*, 933 F.3d 1367, 1373 (Fed. Cir. 2019) (“When Sanofi disclaimed the disclaimed claims, it effectively eliminated those claims from the patent leaving the . . . patent as though the disclaimed claim(s) had never existed.”) (internal quotation marks, citations, and punctuation omitted for clarity).

A. Claim Construction

In an *inter partes* review, we construe claim terms in an unexpired patent “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent,” as the claims would be construed “in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2019). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Of course, “[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning.” *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1358 (Fed. Cir. 2017). “Properly viewed, the ‘ordinary meaning’ of a claim term is its meaning to the ordinary artisan after reading the entire patent.” *Id.* (quoting *Phillips*, 415 F.3d at 1321).

Only terms which are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner addresses two claim terms “channel” and “proxy content server.” Pet. 7–8. Petitioner also proposes adopting two proposed constructions agreed upon by the parties in the district court proceeding. *Id.* at 46 (“dynamic advertising information” and “static advertising information”).

Patent Owner focuses on two terms in its Response: “proxy content server” and “content information.”

After considering the parties’ contentions and agreed constructions, we determine it necessary to construe the following two claim terms for purposes of this Final Decision.

1. “proxy content server”

Patent Owner argues that “proxy content server” should be construed as “a server that aggregates at least content information from an information source for distribution to a device.” PO Resp. 22. If we were to adopt Patent Owner’s proposed construction, Patent Owner contends that the prior art Noble reference would be distinguished. According to Patent Owner, the server in Noble only aggregates advertising information, and thus, does not aggregate “content information” and therefore does not qualify as a “proxy content server.” *See* PO Resp. 29; Sur-reply 8 (“if BlackBerry’s construction is adopted, there is no dispute all of Petitioners’ grounds fail”). Thus, determining the proper meaning of “proxy content server” is necessary to resolve the parties’ dispute in this proceeding, because Noble is a reference required by each ground.

At the institution phase of this proceeding, we declined to construe “proxy content server” because Petitioner conveyed that it did “not matter if the Board adopts the proposed construction offered by Petitioner, Patent

Owner, or resorts to the plain language as suggested by the district court,” whereas “the prior art discloses the claimed proxy content server under any of those views.” Pet. 8–9. Likewise, Patent Owner agreed at institution that the claim term need not be construed. Dec. 11.

In the underlying district court litigation, Petitioner proposed that this term be construed as a “server that receives information over a computer network and provides it to another device,” whereas Patent Owner proposed the term means a “server that aggregates information from an information source for distribution to a device.” Ex. 1024, 12. The district court determined that this phrase does not require construction because the claims “provide extensive information about the claimed proxy content server and how it functions and/or interacts with other components of the claimed system.” *Id.* at 14. Below, we examine the parties’ contentions for this term and then provide our determination.

Patent Owner contends that, because “the claimed ‘proxy content server’ is a ‘server’ that acts as a ‘proxy’ for ‘content,’” the term “‘proxy content server’ [should] be construed as ‘a server that aggregates at least content information from an information source for distribution to a device.’” PO Resp. 22 (citing Ex. 2008 ¶¶ 38, 39). Patent Owner contends its interpretation is based on the plain meaning of proxy content server, whereas the plain meaning of “proxy” is a server that “aggregates” information and then “distribut[es]” that information to other devices. *Id.* Patent Owner further reasons that “because the claims recite a ‘proxy *content* server,’ the information being aggregated and distributed must include ‘content information.’” *Id.* Patent Owner thus concludes that “the plain meaning of ‘proxy content server’ is ‘a server that aggregates at least

content information from an information source for distribution to a device.” *Id.* (citing Ex. 2008 ¶ 39) (emphasis added).

Patent Owner points to the Specification and argues

that the proxy content server “aggregates existing information 12, such as Internet or Intranet content, from one or more Information Sources 10, and pushes the information 12 to a mobile device 24.” Ex. 1001 (’351 Patent) at 2:59-63. The specification also consistently discloses that the “proxy content server” aggregates and distributes at least “content information.” *See, e.g.*, Ex. 1001 (’351 Patent) at 2:63-66 (“The Proxy Content Server 18 also provides a method of combining the information so that the mobile device user has a consistent and transparent experience of receiving both information **content** and advertising content. ”); Ex. 1001 (’351 Patent) at 4:16-18 (“the Proxy Content Server 18 has advertising channels 21a, **content channels 21b** and general advertising channels 210.”); *see also* Ex. 2008 (Shoemake Decl.) ¶ 40.

PO Resp. 23. Patent Owner also notes that the “proxy content server” is introduced in the “Summary” section as a server that “receives information from the content server.” Sur-reply 2 (citing Ex. 1001, 1:50–52).

Patent Owner contends that the “proxy content server” must aggregate content in every embodiment. Sur-reply 3. For one reason, “[e]very word in the claims, including each of the constituent words of the claimed ‘proxy content server,’ must be given effect,” and for another reason Petitioner’s proposed construction would “require construing the two instances of the word ‘content’ differently within the same claim.” *Id.* Further, Patent Owner contends that “[t]he word ‘content,’ when applied as a modifier to ‘information,’ distinguishes ‘content information’ from ‘advertising information.’” *Id.* at 3–4.

Patent Owner contends that challenged claims' recitation of specific steps performed by the "proxy content server" does not nullify the requirement that those steps must be performed by a "proxy **content** server." *Id.* at 4. In addressing the claim limitations requirement that the "proxy content server" select "advertising information" or "content information" responsive to a mobile device's "position" (claim 1) or "a triggering event" (claim 14), Patent Owner contends these limitations "can be met by a 'proxy content server' **targeting** only 'advertising information.' But this server must separately qualify as a 'proxy **content** server,' and must, therefore, also aggregate and distribute '**content** information.'" *Id.* at 5.

At oral argument, Petitioner noted that "[t]he only part of [Patent Owner's] construction that's at all controversial is this requirement that the server must aggregate at least content information," and the reason this is important is "that content information is something other than advertisement information," as agreed to by the parties. Tr. 10:25–11:4. Thus, the core of the issue before us is whether the "proxy content server" must always be capable of receiving content information (which by agreement is information, other than advertising information and meta tags). *Id.* at 11:19–26; Reply 1–2. For the reasons set forth below, we find Petitioner's contentions more persuasive and determine based on the final record that there is no requirement that a "proxy content server" aggregate "at least content information."

We are persuaded by Petitioner's arguments because they are based on the intrinsic record, starting with the claim language. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc) ("the claims themselves provide substantial guidance as to the meaning of particular

claim terms”). Petitioner argues “[t]he surrounding claim language makes crystal clear that the term ‘**proxy content server**’ does not require a server that aggregates ‘at least content information’ from an information source.” Reply 2.

Petitioner first notes that “claim 1 recites a ‘proxy content server’ that receives ‘**information**’ from an information source, and that that ‘information’ does not need to include ‘content information.’” *Id.* at 3. Petitioner then provides the highlighted reproduction of portions of claim 1 as depicted below:

[a] a proxy content server that receives **information** over a computer network from an information source...;

[b] the proxy content server... to select a channel for transmission of **the information** from the selected channel over the wireless network to the mobile device, wherein **the information comprises at least one of static advertising information, dynamic advertising information, default advertising information, or content information**

Id. (noting claim 14 has similar requirements). Petitioner reasons that the first limitation requires “that the ‘proxy content server receives information ... from an information source,’ and nothing in that claim limitation requires the received ‘information’ to include ‘content information.’” *Id.* Then, the second limitation [b] “makes this even clearer by referring to ‘**the information**’ selected for transmission to the mobile device, which both parties’ experts agree refers back to the same ‘information’ received by the proxy content server in limitation [a].” *Id.* (citing Ex. 1038, ¶8; Ex. 1039, 15:11–16:4).

Petitioner argues persuasively that the alternative nature of the claim language refutes Patent Owner’s position.

Critically, limitation [b] states that “**the** information comprises **at least one of** static advertising information, dynamic advertising information, default advertising information, **or** content information.” The “information” received by the proxy content server in limitation [a], therefore, need not include content information – it could contain only “static advertising information,” for example. Both sides’ experts also agree on this. (Ex. 1038, ¶8; Ex. 1039, 17:8-18:14.) The claim language on its face thus refutes Patent Owner’s assertion that the claimed “proxy content server” must “aggregate[] at least content information from an information source for distribution to a device.”

Reply 4. Despite Patent Owner’s arguments to the contrary (Sur-reply 4–5), we read this claim language cited above as strong support in defining what a “proxy content server” is and how it functions. The claims require that the “proxy content server” receive any one of the following: (i) static advertising information, (ii) dynamic advertising information, (iii) default advertising information, or (iii) content information. The alternative nature of this claim language also provides strong support for our determination that the “proxy content server” need not receive “content information” at all.

The language of dependent claims 5 and 17 supports Petitioner’s contentions. Petitioner notes that these claims require that “the information corresponds to a particular advertiser,” again referring back to the same “information” in the independent claims received by the proxy content server. Reply 5. Thus, according to Petitioner, “[c]laims 5 and 17 contemplate a scenario in which ‘the information’ received by proxy content server only comprises advertising information and contains no content information.” *Id.* Petitioner argues that this is so “because nothing in the patent suggests that ‘content information’ can ‘correspond[] to a particular advertiser.’” *Id.* (citing Ex. 1001, 6:56–57). If the proxy content server

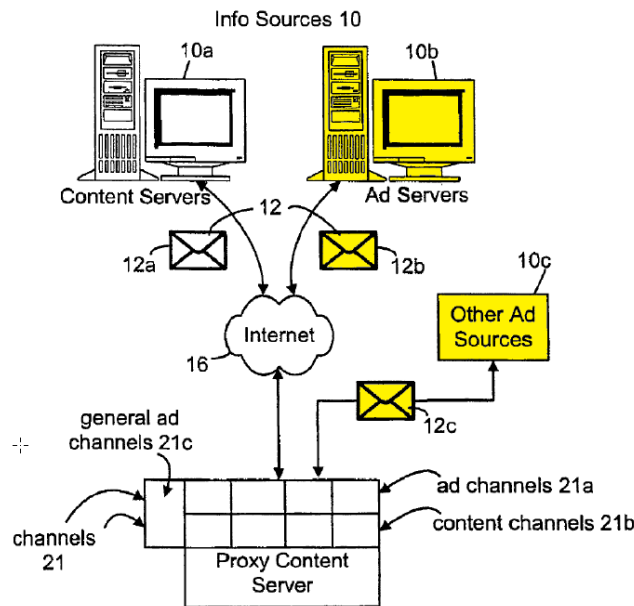
always had to receive “content information,” Petitioner concludes that “[c]laims 5 and 17 would be rendered a nullity . . . because the ’351 patent does not suggest that ‘content information’ could ever ‘correspond[] to a particular advertiser,’ as claimed.” *Id.*

We agree with Petitioner’s position, which is supported by the Specification. Petitioner first notes that there is a distinction between a “proxy content server,” as claimed, and a “proxy content information server.” *Id.* at 4–5. Petitioner contends that the Specification does not use the word “content” as a synonym for “content information,” but rather, a broader term encompassing all types of information that the proxy content server can receive and store. *Id.* at 5. Petitioner relies on several examples from the Specification, including the consistent use of the word “content” to describe both advertising content and information content. *Id.* at 6–7.

Referring to Figure 1, Petitioner quotes an example showing

that “[t]he Proxy Content Server **18** aggregates existing information **12**, such as Internet or Intranet content, from one or more information sources **10**, and pushes the information **12** to a mobile device.” (’351, 2:59-63 (underlining added).) But “information sources **10**” and “information **12**” include advertising information.

As depicted below, Petitioner demonstrates that information sources 10 include advertising servers 10b as well as other advertising sources 10c. *Id.* at 7 (citing Ex. 1001, 2:31–34).



Petitioner's annotated Figure 1 with partial highlighting of elements 10b, 10c, 12b, and 12c. Reply 6–7.

Further, the Specification refers to information 12b and 12c that comes from these two sources as “advertising content.” Reply 7 (citing Ex. 1001, Ex. 1001, 3:45–46 (“For advertising content 12b, 12c”) (emphasis omitted). Petitioner reasons, and we agree, that “[a]lthough the proxy content server is capable of receiving and storing both information content and advertising content, there is no requirement that it receive and store either category of content.” *Id.* For instance, Petitioner cites to numerous other examples in the Specification where “the word ‘content’ is used broadly in a way that includes advertising content – in fact, the term ‘advertising content’ appears more than 30 times in the written description.” *Id.* at 7–8 (emphasis omitted) (citing Ex. 1001, 2:63–66, 3:17–19, 6:54–57, 7:30–34). Thus, we find persuasive Petitioner’s argument that “there is no basis for Patent Owner’s suggestion that the word ‘content’ within ‘proxy content server’ is

a shorthand or synonym for ‘content information,’ which excludes advertising information.” *Id.* at 8.

As for Patent Owner’s argument that the Summary section defines the claimed “proxy content server” as receiving “at least content information,” Petitioner has contrastingly shown how the Specification provides examples and support for receiving advertising information without regard to content information. *See* Sur-reply 6–7 (citing *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004) (Statements in the summary section “are more likely to support a limiting definition of a claim term.”)); *see also* Reply 5–8; Tr. 61:19–63:13 (citing Ex. 1001, Fig. 5, 10:18–20). Petitioner further explains how the Figure 6 embodiment shows a specific example where the proxy content server receives information, and the information may be content information or advertising information. Tr. 62:4–26 (quoting Ex. 1001, 11:19–24 (“Information is received by the Proxy Content Server 18 from a[n] Information Source 10 in step 200 or 204. The information may be content information 12A *or* advertisement information 12B.”) (emphasis added). These excerpts from the Specification strongly support Petitioner’s position that proxy content server does not need to receive “at least content information” in all embodiments.

Petitioner also relies persuasively on U.S. Patent No. 8,676,929 B2 (“the ’929 patent”) involved in related IPR2019–00940. As stated on the face of the ’929 patent, it is a continuation of the ’351 patent, and both patents share essentially the same Specification. IPR2019-00940, Ex. 1001, code (63). Claim 10 of the ’929 patent recites: “when the information relevant to the detected triggering event comprises advertisement, *transmitting the advertisement to the mobile device instead of the content*

information that includes the meta tag.” *Id.* at 15:11–15 (emphasis added). This embodiment is supported by at least Figure 6, and the corresponding explanation in the Specification that “the Proxy Content Server 18 reviews the information to see if meta tags should be added for embedded advertising (step 212). This insertion of meta tags is performed *if the content is information content* (step 212).” Ex. 1001, 11:66–12:2. Thus, as these examples demonstrate, certain embodiments contemplate that the “information” will not include content information and content information will not be received by the proxy server. *See* Tr. 63:3–13 (Counsel for Petitioner explaining: “‘This insertion of meta tags is performed if the content is information content.’ . . . [I]f it’s not information content, it skips the meta tag stuff because you don’t have this combination of advertisements meta tag. You don’t need this meta tag insertion.”).

Finally, the parties’ positions during the related district court case, and the district court’s decision to not construe the claim term, both support Petitioner’s contentions. During the district court litigation, Patent Owner never argued that the proxy content server had to aggregate “at least content information” from an information source. *See* Reply 9 (citing Ex. 1029, 11³). Instead, Patent Owner’s position was that the term simply required a “server that aggregates information from an information source for distribution to a device,” with no requirement that the server aggregate any particular category of information. *Id.* As opposed to adopting an express construction, the district court determined that both independent claims “provide extensive information about the claimed proxy content server and

³ We adopt the court’s page numbering – page 11 of 43.

how it functions and/or interacts with other components of the claimed system.” Ex. 1029, 13. We agree with the district court’s determination. Further, Patent Owner’s prior position is evidence that the addition of “at least content information” is not supported in this proceeding. Because of the nature of the dispute before the district court, we give little weight to this evidence. *See* PO Resp. 25; Sur-reply 8 n.5.

Based on the final trial record before us, we determine that the term “proxy content server” does not require a server that aggregates “at least content information” from an information source. Because the surrounding claim language provides extensive information about what a content proxy server is, and how it is intended to function, we rely on this context and the plain and ordinary meaning of the term as it is used in the Specification.

2. “pre-defined information categories”

Because Patent Owner contests whether the combination of prior art references teaches this limitation, and the parties dispute its meaning, we determine it necessary to address the scope of this limitation. Claim 1 requires “a proxy content server that . . . stores the information to one of a plurality of channels based on pre-defined information categories.”

Ex. 1001, 14:10–13. Claim 14 recites a similar limitation. *Id.* at 15:11–14.

Petitioner contends that the claim language does not require using multiple pre-defined information categories for determining the channel for storing a particular piece of information. Pet. 62; Ex. 1002 ¶¶ 180–181; Ex. 1038 ¶ 36. Petitioner reasons that “[t]he claim language recites ‘stor[ing] the information to one of a plurality of channels based on pre-defined information categories,’ which does not require that multiple categories actually be used in storing information into a single channel.”

Reply 25 (emphasis omitted). According to Petitioner, “[a] more natural reading is that the claim language simply requires that the information be stored into a channel based on one of a number of categories.” *Id.*

Patent Owner contends that the claim language requires more than a single pre-defined category. PO Resp. 44–45. We agree with Patent Owner’s position and reject Petitioner’s proposal that a “more natural reading” only requires that the information be stored into a channel based on one of a number of categories. Petitioner has not cited to any persuasive evidence in the intrinsic record to support its position. Accordingly, we adopt the plain meaning of the term to require storing the information to one of a plurality of channels based on two or more pre-defined information categories.

We note, however, that the outcome of this Decision does not depend on this determination because Petitioner has shown persuasively how the combination of references discussed below teach this claim limitation under either interpretation.

B. Obviousness Based on Noble, Mann, and Johnson

Petitioner challenges the patentability of claims 1, 2, 14, and 21 of the ’351 patent (claims 9 and 15 having been disclaimed) under 35 U.S.C. § 103(a) as obvious based on Noble, Mann, and Johnson. Pet. 56–73. In support thereof, Petitioner identifies the disclosures in each reference alleged to describe the subject matter in the challenged claims and further relies on the testimony of Dr. Chatterjee (Exs. 1002, 1038).

Patent Owner contends that the combination of references fails to prove unpatentability. PO Resp. 25–40. In support thereof, Patent Owner relies on the testimony of Dr. Shoemake (Ex. 2008).

We have reviewed the parties' contentions and supporting evidence. Based on the final record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 14, and 21 of the '351 patent would have been obvious based on Noble, Mann, and Johnson. We begin our analysis with the principles of law that apply generally to a ground based on obviousness, followed by a brief summary of each reference, the parties' contentions, and then the reasons for our determination.

1. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in

the art;⁴ and (4) where in evidence, so-called secondary considerations.⁵
Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17–18 (1966).

An invention “composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co.*, 550 U.S. at 418. The relevant inquiry is whether Petitioner has set forth “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Further, “rejections on obviousness grounds cannot be sustained by mere conclusory statements.” *Id.*

2. Overview of *Noble*⁶ (Ex. 1003)

Noble discloses a cellular coupon system for pushing promotional information through a wireless communication network. Ex. 1003, code (57), 4:23–5:2.⁷ Noble explains that “promotional information can be sent

⁴ Based on the final record, including our review of the ’929 patent and cited prior art, we find persuasive Petitioner’s assessment of the level of ordinary skill in the art and apply it in this Final Decision. *See* Pet. 3–4 (A person of ordinary skill in the art “would have possessed at least a bachelor’s degree in software engineering, computer science, computer engineering, or electrical engineering with at least two years of experience in software application development,” as well as “experience in developing software and systems for storing, retrieving, and transmitting displayable information . . . over a computer network to another device.”). Patent Owner accepts Petitioner’s assessment. Ex. 2008 ¶ 28.

⁵ Neither party has offered evidence of secondary considerations in the final record.

⁶ Petitioner has shown that Noble is entitled to a § 102(e) priority date of February 2, 2000, and Patent Owner has not contested or rebutted this showing. Pet. 11 n.4.

⁷ Citations are to the original page numbering.

to the wireless device even without a specific request from the device user,” wherein a “distribution server preferably selects particular promotional information based, in part, on the type of triggering event and the subscriber profile.” *Id.* at code (57).

Petitioner’s annotated Figure 2 provides a diagrammatic overview of the system:

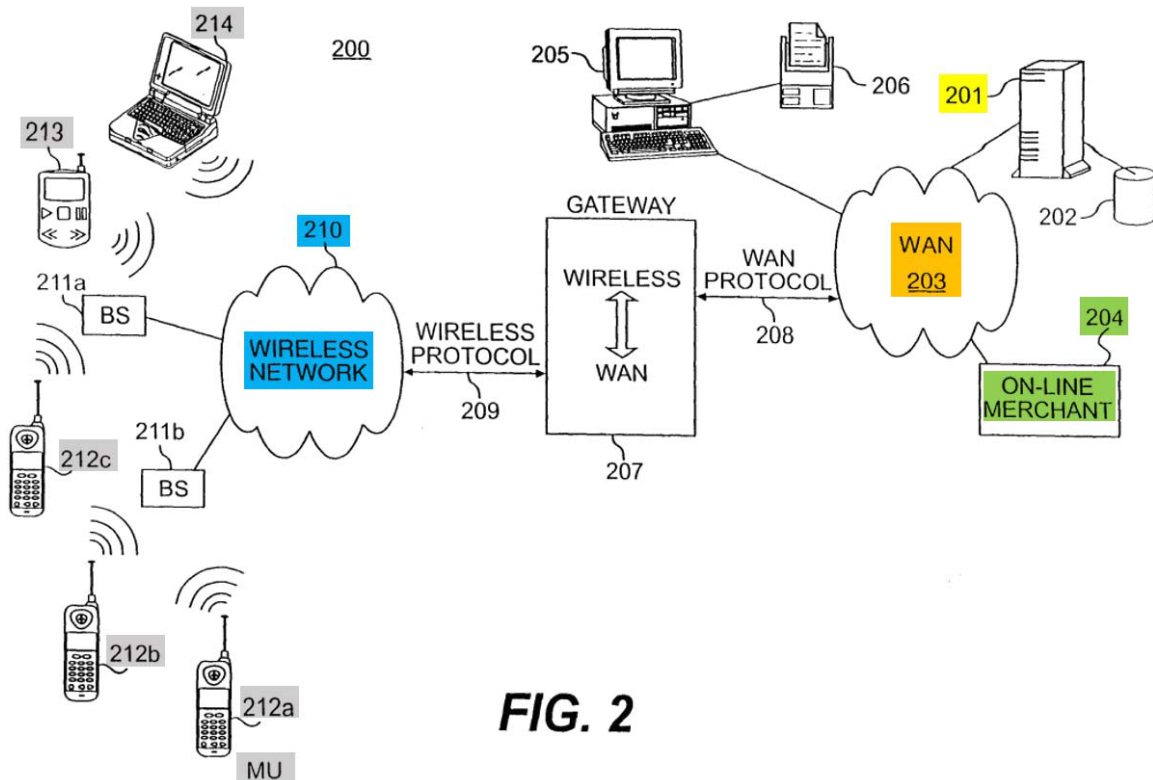


FIG. 2

Petitioner’s annotated Figure 2 of Noble (Pet. 11) depicts a block diagram showing portions of an embodiment of the promotional information delivery/redemption system with added highlighting. Ex. 1003, 8:12–14.

Figure 2 of Noble depicts a “promotional information delivery/redemption system 200” that comprises a server 201 (yellow) connected via a wide area network (WAN) 203 (orange) to on-line merchant 204 computer system (green). Pet. 12 (quoting Ex. 1003, 8:12–20, 2:18). A wireless communication network 210 (blue) links mobile devices (“MU”), such as

cellular phones 212a-212c, personal digital assistant (PDA) 213 and a portable computer 214 to server 201. Ex. 1003, 8:21–9:5, 9:7–12, 9:19–23. Noble’s server 201 “receives promotional material—such as ‘discount coupons, gift certificates, and advertisement material’—from an online merchant computer system via the computer network.” Pet. 12 (citing Ex. 1003, 8:12–20, 2:18, 10:16–19, 12:10–14, 27:10–12).

Noble’s server automatically transmits (i.e., “pushes”) promotional information to mobile units based on user-specified “triggering events” or “event based triggers.” Ex. 1003, 4:22–5:2, 15:17–20, 19:12–19 (“the server periodically receives the location update from the mobile unit in step 701, and tracks the location of the mobile unit until it is determined, in step 702, that a triggering event has occurred”), 18:1–7 (“The server 507a monitors for an occurrence of any of the triggering events 503a, and upon such occurrence 503a, initiates a ‘push’ of promotional information selected based on the user profile 508a.”). Noble explains that “a ‘push’ of promotional information means the transmittal of promotional information without a specific request for such promotional information.” *Id.* at 18:6–7. Noble identifies one type of trigger as a “location/favorite event trigger,” which “may occur when the user comes within a vicinity of merchants” resulting in the server transmitting associated promotional information to the device. *Id.* at 24:3–6, 17:1–5, 16:13–16.

3. Overview of Mann (Ex. 1005)

Mann, entitled *Microsoft SQL Server 7 for Dummies*, describes features and operation of version 7 Microsoft’s SQL Server relational

database management system. Ex. 1005, 1–5⁸. Mann explains that Microsoft SQL Server 7 stores each database in a separate file. *Id.* at 73–74, 78, 82. Mann provides an example of a database named “CUSTOMERORDERS” that may be stored in a file named “E:\MSSQL7\DATA\CUSTOMERORDERS.MDF.” *Id.* at 82. Mann further explains that the data (i.e., information) for a database is stored in the database file. *Id.*

Mann further discloses that a database file is a memory location. Mann explains that “[a] file name is sometimes referred to as a physical name. A *physical name* is the physical location given to an object.” *Id.*; *see also id.* at 318 (defining “Physical Name” as “[a] physical location assigned to an object”). Mann explains that a database file is stored in a computer readable storage medium—i.e., “memory,” for example, that Microsoft SQL Server 7 uses a computer’s “C:\ drive” for storage by default. *Id.* at 31. Mann also discloses that “[a]fter you create a database . . . you can create one or more tables to stuff your data into A table is created inside a database, so the database must exist first.” *Id.* at 125.

4. Overview of Johnson (Ex. 1006)

Johnson, entitled “System and Method for Proactive Content Delivery by Situation Location,” “relates generally to location dependent delivery of information to mobile data processing systems.” Ex. 1006, 1:19–21. Johnson discloses a server that uses a database for storing promotional information, but further discloses its content, structure and organization, and explains that it is a relational database. *Id.* at code (57), 13:16–24. Johnson explains that a deliverable content database record includes fields with

⁸ We use the page number of the publication, not the page numbering added by Petitioner.

unique identifiers to the record in the database and fields may be system generated upon inserting the record (i.e., database row) into the deliverable content database (i.e., database table). *Id.* at 13:16–24.

5. Analysis – Disputed Limitations of Claims 1 and 14

We first examine the parties’ contentions and supporting evidence as to limitations that Patent Owner has contested. Then, we examine Petitioner’s contentions and evidence as to limitations and issues that were generally uncontested by Patent Owner in the final trial record.

Patent Owner disputes whether the combination of Noble, Mann, and Johnson teaches two limitations found in both independent claims 1 and 14:

- (i) Proxy Content Server
- (ii) Storing Information Based on Pre-defined Information Categories

PO Resp. 29–32, 42–45. *See* Ex. 1001, 14:8–28 (claim 1), 15:9–27 (claim 14).

Below, we provide the parties’ contentions and evidence with respect to each term and then provide our analysis for each.

i. Petitioner’s Challenge

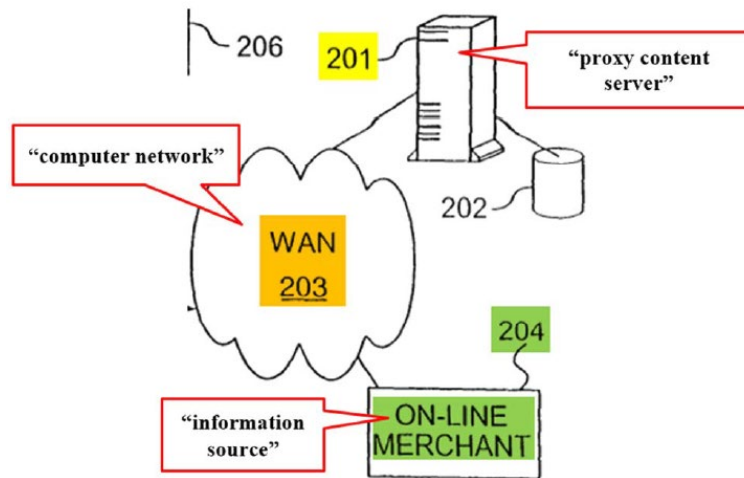
Petitioner states that “[a]ll four grounds presented in this Petition rely primarily on Noble . . . which describes a push-based system for delivering promotional information to a wireless mobile device.” Pet. 9. Further, “Noble discloses a server that can collect promotional information from merchants and deliver it to mobile devices based on their current location or time-triggered events.” *Id.* Petitioner recognizes that Noble does not fully address “the storage of information ‘to one of a plurality of channels based on pre-defined information categories,’ as recited in claims 1 and 14.” *Id.*

For this limitation, Petitioner relies on Mann and Johnson, “which describe well-known database technologies and their use for storing promotional information, respectively.” Pet. 9–10. Petitioner alleges “that the category-based storage recited in the challenged claims amounts to nothing more than an obvious application of pervasive and off-the-shelf relational database techniques.” Pet. 10.

Petitioner also notes that “[t]he limitations of claims 1 and 14 are nearly identical,” but “claim 14 . . . recites that the proxy content server selects a channel ‘in response to a triggering event.’” Pet. 53. Petitioner explains that this “difference is immaterial” because “Noble discloses at least two types of ‘triggering events,’ and for both, Noble’s server selects information in response to the triggering event.” Pet. 53–54.

Proxy Content Server

Petitioner contends the “proxy content server” takes the form of the server in Noble’s “promotional information delivery/redemption system.” Pet. 59, 23. Petitioner identifies Noble’s servers as, for example, server 201 (Fig. 2) and server 301 (Fig. 3). Pet. 23 (citing Ex. Ex. 1002 ¶ 81; Ex. 1003, 5:14–18, 10:10–12). Petitioner argues the server in Noble qualifies as a “proxy content server.” Pet. 59. Relying on Figure 2 of Noble, Petitioner shows how the claimed “proxy content server,” “computer network,” and “information source” correspond to structures in Noble:



Petitioner's annotated Figure 2 of Noble with highlighting and annotations labeling 201 as a proxy content server, 203 as a computer network, and 204 as an information source. Pet. 24.

As explained by Petitioner, Noble's server receives promotional information over a computer network 203 from various merchants, such as on-line merchant 204. Pet. 24 (citing Ex. 1003, 10:16–19 (“Merchants who wish to place promotional information for their goods and services preferably access the server 301.”), 24:23–25:1, 8:12–20, 11:14–17, 12:10–14; Ex. 1002 ¶ 83). A merchant, such as online merchant 204, corresponds to an “information source.” *Id.* Petitioner contends that the server in Noble stores the received promotional information into database storage 307 shown in Figure 3 of Noble. Pet. 25 (citing Ex. 1003, 11:14–17, Fig. 3 (depicting database storage 307 storing “promotional information”)). Petitioner further explains how the server can later distribute promotional information to a mobile device of a user. *Id.* (citing Ex. 1003, 7:14–19; Ex. 1002 ¶¶ 84, 129).

Storing Information Based on Pre-defined Information Categories

Petitioner contends that “it would have been obvious based on Noble that the promotional information in Noble would have been stored ‘to one of a plurality of channels [*i.e.*, memory locations] based on pre-defined

information categories.” Pet. 59 (citing Ex. 1003 ¶¶ 90–97). Petitioner admits, however that “Noble does not disclose the underlying details of its storage methodology.” *Id.* Thus, Petitioner relies on the teachings of Mann and Johnson. Pet. 60. Petitioner argues that

Mann describes storing information to locations in a relational database table based on the table’s columns and the information’s association with those columns. And Johnson confirms that it would have been obvious to store promotional information in this manner. Accordingly, the combination of Noble with Mann and Johnson discloses and renders obvious storing the promotional information of Noble to one of a plurality of channels based on pre-defined information categories.

Pet. 60 (emphasis omitted).

Petitioner relies on Mann’s teachings related to Microsoft SQL Server 7, which stores information in one or more tables and the table is created inside a database such that the database is, in turn, stored in a file. *Id.* (citing Ex. 1005, 125, 73, 74, 78, 82. As Dr. Chatterjee explains, a database file is stored in a physical location in a computer readable storage medium—i.e., “memory.” Ex. 1002 ¶ 177 (citing Ex. 1005, 82). Dr. Chatterjee testifies that Mann’s relational database system teaches that data is stored in a database table in entries called “records” or “rows” and Mann also teaches tables comprising columns. *Id.* ¶ 178 (citing Ex. 1005, 49 (table)).

Dr. Chatterjee reasons that Mann’s tables may be stored in memory, and each column value for a record is stored in a memory location such as the Order ID column value of “100” for the first record in Mann’s table below. *Id.*

Figure 4-3:
Customer ID
and Order
ID are the
primary key,
not just
Customer ID.

Customer ID	Order ID	Last Name	First Name
1001	100	Jones	Fred
1002	100	Smith	Linda
1003	100	Smith	Fred
1001	101	Jones	Fred
1002	101	Smith	Linda
1003	101	Smith	Fred

Record: 1 of 6

Figure 4-3 of Mann showing a table with “Customer ID,” “Order ID,” “Last Name,” and “First Name” column headings. Ex. 1002 ¶ 79; Ex. 1005, 49.

Addressing the claim requirement to be “based on,” Dr. Chatterjee explains that the memory location for storing a column value in Mann’s table for a record is based on the column and the column’s position in the table layout. Ex. 1002 ¶ 179 (“the memory location storing that value will also be based on that association”). Dr. Chatterjee discusses another example showing that associating a value with a specific column means that the memory location for storing the value will be based on that column within the table’s layout and the column corresponds to a pre-defined information category. *Id.*

Petitioner sets forth two ways that the combination of Noble, Mann, and Johnson teach the claim requirement of “stores the information to one of a plurality of channels based on pre-defined information categories” based on how the word “categories” is interpreted. Pet. 62. Petitioner contends the claim could be more broadly interpreted to simply require that information be stored to a channel based on any of the predefined information categories. *Id.* (citing Ex. 1001, 4:28–30, 4:43–46). As set forth above, we did not agree with this interpretation. If we were to adopt Petitioner’s preferred interpretation, however, Mann clearly teaches storing

information “based on any of the predefined information categories.”

Instead, we read the claim language to require that the information stored to one channel be based on multiple pre-defined information categories. Under this view, Petitioner’s second position is persuasive. Petitioner contends that Mann still teaches this requirement by disclosing a clustered index for a database. Pet. 62. Petitioner contends that “[w]ith a clustered index, the records/rows in a database table are physically sorted in memory based on the columns associated with the index.” *Id.* (citing Ex. 1002 ¶¶ 181–183). Relying on the testimony of Dr. Chatterjee, Petitioner reasons that in such a “combination, multiple columns (“pre-defined information categories”) would be used to determine the memory location for a particular piece of information in the table.” *Id.* (citing Ex. 1002 ¶ 184).

Dr. Chatterjee further explains that there are two types of indexes in Mann, clustered and non-clustered, and with a clustered index, the records in a table are sorted in order physically on the disk based on values for a specified column or columns that the form the basis for the index. Ex. 1002 ¶ 184 (citing Ex. 1005, 52, 128, 312). Dr. Chatterjee testifies that when data is added to the table, the records are physically reordered. *Id.* After providing several examples of this reordering, Dr. Chatterjee further testifies that:

Therefore, because, as explained above, a column corresponds to a pre-defined information category, a clustered index that physically ordered the records in a table by using a column would be another way that the memory location for storing a column value for a particular record would be based on a pre-defined information category. Thus, using a value for the “First Name” column as an example, the channel (memory

location) for storing that value would be based on both the “First Name” column and the “Last Name” column—and accordingly the information would be stored to a channel based on pre-defined information categories. In essence, the “Last Name” column would be used to determine the memory location relative to other records in the table, while the “First Name” column would be used to determine the memory location relative to other column values in the record.

Ex. 1002 ¶ 184 (emphasis omitted); *see also* Tr. 25:24–27:7.

In its Reply, Petitioner explains “in a ‘clustered index’ approach, the records/rows in a relational database table are physically sorted in memory and sorted based on one or more columns.” Reply 25 (emphasis omitted). Petitioner reiterates that “[t]he storage of an item of promotional information into a channel is thus based on **two** categories, *i.e.*, two columns in the table.” *Id.* Petitioner then reproduces an exemplary table created by Dr. Chatterjee (Ex. 1002 ¶ 197) as depicted below.

Geographical Location	Promotional Information
37.4,-122.2	10% off Joe’s Coffee
37.8,-122.4	Buy one get one free at Philz Coffee
47.6,-122.3	Starbucks has a 60% off sale just ahead

A two column table with “Geographical Location” and “Promotional Information” at the top of each column and three row data entries. Reply 26.

Petitioner further explains that “[i]n a clustered index approach sorted based on Geographic Location, these three ads would be physically stored on disk, one-after-the-other, in the order listed above.” Reply 26 (citing Ex. 1002 ¶¶ 183–184, 197). “Thus, the memory location for storage of the Promotional Information in the second row (‘Buy one get one free at Philz Coffee’) is not only based on the fact that it resides in the ‘Promotional Information’ column, but is also based on the Geographical Location

column.” *Id.* Relying on the testimony of Dr. Chatterjee, Petitioner explains that “[t]his is because the ‘Geographic Location’ column dictates where, relative to other rows in the table, the promotional information will be physically stored.” *Id.* (citing Ex. 1038 ¶¶ 37–38); *see also* Tr. 28:3–12 (“And our position is that you can’t really separate the values from the column, the column here is the category. And in the geographic location one, that’s the organizational principle by which the data is going to be stored. If you store it in a clustered index based on the geographical location column, that’s going to dictate the particular order of the items in that column.”). Petitioner demonstrates that under this clustered index approach, “multiple columns (‘pre-defined information categories’) would be used to determine the memory location for a particular piece of information in the table.” *Id.* at 26 (quoting Pet. 61 (citing Ex. 1002 ¶ 184)); *see also* Ex. 1038 ¶ 38 (“the memory location for the promotional information ‘would be based on both the Promotional Information column and the Geographical Location column—i.e., two **pre-defined information categories**’”). As explained more below, we find these contentions persuasive.

ii. Patent Owner’s Argument

Proxy Content Server

Patent Owner’s contentions for “proxy content server” rest on its claim interpretation, which we have rejected for the reasons set forth above. Patent Owner contends that Noble does not teach a “proxy content server” because “[t]he claimed ‘proxy content server’ must process ‘content’; otherwise, it would not be a ‘proxy *content* server.’” PO Resp. 29. Patent Owner then argues that Noble’s server does not interact with any “content information,” but instead, Noble’s server only interacts with “promotional

information.” *Id.* at 30. As Dr. Shoemake testifies, “[t]he server in Noble only receives, stores, and transmits ‘promotional information,’” and “Petitioners have not identified any discussion of ‘content information’ in Noble.” Ex. 2008 ¶ 84. In Dr. Shoemake’s “opinion, these types of ‘promotional information’ in Noble are all ‘advertising information,’ not ‘content information.’” *Id.* ¶ 87.

In its Sur-reply, Patent Owner only contends that Noble lacks a “proxy content server” because such a server must aggregate “at least content information.” Sur-reply 1–8. Patent Owner reasons that because both parties agree the claimed “content information” is distinguishable from Noble’s “advertising information,” each ground fails to identify any server that aggregates and distributes “content information.” *Id.* at 1.

Storing Information Based on Pre-defined Information Categories

Patent Owner argues that the proposed combination “still fails to disclose ‘stor[ing] the information to one of a plurality of channels based on pre-defined information categories’ (plural), as claimed, because the combination stores information based on at most a single category.” PO Resp. 42. Patent Owner contends that the alleged “information” in Petitioner’s example “is *always* stored in the same ‘column’ labeled ‘Promotional Information’ (*i.e.*, based on the same, single alleged ‘pre-defined information category’).” *Id.* at 44 (arguing the channel used to store the information is based on a single pre-defined information category).

Patent Owner did not directly address Petitioner’s contentions related to the “clustered index” approach in its Response. In its Sur-reply, Patent Owner contends the “clustered index” argument “fails, however, because the alleged second ‘pre-defined information category’ is the column label

(‘Geographical Location’) and not the values of the individual rows in that category (*e.g.*, ‘37.8,-122.4’).” Sur-reply 17 (citing Ex. 2007, 53:11–23). Patent Owner further contends that “selecting a row within the ‘Promotional Information’ column is not based on the alleged ‘Geographical Location’ category—at most, the content of other, non-‘pre-defined’ cells is used to determine where in the ‘Promotional Information’ category to store the alleged ‘information.’” *Id.*

iii. Analysis (claims 1 and 14)

Based on the final record before us, we find Petitioner’s contentions with respect to claim 1 persuasive. Petitioner’s analysis of the combination of Noble, Johnson, and Mann, as supported by Dr. Chatterjee, explains how the combination teaches all the elements of claims 1 and 14 and provides several persuasive rationales for combining the teachings. Based upon Petitioner’s evidence presented, including the testimony of Dr. Chatterjee, we are persuaded by Petitioner’s evidence and argument. Immediately below, we examine in detail those limitations challenged by Patent Owner.

Proxy Content Server

As we explained in detail above in the claim construction analysis (§ II.A.1), we find no basis to limit “proxy content server” to a server that must aggregate “at least content information” in every embodiment. Although a “proxy content server” may aggregate content information in some embodiments, we determined that the intrinsic record does not require a “proxy content server” to aggregate “at least content information.” Because Patent Owner’s contentions rest on this claim construction, we find them unpersuasive. *See* Sur-reply 1–8; Reply 12.

Petitioner has shown persuasively how Noble’s “promotional

information delivery/redemption system,” and “server 201 (Fig. 2) and server 301” teach this limitation. Pet. 59, 23 (citing Ex. Ex. 1002 ¶ 81; Ex. 1003, 5:14–18, 10:10–12). We credit Dr. Chatterjee’s testimony that “[t]he ‘proxy content server’ corresponds to the server in Noble’s ‘promotional information delivery/redemption system.’” Ex. 1002 ¶ 81. As Dr. Chatterjee explains, each of server 201 (Fig. 2), server 301 (Fig. 3), and server 507 and 507a (Figs 5a–5b) refer to the same server. *Id.* (citing Ex. 1003, 5:14–16, 5:17–18, 10:10–12, Figs. 2, 5). Dr. Chatterjee testifies that Noble discloses that its server receives promotional information over a computer network from various merchants, such as on-line merchant 204, which also qualifies as an “information source.” *Id.* ¶¶ 83, 87. According to Dr. Chatterjee, Noble further discloses that its server aggregates the information it receives by collecting the promotional information from merchants into database storage 307 and then the server distributes the information to a mobile device of a user. *Id.* ¶¶ 84, 87; *see also* Pet. 46–48.

Based on the final record before us, we find Petitioner’s arguments and evidence persuasive. Dr. Shoemake’s testimony to the contrary (Ex. 2008 ¶¶ 83–88) is based on the erroneous claim construction which we have rejected, thus, we find it unpersuasive.

Storing Information Based on Pre-defined Information Categories

In its Reply, Petitioner first notes that Patent Owner failed to address any of Petitioner’s arguments about the use of a clustered index in the Response. Reply 25. As we cautioned in in the Scheduling Order, “any arguments for patentability not raised in the response may be deemed waived.” Paper 12, 8. In this instance, we consider Patent Owner’s rebuttal in its Sur-reply (16–18) because Petitioner made additional arguments

directed to the clustered index approach in its Reply (25–26). We note, however, that Dr. Chatterjee’s testimony related to the clustered index approach remains essentially un rebutted because Dr. Shoemake did not directly address any contentions related to Mann’s clustered index. *See* Ex. 2008 ¶¶ 128–135; *see also* Ex. 1038 ¶ 38 (“I note that Dr. Shoemake claims to have reviewed my declaration (Ex. 2008, ¶22), but he does not mention, let alone address, the ‘clustered index’ teachings in Mann discussed in my opening declaration.”).

Based on the final record before us, Petitioner has established that the combination of references, and specifically Mann’s clustered index, teaches the requirement that “a proxy content server . . . stores the information to one of a plurality of channels based on pre-defined information categories.” Ex. 1001, Claims 1 and 14. As noted above, we adopt Patent Owner’s proposed interpretation that storing the information must be based on more than one information category, but even under this interpretation Petitioner has shown persuasively how Noble, Johnson, and Mann teach such an approach.

The clustered index approach requires that the records/rows in a relational database table be physically sorted in memory and sorted based on one or more columns. Ex. 1038 ¶ 37; Ex. 1002 ¶¶ 182–183. Adopting this storage by clustered index approach in the example provided below, Dr. Chatterjee has explained how in the “Geographical Location” column, each of the two rows/records would be physically stored in the order listed above, one after the other. Ex. 1038 ¶ 37. In this scenario, the memory location for a particular piece of “Promotional Information” (such as “10% off Joe’s Coffee”) would not simply be based on the “Promotional Information”

column, but also the “Geographic Location” column. *Id.* Dr. Chatterjee provides an exemplary table depicted below.

Geographical Location	Promotional Information
37.4,-122.2	10% off Joe’s Coffee
37.8,-122.4	Buy one get one free at Philz Coffee
47.6,-122.3	Starbucks has a 60% off sale just ahead

A two column table with “Geographical Location” and “Promotional Information” at the top of each column and three row data entries. Reply 26 (citing Ex. 1002, ¶ 197).

Dr. Chatterjee explains persuasively that

This is because the “Geographic Location” column would be used to determine the memory storage location relative to other records *in the table*, while the “Promotional Information” column would be used to determine the memory location relative to other column values *in the row/record*. ([Ex. 1002] ¶¶184, 197.) In the case of “10% off Joe’s Coffee,” the “Geographic Information” column (whose value is “37.4,122.2”) would dictate that the row be stored before the second entry listed above.

Ex. 1038 ¶ 37. Based upon review of Mann, we find Dr. Chatterjee’s explanation reasonable. As also noted above, Dr. Chatterjee’s testimony remains unrebutted.⁹

⁹ We have fully considered Dr. Chatterjee’s cross-examination testimony relied upon by Patent Owner (Sur-reply 17) but we determine it does not support Patent Owner’s theory. In fact, we determine after reviewing the entire testimony in context that it was consistent with Dr. Chatterjee’s Declarations. *See* Ex. 2007, 53:6–23 (“those two examples are stored based on the promotional information as well as the geographical location, because those would determine the memory location where the storage would happen” and “I was referring in general that the memory location to which the information is stored would be based on not only the promotional information column, but also the geographical location column”).

Notably, the claim language simply requires that the storing occur based on information categories but the language does not otherwise require any specific relationship amongst those categories. Ex. 1002 ¶ 97 (“the ’351 specification . . . contemplates categories of advertising information, and does not otherwise place any limitation on what an “information category” can represent”) (citing Ex. 1001, 12:56–13:1); Tr. 28:13–20 (“So the claim just requires that it be based on information categories. It doesn’t require any particular -- any relationship. It just says ‘based on.’”). Noble’s teaching of identifying promotional information based on pre-defined “coupon categories” combined with Mann’s clustered index approach of organization would allow the server to later retrieve and deliver promotions based on a user-selected coupon category because the promotional information was stored in a memory location associated with that coupon category and also based on the geographical location. *See* Ex. 1002 ¶ 96. Based on the examples above, Petitioner has demonstrated that under the clustered index approach, the memory location for the promotional information would be based on both the “Promotional Information” column and the “Geographical Location” column, which are two “pre-defined information categories,” as required by the claims. Ex. 1038 ¶ 38; Ex. 1002 ¶ 197.

Based on the final record, Petitioner also provides a rational basis for combining Noble, Johnson, and Mann, as well as a reasonable expectation of success from that combination. Petitioner reasons that “Mann also provides express motivation to combine, explaining that Microsoft’s SQL Server is ‘very popular’ and makes ‘creating and administering database extremely easy’ and that SQL Server 7 features ‘make Microsoft the top RDBMS

vendor.” Pet. 65 (quoting Ex. 1005, 1, 9). “Mann further explains that SQL Server is ‘better suited for enterprise-wide support and large databases’ (Mann, p.39)—the sort of large system contemplated by Noble.” *Id.* We find persuasive Petitioner’s contention that “a person of ordinary skill would have found it obvious to use the *clustered* index in Mann, and would have had a reasonable expectation of success.” Pet. 66 (citing Ex. 1002 ¶¶ 196, 199). Dr. Chatterjee explains that the combination “would have involved only the use of existing features described by Mann in accordance with both Noble’s and Mann’s (and Johnson’s) teachings regarding data organization and retrieval.” Ex. 1002 ¶ 197. As testified by Dr. Chatterjee, a skilled artisan would have been motivated to use a clustered index because it was well-known and clustered indexes provide performance benefits. *Id.* ¶¶ 197–198, 197 (“using a nonclustered index is ‘not as fast as using a clustered index’”) (quoting Ex. 1005, 128).

For the foregoing reasons, and based on the final record, Petitioner has shown by a preponderance of the evidence that the combination of Noble, Johnson, and Mann teaches the contested limitations of claims 1 and 14. Petitioner has also provided a persuasive rationale for making the combination that would achieve predictable performance benefits as described by Dr. Chatterjee. *See* Ex. 1002 ¶¶ 196–199.

6. Analysis – Undisputed Limitations of Claims 1 and 14

For all other limitations not challenged, we have reviewed the evidence and adopt Petitioner’s reasoning and evidence as set forth in the Petition and find it persuasive.

We find Petitioner has shown that Noble, Johnson, and Mann teach “[a] system for pushing information to a mobile device,” as well as the

remaining limitations requiring “a proxy content server that receives information over a computer network from an information source,” and “wherein the plurality of channels comprise memory locations included in at least one of the proxy content server or a proxy content server database.”

Pet. 58–67. For example, Noble discloses a proxy content server database in the form of database 307 and the server stores the promotional information it receives from merchants in a database. Pet. 66 (citing Ex. 1003, 11:14–17, 24:23–25:1, 12:10–14, 10:16–19). Patent Owner does not dispute Petitioner’s showing, except as noted above.

Claim 1 next requires “the proxy content server to receive a feedback signal over a wireless network that indicates a position of the mobile device, and to use the feedback signal to select a channel for transmission of the information from the selected channel over the wireless network to the mobile device.” Ex. 1001, 14:7–28, 15:18–21 (similar recitation for claim 14). Petitioner establishes how Noble, Johnson, and Mann teach these limitations. Pet. 67–68 (explaining that “Noble does not expressly disclose using the location signal to select a channel (memory location) in its database, but this would have been obvious in view of Mann and Johnson”). Petitioner also provides a persuasive rationale for the combination because a “skilled artisan would have understood that, under the combination of Noble with Mann and Johnson, the channel for matched promotional information would be selected in order to retrieve the promotional information stored in the channel.” Pet. 68.

The final clause of claim 1 (and 14) requires “the information comprises at least one of static advertising information, dynamic advertising information, default advertising information, or content information,” and it

also requires “wherein a combination of the static advertising information with one of the dynamic or default advertising information comprises an advertisement or an information bulletin,” (“combination limitation”). Ex. 1001, 14:22–28. Petitioner establishes how Noble and Johnson teach these limitations. Pet. 69, 46. Petitioner explains how the promotional information in Noble comprises at least static or dynamic advertising information and Petitioner provides several examples of each used in Noble’s system. Pet. 46–49. Petitioner also demonstrates that Johnson teaches the three recited types of advertising, including dynamic advertising information and default advertising information. Pet. 69. For example, Johnson discloses a “textual message such as ‘Starbucks has a 60% off sale just ahead at 314 Main Street with free no-spill coffee mugs!!!’.” *Id.* (citing Ex. 1006, 8:60–63) (emphasis omitted). Petitioner explains persuasively how “a person of ordinary skill would have understood this textual message in Johnson comprises static advertising information (‘Starbucks’) as well as dynamic advertising information (‘60% off sale’ and ‘free no-spill coffee mugs!!!’) and/or default advertising information (‘314 Main Street’).” *Id.* Further, Dr. Chatterjee testifies that a person of ordinary skill would have understood and found it obvious that Johnson’s example message could be employed in the system of Noble. Ex. 1002 ¶ 207.

As for the combination limitation, Petitioner establishes how Noble and Johnson teach a combination of the static advertising information with one of the dynamic or default advertising information that comprises an advertisement or an information bulletin. Pet. 49. In light of the teaching of

all three types of advertising in Johnson, we find persuasive Petitioner’s argument that:

A person of ordinary skill would have understood and found it obvious that at least one of the promotions that would be provided in Noble, *e.g.*, ‘10% off Joe’s Coffee,’ would constitute a *combination* of static and dynamic advertising, as it would include static information relating to the identity of the advertiser (*e.g.*, “Joe’s Coffee”), and dynamic information relating to a particular sale event (*e.g.*, “10% off”). (*Id.*, ¶142.)

Pet. 49. Petitioner establishes that “combining these two types of information amounts to nothing more than an obvious and predictable variation for providing a visual advertisement.” *Id.* (citing Ex. 1002 ¶ 140). More specifically, we agree that a person of ordinary skill would have understood and found it obvious that an advertisement would combine static and default or dynamic advertising information such as those examples disclosed by Johnson.

Dr. Chatterjee points to the example text message of Johnson quoted above as one example of teaching the combination limitation, but also further explains “Johnson discloses fields for both the promotional message itself (*i.e.*, ‘content field 712’) as well as a field for an associated web address or phone number (*i.e.*, ‘speed reference info 716’).” Ex. 1002 ¶ 211. According to Dr. Chatterjee, “Johnson explains that the information stored in these fields for a particular record is transmitted *together* to a mobile device,” thus, “Johnson . . . discloses a *combination* of the static advertising information with one of the dynamic or default advertising information by retrieving both the promotional message and ‘speed reference info’ from its database and providing them together to a mobile device.” *Id.* (citing Ex. 1006, 13:64–66) (emphasis omitted). We agree with Dr. Chatterjee’s

testimony that “it would have been obvious to a person of ordinary skill in the art to combine Noble and Johnson, and specifically to incorporate Johnson’s teachings regarding ‘speed reference info 716’ into the system of Noble.” *Id.* Finally, Patent Owner has not contested these specific contentions with respect to the combination of Johnson and Noble.

Petitioner has shown by a preponderance of the evidence that a person of ordinary skill would have a rational basis to combine Noble, Johnson, and Mann, and that this combination teaches the uncontested limitations recited in independent claims 1 and 14. Petitioner has established, therefore, that claims 1 and 14 would have been obvious based on Noble, Johnson, and Mann.

7. Analysis – Claims 2 and 21

Claim 2 requires “[t]he system of claim 1, wherein the feedback signal is generated by the mobile device.” Ex. 1001, 14:29–30. Petitioner establishes how Noble’s mobile unit 501a sends an update of the location of the mobile unit 501a to the server 507a and the location is determined by the mobile unit using a GPS receiver. Pet. 50 (citing Ex. 1003, 17:1–3, 17:12–21, 18:4–9). We agree with Petitioner that the mobile device generates Noble’s feedback signal, thus meeting the limitation of claim 2. *Id.* (citing Ex. 1002 ¶ 144). Patent Owner has not contested this contention.

Claim 21 requires “[t]he system of claim 14, further comprising: the proxy content server database coupled to the proxy content server that stores data relating to the mobile device, wherein the data is also used by the proxy content server to select the channel for transmission over the wireless network to the mobile device.” Ex. 1001, 16:7–12. Petitioner shows how

the combination of Noble, Mann, and Johnson teach the limitations of claim 21. Pet. 73.

Petitioner relies on the teachings of Mann and Johnson for using user profile triggering event information to select a channel (memory location) in its database. Pet. 71; Ex. 1002 ¶ 214 (“A person of ordinary skill in the art would have understood that the combination of Noble, Mann, and Johnson would have predictably resulted in using the triggering event information (e.g., merchant information) to select the channel for matched promotional information.”). Petitioner also notes that “Johnson further discloses storing a device’s location history in a database and using that information for selecting promotional information,” which provides additional support for the combination of references teaching this limitation. Pet. 71 (citing Ex. 1006, 9:10–14, 9:53–60, 15:60–16:5; Ex. 1002 ¶¶ 215–217). Patent Owner has not contested these contentions.

Other than the arguments addressed above for claims 1 and 14, Patent Owner does not specifically challenge Petitioner’s contentions with respect to claims 2 and 21. For the reasons set forth above, we determine Petitioner has established by a preponderance of the evidence that claims 2 and 21 would have been obvious over Noble, Mann, and Johnson.

C. Obviousness Based on Noble, Mann, Johnson, and De Boor

Petitioner challenges the patentability of claims 1, 2, 14, and 21 of the ’351 patent (claims 9 and 15 having been disclaimed) under 35 U.S.C. § 103(a) as obvious based on Noble, Mann, Johnson, and De Boor. Pet. 73. This ground is the same as that examined above, but Petitioner adds De Boor

(Ex. 1007) to account for an alternative interpretation of the final clause of claims 1 and 14. Pet. 10, 73.

Patent Owner does not separately contest Petitioner's contentions with respect to the addition of De Boor for this ground. *See* PO Resp. 19, 31, 50 (discussing De Boor generally but not the specific contentions of this ground).

We have reviewed the parties' contentions and supporting evidence. Based on the final record, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 14, and 21 of the '351 patent would have been obvious based on Noble, Mann, Johnson, De Boor. We begin our analysis with a brief summary of De Boor and then the reasons for our determination.

1. Overview of De Boor (Ex. 1007)

De Boor discloses a system for providing integrated advertising capabilities to a wireless communication device and various techniques for sending advertising information to mobile devices. Ex. 1007, code (57). De Boor describes a technique for creating "stand-alone full screen [advertising files] 320a" that specify the content and formatting of an advertisement for display on a wireless communication device. *Id.* at 11:28–30, 14:8–15:2.

2. Analysis

Petitioner relies on essentially the same analysis for the ground above, except now also relying on De Boor to teach the combination limitation because De Boor "discloses an advertising delivery technique that mirrors the '351 specification." Pet. 73. De Boor also describes a technique for creating "stand-alone full screen advertising files 320a" that specify the content and formatting of an advertisement for display on a wireless

communication device. Pet. 74 (quoting Ex. 1007, 11:28–30, 14:8–15:2). Petitioner relies on De Boor’s fields in the full screen advertisements as well as De Boor’s disclosure of creating an advertisement that combines content data with an associated file, such as a vendor logo. Pet. 75. According to Petitioner, “[s]uch an advertisement, when applied to Noble, discloses ‘a combination of the static advertising information with one of the dynamic or default advertising information’ that ‘comprises an advertisement,’ as recited in the claims.” *Id.*

Petitioner provides a persuasive rationale for combining the teachings of De Boor into the combination of references examined above. Pet. 75–77. As explained by Petitioner, “[t]he combination would have predictably resulted in the promotional information push delivery system of Noble, with the additional ability to provide rich content advertisements as disclosed in De Boor.” Pet. 75 (citing Ex. 1002 ¶¶ 230–231). Petitioner reasons that it would have been obvious to adapt Noble, pursuant to the teachings of De Boor, to provide dynamic advertising information as content data 325 of a full-screen advertisement 320a as disclosed in De Boor. Pet. 76 (citing Ex. 1002 ¶ 232). Petitioner relies on De Boor’s disclosure that full-screen advertisement 320a may also contain the vendor’s logo, introductory text, and background graphics. *Id.* According to Petitioner, De Boor’s full-screen advertisement 320a would have also included, in addition to the dynamic advertising information, static advertising information such as a logo for the merchant (e.g., a logo for Joe’s Coffee). *Id.* Thus, Petitioner argues, and we agree, that the combination of Noble and De Boor would have predictably resulted in a full-screen advertisement that qualifies as “a combination of the static advertising information with one of the dynamic or

default advertising information,” and “comprises an advertisement.” *Id.* (citing Ex. 1002 ¶ 232).

Petitioner establishes that a person of ordinary skill in the art would have been motivated to combine De Boor with Noble because De Boor seeks to provide “for rich content advertisements that include any variety of fonts, type styles, and graphic images to be included in an advertisement on the wireless communication device.” *Id.* (quoting Ex. 1007, 3:30–32; Ex. 1002 ¶ 234). Further, “[a] person of ordinary skill would have appreciated that displaying a merchant’s logo with the promotional information would have provided a richer user experience, and made the advertisement more engaging.” *Id.* at 77 (citing Ex. 1002 ¶ 234).

D. Obviousness Based on Noble and Hassett and Obviousness Based on Noble, Hassett, and De Boor

Petitioner challenges the patentability of claims 1, 2, 14, and 21 of the ’351 patent under 35 U.S.C. § 103(a) as obvious based on Noble and Hassett and separately based on Noble, Hassett, and De Boor. Pet. 20–56, 73. Because we determine the challenge based on Noble, Mann, and Johnson as well as Noble, Mann, Johnson, and De Boor are both dispositive of all challenged claims, we need not reach the parties’ arguments as to whether these claims would have been obvious over Noble and Hassett or obvious over Noble, Hassett, and De Boor. *See Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 Fed. Appx. 984, 990 (Fed. Cir. Apr. 30, 2020) (nonprecedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing

that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

IV. CONCLUSION

For the reasons set forth above, based on the final trial record, we determine that the information presented in the Petition establishes by a preponderance of the evidence that *all* challenged claims (1, 2, 14, and 21) would have been obvious. We therefore determine that each challenged claim is unpatentable as set forth below.¹⁰

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not shown Unpatentable
1, 2, 14, 21	§ 103(a)	Noble, Mann, Johnson	1, 2, 14, 21	
1, 2, 14, 21	§ 103(a)	Noble, Mann, Johnson, De Boor	1, 2, 14, 21	
1, 2, 14, 21		Noble, Hassett ¹¹		
1, 2, 14, 21		Noble, Hassett, De Boor		
Overall Outcome			1, 2, 14, 21	

¹⁰ 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*. See 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).

¹¹ We do not reach these grounds because the challenge based on Noble, Mann, and Johnson as well as Noble, Mann, Johnson, and De Boor are both dispositive of these claims.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 2, 14, and 21 of the '351 patent have been proven to be unpatentable;

FURTHER ORDERED because this is a Final Written Decision, parties to this 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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