

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HOME DEPOT U.S.A., INC.,
Petitioner

v.

SECURITY TECHNOLOGY, LLC,
Patent Owner

Case IPR2024-01420
U.S. Patent No. 11,562,402

**PATENT OWNER RESPONSE
UNDER 37 C.F.R. § 42.120**

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PATENT OWNER’S EXHIBIT LIST

Exhibit No.	Description
2001	Docket Control Order, <i>RavenWhite Licensing LLC v. The Home Depot, Inc.</i> , Case No. 2:24-cv-00688 (E.D. Tex.)
2002	Complaint, <i>RavenWhite Licensing LLC v. The Home Depot, Inc.</i> , Case No. 2:23-cv-00423 (E.D. Tex.)
2003	Microsoft Computer Dictionary Fifth Edition (2002) (Excerpts)
2004	“A Dictionary of Computing,” Sixth Edition, Oxford University Press (2008)
2005	Expert Declaration of Bernard J. Jansen, Ph.D.
2006	“Everything you should know about web cookies!” devowl.io, available at https://devowl.io/cookies/definition-cookies/
2007	Raymond Camden, <u>Client-Side Data Storage</u> , O’Reilly Media, Inc. (2016)
2008	Definition of unique device identifier (UDID), Carnegie Mellon University, available at https://opi.cs.cmu.edu/show/unique_device_identifier
2009	Deposition Transcript of Robert J. Sherwood, June 13, 2025
2010	Declaration of Dr. Craig Wills Regarding Claims 1-10 of U.S. Patent No. 10,594,823, <i>Home Depot USA, Inc. v. RavenWhite Security, Inc.</i> , IPR2024-01316, Exhibit 1002 (Sep. 16, 2024)
2011	Craig E. Wills and Mihajlo Zeljkovic, “A Personalized Approach to Web Privacy—Awareness, Attitudes and Actions” (2011)
2012	Deposition Transcript of Craig Ellis Wills, Ph.D., June 17, 2025
2013	Antón <i>et al.</i> , “How Internet Users’ Privacy Concerns Have evolved since 2002,” The IEEE Computer and Reliability Societies (2010), downloaded from IEEE Xplore
2014	Jonathan R. Mayer and John C. Mitchell, “Third-Party Web Tracking: Policy and Technology,” 2012 IEEE Symposium on Security and Privacy (2012), downloaded from IEEE Xplore
2015	<i>Curriculum Vitae</i> of Bernard J. Jansen, Ph.D.

Exhibit No.	Description
2016	“Best computer Science Scientists,” Research.com, Accessed on June 23, 2025, available at https://research.com/scientists-rankings/computer-science
2017	Microsoft Computer Dictionary Fifth Edition (2002) (With Additional Excerpts)

I. INTRODUCTION

U.S. Patent No. 11,562,402 (“the ’402 patent”) provides novel techniques for tiered advertisement bidding based on user account and context information.

EX1001, Abstract, 4:23-5:13. The ’402 patent addressed “inefficiencies” in prior approaches, for example, those in which advertisements were selected “based on which advertiser is willing to pay the most money.” *Id.*, 1:21-29, 3:2-7. The specific techniques disclosed and claimed in the ’402 patent were designed to increase the efficacy of selected advertisements based on determined “quality metrics associated with a user profile.” *Id.*, Abstract.

Petitioner’s obviousness grounds challenging independent claims 1, 10, and 19 fail for multiple reasons. First, Petitioner does not establish that the cited art teaches that “*the determining of the first quality level is based at least in part on a unique identifier.*” Petitioner relies on Grannan’s user profile for purported disclosure of “*a unique identifier,*” but the claims and patent specification differentiate “*a unique identifier*” from “*a user profile.*” That Grannan’s user profile may contain certain subscriber identifiers of family members does not salvage Petitioner’s theory because Petitioner does not explain how such identifiers would be used to determine the claimed “*first quality level.*”

Second, Petitioner does not establish a motivation to combine Grannan and Chung with either Yang or Ramaiyer such that “*the determining of the first quality*

level is based at least in part on . . . clustering.” Petitioner relies on Yang and Ramaiyer in the alternative for the claimed “*clustering*,” but Yang’s and Ramaiyer’s techniques require monitoring of user activity before a user can be identified. Such techniques run counter to Grannan’s teachings, which emphasize the importance of user privacy, permitting monitoring and use of user activity *only* if the user opts in.

Third, Petitioner does not identify a “*first search*” or “*first purchase*” used to determine “*a first quality level*,” and a “*second search*” or “*second purchase*” used to determine “*an indication of interest in a first category*.” In fact, the theories proffered by Petitioner do not identify either a first or second “*purchase*,” nor do they identify a “*second search*” different from a “*first search*,” as the claims require.

Petitioner also fails to establish obviousness of dependent claims 6, 7, 15, and 16. First, Claims 6 and 15 require “*the advertisement*” to be used as a basis for determining the claimed “*first quality level or the second quality level*,” but Petitioner merely asserts that Grannan’s PIC score is used to later *select* an advertisement. Pet., 51. Second, claims 7 and 16 require that “*at least one of the first quality level or the second quality level is used to determine at least one of a discount or a surcharge*.” Petitioner, however, fails to identify any “*discount*” or “*surcharge*” in Grannan. Grannan describes selecting advertisements of different

costs based on a threshold, but no “*discount*” or “*surcharge*” is applied to the cost of the advertisement—the cost remains the same.

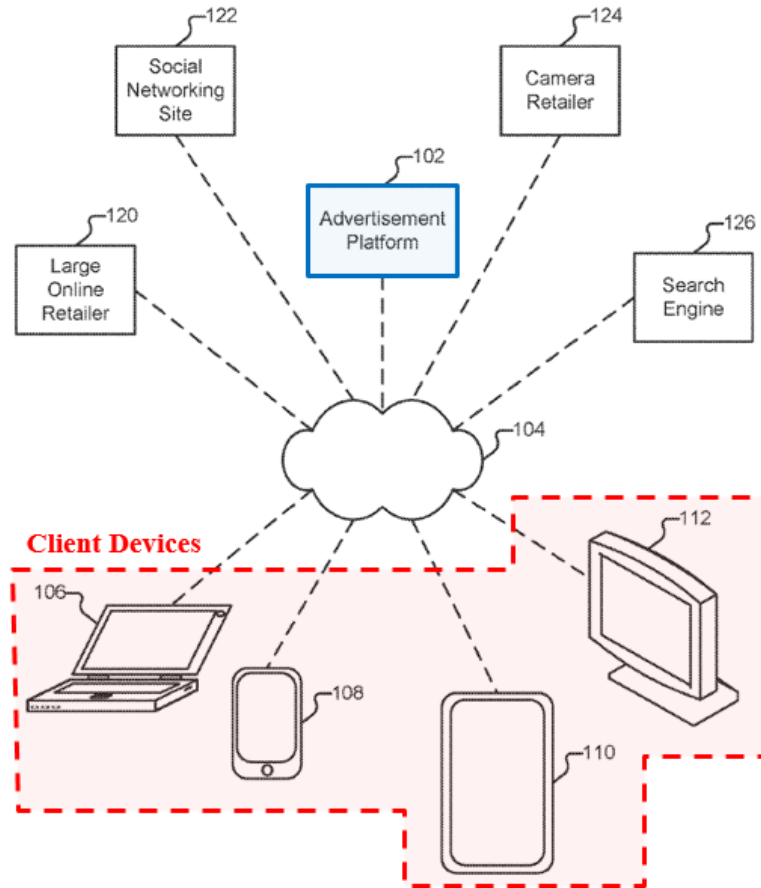
For these reasons, the Board should uphold the patentability of all challenged claims.

II. THE '402 PATENT

A. The '402 patent provides novel techniques for tiered advertisement bidding based on user account and context information.

The '402 patent is generally directed to “[t]iered advertisement bidding” in which “[a]n advertisement bid is selected from a plurality of tiered bids” based on “quality metrics associated with a user profile.” EX1001, Abstract. The patent explains that “[e]xisting approaches to online advertising typically involve pricing schemes in which multiple advertisers specify an amount of money they are willing to pay per impression (or per click or per other action), and in which an advertisement is selected for display to a user based on which advertiser is willing to pay the most money.” *Id.*, 1:21-26. “[T]here are inefficiencies in this approach,” however, as they don’t properly assess “the quality of the user to whom the advertisement will be shown.” *Id.*, 1:26-29, 3:2-7; EX2005, ¶28.

Figure 1 of the '402 patent “illustrates an embodiment of an environment in which advertisements are served.” EX1001, 2:20-21, FIG. 1.

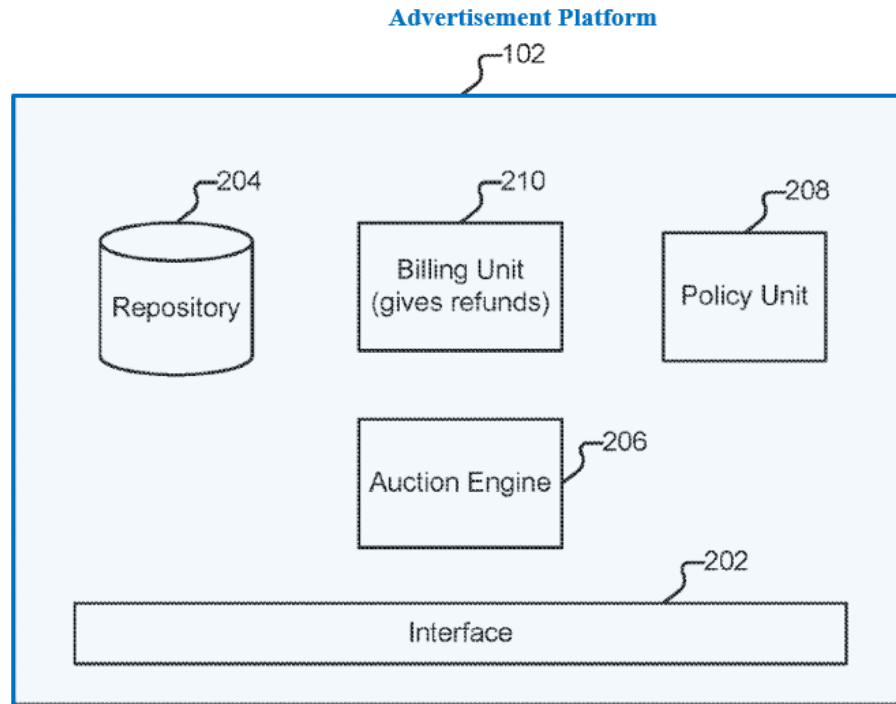


EX1001, FIG. 1 (annotated).

In the embodiment shown in Figure 1, “client devices 106-112 connect, via one or more networks (represented as a single network cloud 104), to services 120-126 (also referred to herein as ‘sites’) provided by providers.” EX1001, 2:21-25. “Also included in FIG. 1 is advertisement platform 102, which is configured to facilitate the display of advertisements on client devices 106-112.” *Id.*, 2:38-41. “For example, retailers 120 and 124 can use platform 102 to bid on the placement of advertisements on pages served by search engine site 126 or social networking site 122.” *Id.*, 2:41-44; EX2005, ¶¶29-30.

The '402 patent describes that “entities such as retailer 120 and 124 can use platform 102 to engage in tiered bidding for advertisements (e.g., based on bands of an assessed measure of the quality of the user to whom the advertisement will be shown, if selected).” EX1001, 3:2-7. “For example, an advertiser can specify that it is willing to pay \$0.40 for an advertisement to be shown to a user having a particular assessed value (e.g., a quality score of 70 or better) but is only willing to pay \$0.10 if the value is below that.” *Id.*, 3:7-11; EX2005, ¶31.

As illustrated in Figure 2, “[a]n auction engine 206 runs advertisement auctions in accordance with policies supplied by policy unit 208 and assessments of user profile information (e.g., one or more user profiles associated with Alice and Bob) stored in repository 204.” EX1001, 3:26-30. “[A]dvertisement platform 102 supports a tiered billing structure in which an assessed quality (e.g., a conversion assessment of a user profile) is taken into consideration when determining the cost of displaying an advertisement (or for receiving a click or other interaction).” *Id.*, 3:56-61; EX2005, ¶32.



EX1001, FIG. 2 (annotated).

Users are identified based on “unique identifiers,” such as “cookies” or a “UDID” (Unique Device Identifier). EX1001, 3:32-35, 15:63-65. Quality assessments for the user may then consider a number of factors, including “user account information,” “user context information,” and “general context information.” *Id.*, 4:23-5:13. User account information may include, for example, “user-provided information (e.g., demographic information supplied directly by the user); observed behavior (e.g., observed by platform 102); and reported behavior (e.g., purchases observed by a third-party provider, such as site 120 and provided to platform 102).” *Id.*, 4:26-37. User context information may include, for example, “recent searches, mouse-over and click behavior, and information of

recent pages requested by the user.” *Id.*, 4:38-59. And general context information may include, for example, “user context information of other users, such as the activities of other users with whom the user has a connection,” and “temporal information, such as estimates of how likely the desired behavior is at the current time of the day, the day of the week, or the day of the month.” *Id.*, 4:60-5:13; EX2005, ¶¶33-34.

In addition to considering the above-mentioned information, advertising platform 102 may be “configured to determine when a need has been met.” EX1001, 5:15-16. For example, “[s]uppose a user is interested in buying a camera and performs searches for terms such as ‘buy camera’ and ‘camera review’ with search engine 126,” and “at some point in the future, platform 102 receives an indication that the same user is interested in buying a lens cap for a camera or a photo album.” *Id.*, 5:15-33. Advertising platform 102 may use this information to determine “it is likely that the user purchased a camera, and thus the user’s ‘need’ for a camera was met.” *Id.*, 5:33-36. A “conversion assessment” may be determined “based at least in part on the determination of whether the need has been met,” which may result in a determination that selecting a different or related “category of advertisement . . . would likely result in higher profit.” *Id.*, 5:41-50, 6:9-12; EX2005, ¶35.

Independent claims 1, 10, and 19 of the '402 patent recite a particular hierarchy of determinations used to select an advertisement for a user. For example, claim 1 recites determinations of “*a first quality level associated with a user profile,*” “*an estimate of a likelihood of an event,*” “*an indication of interest in a first category,*” “*a need relative to the first category ha[ving] been met,*” “*an indication of interest in a second category,*” “*a second quality level associated with the user,*” and “*a conversion assessment associated with the user profile.*”

EX1001, 17:54-18:29 (Claim 1). These determinations are dependent on one another and further based on “*first,*” “*second,*” and “*third*” “*purchase[s]*” or “*search[es]*” that are “*associated with [a] user profile.*” *Id.* As described in detail below, Petitioner fails to establish that the prior art teaches these elements in independent claims 1, 10, and 19.

B. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) at the time of the '402 patent would have had a bachelor’s degree in computer science, computer engineering, electrical engineering, or a similar discipline, as well as two years of academic or industry experience in computer networking and digital advertising, or comparable industry experience. EX2005, ¶27.

C. Claim Construction

Absent lexicography or disavowal, claim terms in an IPR are given their plain and ordinary meaning in light of the specification and prosecution history. *Sisvel Intern. S.A. v. Sierra Wireless, Inc.*, 81 F.4th 1231, 1236 (Fed. Cir. 2023). In the arguments below, Patent Owner discusses the plain and ordinary meanings of the terms “user profile,” “unique identifier,” and “search,” as would have been understood by a POSITA in the context of the ’402 patent and prosecution history. Beyond these plain and ordinary meanings, no term requires express construction. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

III. OVERVIEW OF THE CITED ART

A. Grannan

Grannan (EX1007) “relates generally to providing selected advertising to send to a recipient.” EX1007, ¶2. As illustrated in Figure 1, Grannan describes “an Advertising Knowledge Management System (AKMS) acting as an intermediary between a subscriber with various access devices, advertisers and content and service providers.” *Id.*, ¶7; EX2005, ¶38.

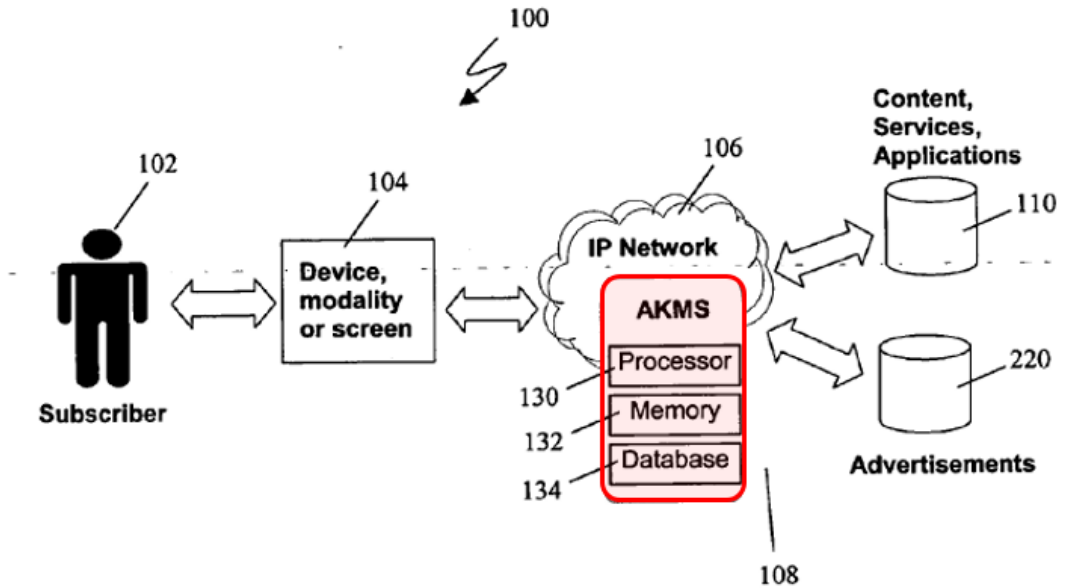


Figure 1

EX1007, FIG. 1 (annotated).

Grannan describes that “the AKMS 108 monitors and compiles a subscriber's event data including but not limited to current session and the device characteristics of the access device 104 being used to access IP-based services over an IP network 106, along with previous usage history to assist service providers and advertisers in evaluating the potential appeal of their services and advertisements to the particular subscriber.” EX1007, ¶61. To “evaluat[e] the potential appeal of their services and advertisements to the particular subscriber,” Grannan’s system “calculates a product interest correlation score,” referred to as a “PIC” score by Petitioner, Pet., 6, “and recommends and/or selects an advertisement, access device and advertisement modality to be used to send a selected advertisement to a selected subscriber access device based on the

subscriber's current usage scenario." EX1007, ¶¶61-62. "For example, in an illustrative embodiment a product interest correlation score may range from 1 to 100." *Id.*, ¶63; EX2005, ¶¶39-40.

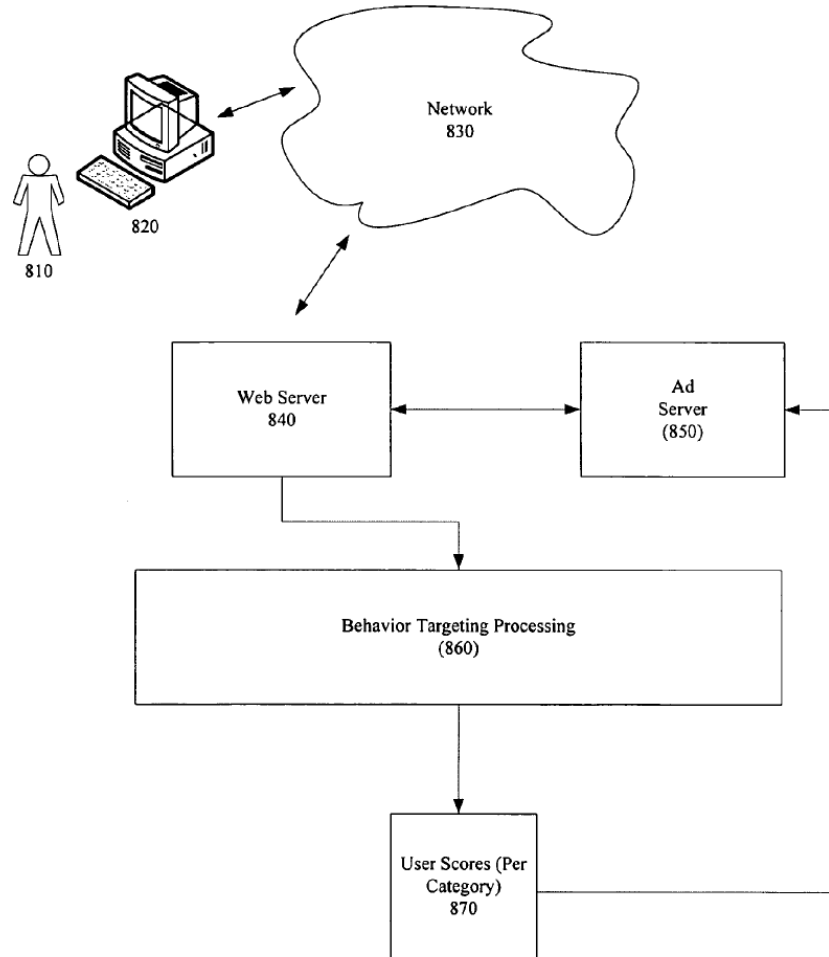
Grannan also describes "product interest correlation 'contribution' score[s]" that "can be added to the subscriber's current product interest correlation score." EX1007, ¶¶83, 100. For example, when a subscriber "surfs" to a particular URL associated with "a particular car model," a "contribution" score can be added to the user's "product interest correlation score for this particular category" of products. *Id.*, ¶83; EX2005, ¶¶41-42.

Grannan also describes "user profile[s]" that include various "user profile data and user profile settings." EX1007, ¶73. The "[u]ser profiles may also include proactive product interest input [] provided by a subscriber." EX1007, ¶73. And, "user profile settings" include settings allowing a user "to opt in to being monitored by the internet profiling module." EX1007, ¶47; EX2005, ¶43.

B. Chung

Chung (EX1005) is directed to "[a] behavioral targeting system [that] determines user profiles from online activity." EX1005, Abstract. "Event information, which comprises on-line activity of the user, is received at an entity." *Id.* "The behavioral targeting system generates a user profile score for a target objective, such as brand advertising or direct response advertising." *Id.*

Figure 8 of Chung illustrates “one embodiment for serving advertisements using a behavioral targeting system.” EX1005, 11:9-10; EX2005, ¶44.



EX1005, FIG. 8.

In “this example embodiment, the example infrastructure includes network 830, web server 840, advertisement (ad) server 850 as well as computer 820 for user 810.” EX1005, 11:11-13. Chung describes that “[t]he web server (840) receives information based on user behavior, such as events,” and “[t]he user behavioral information is input to behavioral targeting processing (860).” *Id.*,

11:13-16. Chung describes, “[i]n one embodiment, events include advertisement clicks, search queries, search clicks, sponsored listing clicks, page views, and advertisement views.” *Id.*, 6:38-40. “[B]ehavioral targeting processing 860 generates raw user scores (870), on a category-by-category basis, using the user behavioral information,” and “[t]he user scores are input to the ad server (850), which in turn serves advertisements to web server 840.” *Id.*, 11:16-20; *see also id.*, 5:50-53 (Chung’s “mapping module maps raw user scores to one or more output metrics. For example, one output metrics may determine the propensity for a user to click on an advertisement classified in the category.”). “As a result, customize[d] ads are served to user 810 on computer 820.” *Id.*, 11:21-22; EX2005, ¶¶45-47.

C. Yang and Ramaiyer

The Petition relies on Yang (Ground 1) and Ramaiyer (Ground 2) in the alternative for alleged disclosure of “*clustering*,” as recited in independent claims 1, 10, and 19. *See* Pet., 21-24, 62-63 (“Ground II is based on the exact same grounds as Ground I above, except with respect to limitation 1[c], 10[d], and 19[c], Petitioner relies here on Ramaiyer for the disclosure of ‘clustering,’ instead of Yang”). Petitioner does not allege that Yang or Ramaiyer teach any other features of the independent claims.

Yang appears to be an IEEE conference publication titled “Segmenting Customer Transactions Using a Pattern-Based Clustering Approach.” EX1006, 1, 12. Yang explains that “[g]rouping customer transactions into categories helps understand customers better.” *Id.*, 12. The Yang publication “investigate[s] using ‘pattern-based’ clustering approaches to grouping customer transactions,” which clusters “transaction data based on natural behavioral patterns.” *Id.*; EX2005, ¶49.

Yang’s techniques “start with real session-level Web browsing data for users” and “create 46 features describing the session.” EX1006, 13. Yang then describes taking “Web transactions from different users (without maintaining the user ID) – and examin[ing] how the method does in separating transactions that belong to the individual users.” *Id.*, 16. Relevant to the arguments below, Yang’s techniques require analysis of user session data *before* a user can be identified (to the extent Yang’s techniques are able to identify users based on transaction patterns). *Id.*, 16-18; EX2005, ¶50.

Similarly, Ramaiyer is generally directed to “[a] profile prediction system may identify one of multiple user profiles for a single computer.” EX1009, Abstract. Ramaiyer explains that “the profile predictor 112 may monitor or track behavior on the user device 102,” such as “browsing history of a session,” “to predict the particular user of the device based on the behavior.” *Id.*, ¶29. Thus, like

Yang, Ramaiyer's user-identification techniques require analysis of user session data *before* a user can be identified. EX2005, ¶51.

IV. PETITIONER FAILS TO ESTABLISH OBVIOUSNESS OF ANY CHALLENGED CLAIM.

Petitioner presents two grounds challenging the same claims, each ground relying on Grannan and Chung. Pet., 1. Ground 2 is identical to Ground 1 except that it relies “on Ramaiyer for the disclosure of ‘clustering,’ instead of Yang” for independent claim elements [1c], [10d], and [19c]. *Id.*, 1, 62. Petitioner relies on Grannan and Chung for elements [1a]-[1b], [1d]-[1e], and [1i]; and Grannan alone for elements [1f]-[1h], [1j]. Independent claims 10 and 19 recite analogous elements, and Petitioner relies on the same mappings of Grannan and Chung for those elements.

Both grounds fail to establish obviousness of the challenged claims for the same reasons. First, neither Grannan nor Chung teaches that “*the determining of the first quality level is based at least in part on a unique identifier,*” as recited in elements [1c], [10d], and [19c]. Second, Petitioner does not establish that a POSITA would have combined Grannan and Chung with either Yang or Ramaiyer such that “*the determining of the first quality level is based at least in part on . . . clustering,*” as recited in elements [1c], [10d], and [19c]. Third, Petitioner does not identify a “*first search*” or “*first purchase*” used to determine “*a first quality level,*” and a “*second search*” or “*second purchase*” used to determine “*an*

indication of interest in a first category,” as recited in elements [1b], [1d], [10c], [10e], [19b], and [19d]. For these reasons, Petitioner fails to meet its burden to establish obviousness of any challenged claim, and the Board should uphold the patentability of all claims.

Petitioner also fails to establish obviousness of the features of dependent claims 6, 7, 15, and 16. With respect to claims 6 and 15, Petitioner fails to show that the prior art teaches that the claimed “*advertisement*” is used as a basis for determining the claimed “*first quality level or the second quality level,*” as required by the claims. And with respect to claims 7 and 16, Petitioner fails to identify any “*discount*” or “*surcharge.*”

For ease of reference, Patent Owner addresses the elements of independent claim 1 in the arguments below. The arguments apply equally to the corresponding elements of independent claims 10 and 19.

A. Petitioner fails to establish that Grannan teaches “wherein the determining of the first quality level is based at least in part on a unique identifier” (element [1c]).

Independent claim 1 recites, “*wherein the determining of the first quality level is based at least in part on a unique identifier and clustering.*” EX1001, 18:59-61. Petitioner fails to establish that Grannan teaches that the determination “*of the first quality level is based at least in part on a unique identifier.*” *Id.* (emphasis added).

1. The Petition does not rely on user identifiers contained within Grannan’s “user profile” to satisfy element [1c], let alone explain how they would meet the claim language.

The Petition “define[s] the scope of” an IPR proceeding “all the way from institution through to conclusion,” and “the Board does not enjoy[] a license to depart from the petition.” *SAS Inst., Inc. v. Iancu*, 584 U.S. 357, 365-367 (2018); *see also Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“It is of the utmost importance that petitioners . . . adhere to the requirement that the initial petition identify with particularity the evidence that supports the grounds for the challenge to each claim”) (cleaned up); *Sirona Dental Sys. GmbH v. Institut Straumann AG*, 892 F.3d 1349, 1356 (Fed. Cir. 2018) (The Board cannot “deviate from the grounds in the petition and raise its own obviousness theory.”). The Board is thus not “free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during an IPR.” *In re Magnum Oil Tools International, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016).

Here, Petitioner’s challenge is limited to alleging that Grannan’s “user profile” satisfies the claimed “*unique identifier*.” Pet., 19-21. The Board’s suggestion when instituting review that Grannan discloses user identifiers for family members and single-sign on (SSO) credentials, DI, 26-27, improperly adopts arguments on behalf of Petitioner that Petitioner did not raise in its Petition

and thus cannot prove by a preponderance of the evidence that Grannan renders obvious this claim element.

Specifically, the Petition expressly maps Grannan’s “user profile” to the claimed “*unique identifier*.” Pet., 19-21 (“Grannan teaches that the [PIC] score associated with **each subscriber’s user profile (*unique identifier*)** is weighted based on the contents of the user profile”; “As the quality score must be weighed and scored based on **the user profile (*unique identifier*)**. . .”) (italics in original, bolding added); EX2005, ¶54. In instituting review, the Board acknowledged Petitioner’s mapping, agreeing with Patent Owner that “Petitioner does refer to Grannan’s ‘user profile’ to satisfy both the ‘user profile’ and ‘unique identifier’ recited in claim 1.” DI, 26. “Nevertheless,” the Board explained, Grannan discloses that “[u]ser profile data includes but is not limited to ages, family size, ethnicity, language spoken, address, *subscriber user identifiers for family members*, etc.” DI, 26 (citing EX1007, ¶73) (emphasis in original). The Board’s emphasis suggests that the “subscriber user identifiers for family members” satisfies the claimed unique identifier. DI, 26. The Board further suggested that Grannan’s disclosures related to single-sign on (SSO) satisfies the claimed unique identifier. DI, 26-27.

But neither Petitioner nor Petitioner’s expert alleges that the claimed “*first quality level*” is based on Grannan’s subscriber user identifiers for family members or SSO credentials—both, instead, rely on *different* data in Grannan’s user profile.

Pet., 19-21 (relying on, for example, subscriber “behaviors,” “location,” and “Internet connectivity”); EX1003, ¶¶92-94; EX2005, ¶57. Indeed, as Grannan’s disclosure suggests, the “subscriber user identifiers for family members” contained within Grannan’s user profile relate to family members—not the user associated with the profile—and there is no indication of how such identifiers would be used to determine the claimed “*first quality level*.” EX1007, ¶73; EX2005, ¶¶62-63. Nor did Petitioner rely on Grannan’s disclosures related to SSO credentials. *See* Pet., 19-21. Petitioner instead chose to map Grannan’s user profile to the claimed “*unique identifier*,” rather than the subscriber user identifiers for family members contained within the profile or a user’s SSO credentials.

As explained in the section below, Grannan’s user profile does not satisfy the claimed “*unique identifier*.” That Grannan discloses SSO credentials or that its user profile may contain certain user identifiers for family members is irrelevant because Petitioner does not explain in its proffered theories how those items satisfy the language of element [1c].

2. Petitioner fails to establish obviousness of element [1c] because Grannan’s user profile is not “a unique identifier,” as required by the claims.

Again, the Petition expressly equates Grannan’s entire “user profile” to the claimed “unique identifier” of element [1c]. Pet., 19-21 (“Grannan teaches that the [PIC] score associated with **each subscriber’s user profile (*unique identifier*)** . .

.”) (italics in original, bolding added). EX2005, ¶54. Petitioner’s mapping of Grannan’s “user profile” to the claimed “*unique identifier*” runs counter to both the intrinsic and extrinsic evidence. The ’402 patent claims, specification, and technical dictionary definitions all indicate that Grannan’s user profile, which is a collection of various data, is not an “*identifier*” as claimed. EX2005, ¶54.

i. The claims recite and expressly differentiate between a “*user profile*” and a “*unique identifier*.” See EX1001, 17:54-18:29 (Claim 1—reciting “*determining a first quality level associated with a user profile, . . . wherein the determining of the first quality level is based at least in part on a unique identifier and clustering*”) (emphasis added). EX2005, ¶55. The language itself thus indicates that a “*user profile*” is *not* a “*unique identifier*.” *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (“In the absence of any evidence to the contrary, we must presume that the use of . . . different terms in the claims connotes different meanings.”) (citing *CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co.*, 224 F.3d 1308, 1317 (Fed. Cir. 2000)); see also EX2009, 115:19-20 (Petitioner’s expert agreeing that “[t]he unique identifier of course is distinct from the user profile.”). As the Board acknowledged, Petitioner maps Grannan’s user profile to both the claimed “*user profile*” and “*unique identifier*.” Pet., 19-21; DI, 26. Grannan’s user profile cannot satisfy both elements. *Tyco*, 616 F.3d at 1254 (“Where a claim lists elements

separately, the clear implication of the claim language is that those elements are distinct components of the patented invention.”) (cleaned up); EX2005, ¶55.

Significantly, neither Petitioner nor its expert address any distinction between the two terms in their analyses. Pet., 19-21; EX1003, ¶¶92-94; EX2005, ¶56. Instead, both Petitioner and its expert merely allege, “As the quality score must be weighed and scored based on the user profile (*unique identifier*), a POSITA would have understood that it is necessarily the case that the *first quality level is based at least in part on the unique identifier*.” Pet., 21 (emphasis in original); EX1003, ¶94; EX2005, ¶56. Indeed, Petitioner’s expert, Mr. Sherwood, repeats the Petition verbatim with no further analysis, adding no weight to the obviousness inquiry. *Compare* Pet., 19-21, *with* EX1003, ¶¶92-94; *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (P.T.A.B. Aug. 24, 2022) (holding that testimony that “merely repeats, *verbatim*, the conclusory assertion for which it is offered to support . . . is entitled to little weight.”); *TQ Delta, LLC v. Cisco Systems, Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019) (“This court’s opinions have repeatedly recognized that conclusory expert testimony is inadequate to support an obviousness determination . . .”).

Moreover, Petitioner alleges that because Grannan’s PIC score is weighted based on user profile data, “it is necessarily the case” (i.e., it is inherent) that the “*first quality level is based at least in part on the unique identifier*.” Pet., 21.

Petitioner is incorrect. Even if Grannan’s user profile did include one or more unique identifiers, it would include other information as well. EX2005, ¶57.

Indeed, Petitioner expressly relies on other information in the user profile, such as a subscriber’s “location and Internet connectivity,” to show that the “*first quality level is based at least in part on the unique identifier.*” Pet., 21 (“For example, the subscriber’s unique location and Internet connectivity may be used in weighting PIC scores.”); EX2005, ¶57. Thus, even if Grannan determines a quality level based on the user profile, as Petitioner alleges, that does not necessarily mean that the quality level is determined using any alleged unique identifier (as opposed to other information) in the profile. Because it is possible to use information such as location, Internet connectivity, age, family size, ethnicity, and other information from Grannan’s profile to develop a quality level (Pet., 20-21), it is not “necessarily the case” that the quality level would be based at least in part on a unique identifier. EX2005, ¶57.

Indeed, Mr. Sherwood acknowledges that the data elements relied upon to show that the PIC score is based on a “*unique identifier*” are not themselves unique identifiers. For example, Mr. Sherwood asserts that this claim element is met because Grannan’s PIC score “must be weighted and scored” based on user profile data, specifically pointing to “demographics,” “past behavior/settings,” “the subscriber’s unique location,” and “Internet connectivity.” EX1003, ¶¶92-94. But

Mr. Sherwood acknowledges that none of this data is a “*unique identifier*.”

EX2009, 137:16-138:5, 139:21-140:8, 145:13-146:5, 147:18-148:3.

ii. The distinction between an identifier and a user profile is further supported by the '402 patent specification. The '402 patent specification provides examples of “*unique identifier[s]*” and expressly differentiates those from profiles. For instance, the '402 patent describes “cookies” and “a UDID” (Unique Device Identifier) as examples of “unique identifiers.” EX1001, 3:32-35, 15:63-65; EX2005, ¶58. In contrast, the '402 patent describes “user profile information” that may include information such as “user-provided information (e.g., demographic information supplied directly by the user); observed behavior (e.g., observed by platform 102); and reported behavior (e.g., purchases observed by a third-party provider,” as well as “recent searches, mouse-over and click behavior, and information of recent pages requested by the user.” EX1001, 3:26-30, 4:26-32, 4:38-43; EX2005, ¶59. The specification thus differentiates between an identifier used to *identify* a user, and a user profile that contains various information *about* a user. EX2005, ¶59.

The user profile information described in the '402 patent is similar to the “[u]ser profile data” that Petitioner points to in Grannan. For example, as Petitioner notes, Grannan’s user profile incorporates many elements, such as “ages, family size, ethnicity, language spoken, address, subscriber user identifiers for family

members, etc.” Pet., 20; EX1007, ¶73. Grannan’s user profile, therefore, is different from an “*identifier*” as described in the ’402 patent. EX2005, ¶60.

iii. Extrinsic evidence further supports the distinction between Grannan’s user profile and the claimed “*unique identifier*.” Particularly, a POSITA would have understood that Grannan’s user profile, which is a collection of various data, is different from an “*identifier*.” EX2005, ¶61. For example, the Microsoft Computer Dictionary explains that an “identifier” is “[a]ny text string used as a label, such as the name of a procedure or a variable in a program or the name attached to a hard disk or floppy disk.” EX2017, 264 (emphasis added); *see also* EX2004, 244 (defining “identifier” as “[a] string of characters used to identify (or *name) some element of a program”) (emphasis added); EX2005, ¶61. In contrast, a “user profile” is “[a] computer-based record maintained about an authorized user of a multiuser computer system.” EX2017, 544 (emphasis added); EX2005, ¶61. Grannan’s user profile is not a text string, consistent with the ordinary meaning of an “*identifier*”—it is an organized record that includes various data about one or more users. EX2005, ¶61.

Accordingly, the ’402 patent claims, specification, and extrinsic evidence all support that Grannan’s user profile does not provide a “*unique identifier*,” as recited in claim 1. The Petition, therefore, fails to establish that Grannan, in combination with Chung, Yang, and/or Ramaiyer, renders obvious element [1c].

B. Petitioner fails to establish that the combination of Grannan and Chung with either Yang or Ramaiyer renders obvious “wherein the determining of the first quality level is based at least in part on . . . clustering” (element [1c]).

Element [1c] of claim 1 further requires that “*the determining of the first quality level is based at least in part on . . . clustering.*” EX1001, 18:59-61 (emphasis added). Petitioner concedes that neither Grannan nor Chung disclose the claimed “*clustering*” but asserts that “[t]he technique of differentiating between multiple users of the same computer, based on identifying clusters of user behavior (i.e., clustering) was a known technique” taught by Yang and Ramaiyer. Pet., 21-24, 63-65. Petitioner then asserts that “it would have been obvious to a POSITA to **use Yang’s clustering of user behavior in Grannan** (or the Grannan-Chung combination) to differentiate between unique users on a shared device, so as to determine which user profile information to use for calculating the first quality level (PIC score).” Pet., 23 (emphasis added); *see also id.*, 64 (“It would have been obvious to a POSITA to **use Ramaiyer’s clustering of user behavior in the Grannan-Chung combination** to differentiate between multiple users on a single device, so as to ascertain which user profile to associate activity such as browsing and clicking behavior.”); EX2005, ¶65.

A POSITA, however, would not have sought to implement Yang’s or Ramaiyer’s alleged clustering techniques within Grannan’s system. EX2005, ¶66. In particular, Grannan’s advertising knowledge management system (AKMS)

already employs a “profiling process” that is “able to identify the subscriber via single-sign on (SSO) credentials,” which then allows the system to “monitor and profile subscriber surfing history, traffic characteristics, port usage, etc.” for the subscriber. EX1007, ¶86; EX2005, ¶66. And these “SSO credentials can be defined and cached in the access device (e.g. television set top box, cell phone, PC, laptop, etc.) to avoid requiring the subscriber to sign in each and every time the Internet is accessed with such a device,” reducing the burden on users to sign in every time a device is used. EX1007, ¶86; EX2005, ¶66.

Grannan uses this SSO technique to identify individual users for good reason. EX2005, ¶67. As Grannan explains, “[g]iven the privacy concerns of subscribers,” Grannan’s system “provides subscriber directed **privacy controls that include utilizing subscriber usage information as opt in settings** defined by the subscriber, and maintained in the user's profile.” EX1007, ¶18 (emphasis added). These “privacy settings enable subscribers to **control what information they are willing to have monitored** and used by the AKMS.” EX1007, ¶78 (emphasis added); *see also id.*, ¶86 (monitoring of “subscriber surfing history, traffic characteristics, port usage, etc. . . . would only be used based on **positive privacy allowance or opt-in settings 206 defined by the subscriber allowing specific monitoring permissions.**”) (emphasis added). In other words, Grannan stresses the importance of user privacy, permitting monitoring and use of user

activity *only* if the user opts in. *Id.*, ¶¶18, 78, 80, 86; EX2005, ¶¶67. Grannan’s SSO techniques for identifying a user do not require use of monitored user activity, allowing the system to adhere to user-specified privacy settings. EX2005, 67X.

In contrast, both Yang’s and Ramaiyer’s techniques require monitoring user activity in order to identify a user—effectively requiring Grannan’s system to disregard user-specified privacy settings. EX2005, ¶¶68. For example, Yang describes techniques for “[c]lustering user-centric Web transactions” for different users, which rely on “the entire Web surfing behavior for each user.” EX1006, 16; Pet., 21-22. Similarly, Ramaiyer describes a “profile predictor 112 [that] may monitor or track behavior on the user device 102 to predict the particular user of the device based on the behavior.” EX1009, ¶29; Pet., 64 (“Ramaiyer teaches the tracking of sessions of user behavior on a device to predict the user of the device based on clustering of the data.”) (emphasis added); EX2005, ¶¶68.

Petitioner’s expert, Mr. Sherwood, confirms Yang’s and Ramaiyer’s operation, requiring user activity to be monitored before a user can be identified. As Mr. Sherwood explains, “online sessions is where [Yang’s] particular data capturing would start,” and Yang is “monitoring a session from a single device.” EX2009, 149:9-150:9. And when asked, “Does Yang base its identification of individual users based on that monitored user activity,” Mr. Sherwood responded, “the answer is necessarily yes.” *Id.*, 150:12-17. Similarly for Ramaiyer, Mr.

Sherwood explained that Ramaiyer also teaches “monitoring user activity via sessions,” and “using that activity to predict the user of the device.” *Id.*, 151:16-152:11; *see also id.*, 152:9-11 (“Ramaiyer’s clustering algorithm is used to group user sessions into clusters so that each cluster is associated with a different user, yes.”).

As Dr. Jansen explains, the privacy concerns expressed in Grannan were well known around the time of the ’402 patent. EX2005, ¶69 (citing EX2013, 24; EX2014, 4). For example, an IEEE article published at the time of the ’402 patent noted that “[u]ser surveys have consistently shown opposition to third parties collecting and using browsing activity,” and the risk of data being “transferred, sold, stolen, misplaced, or accidentally distributed,” can lead to “physical, psychological, or economic” harm to the user. EX2014, 4; EX2005, ¶69.

Petitioner’s own expert in related case IPR2024-01316 confirms these concerns. Dr. Wills, who claims to be an expert in Web privacy, agreed that “it is important for users to have a choice of whether their online activity is monitored,” and that “if a user opts out of having their online activity monitored,” it is “desirable” that “third parties respect that preference.” EX2012, 32:16-33:12. Indeed, Dr. Wills’ own article published at the time of the ’402 patent confirms the importance of adhering to user privacy preferences. EX2010, ¶3 (citing EX2011). The article explains that Dr. Wills and his team “surveyed [users] regarding their

attitudes towards tracking” and “found that 63% of users agreed with a statement of concern for third parties monitoring activities.” EX2011, Abstract. And users were most concerned with their online activity being monitored, compared to other data that may be tracked by third parties such as location and demographic information. EX2011, 10. In view of these user privacy concerns, a POSITA would have little benefit to gain in replacing or augmenting Grannan’s existing SSO identification techniques with those described by Yang or Ramaiyer. EX2005, ¶70.

Thus, to the extent Yang and Ramaiyer teach techniques for identifying individual users, those techniques run counter to Grannan’s teachings—namely, Grannan’s emphasis on user privacy—as Yang’s and Ramaiyer’s techniques require monitoring and classification of user activity (whether or not the user has opted out of activity monitoring) *before* a user can be identified. EX2005, ¶71; *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (In determining whether a motivation to combine exists, “prior art must be considered for all its teachings, not selectively,” and “the benefits, *both lost and gained*, should be weighed against one another.”) (emphasis in original) (citing *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000)). Petitioner provides no reason to replace or augment Grannan’s user-identification techniques, which do not require use of monitored user activity, with Yang’s and Ramaiyer’s techniques that do. EX2005, ¶71; *Adidas AG v. Nike, Inc.*, 963 F.3d 1355, 1359

(Fed. Cir. 2020) (“The obviousness inquiry does not merely ask whether a skilled artisan could combine the references, but instead asks whether they would have been motivated to do so. . . . Fundamental differences between the references are central to this motivation to combine inquiry.” (internal citations omitted)).

Accordingly, the combination of Grannan and Chung with either Yang or Ramaiyer does not render obvious “*wherein the determining of the first quality level is based at least in part on . . . clustering,*” as required by element [1c].

C. Petitioner fails to establish that Grannan and Chung teach determining “a first quality level” based on a “first search” or “first purchase,” and determining “an indication of interest in a first category” based on a “second search” or “second purchase” (elements [1b] and [1d]).

Element [1b] requires that “*the first quality level is determined based at least in part on at least one of: (1) a first search associated with the user profile or (2) a first purchase associated with the user profile,*” and element [1d] requires that “*the indication of interest in the first category is determined based at least in part on at least one of: (1) a second search associated with the user profile or (2) a second purchase associated with the user profile.*” EX1001, 17:55-18:2 (Claim 1, elements [1b] and [1d]) (emphasis added). Petitioner fails to establish obviousness of these claim elements because: (1) Petitioner does not identify “a first purchase” or “a second purchase” in Grannan or Chung—Petitioner, in fact, does not identify any “purchase” used to determine a “first quality level” or an

“indication of interest in the first category”; and (2) Petitioner does not identify *“a first search”* different from *“a second search”* in Grannan or Chung. EX2005, ¶73.

And Petitioner does not rely on Yang or Ramaiyer for either of these elements.

Petitioner’s analysis, therefore, is insufficient to establish obviousness of elements [1b] and [1d].

1. Petitioner does not identify “a first purchase” used to determine “a first quality level” or “a second purchase” used to determine “an indication of interest in a first category.”

Petitioner equates Grannan’s “product interest correlation score,” or “PIC score” as referred to in the Petition, to the claimed *“first quality level.”* Pet., 14; EX1007, ¶62. Petitioner then asserts that the “final PIC score for each subscriber is tallied by evaluating several factors including ‘previous purchases.’” Pet., 16 (citing EX1007, ¶¶90, 105). But, aside from this general statement, Petitioner does not identify *any* purchase in Grannan used to determine *“a first quality level,”* let alone a different *“second purchase”* used to determine *“an indication of interest in a first category,”* as the claims require. EX2005, ¶74.

To support its contentions, Petitioner relies on an example scenario described in Grannan in which an individual named “Susan is planning to purchase children’s books as a Christmas present for her nephews.” EX1007, ¶56. Pet., 16-17. Grannan describes that Susan “goes online to a retailer’s web site and browses through a number of titles but decides to hold off on a purchase,” but Grannan’s

system uses “the web pages visited by Susan to determine her intent for the URI visit and correlates this intent to an interest in certain product categories.” *Id.*

“Later when Susan is walking through the local mall to finish her other shopping, she receives a targeted text advertisement on her cell phone from the AKMS for the local book store indicating a discount sale on children’s books,” and “Susan impulsively walks into the store and makes a purchase.” *Id.*, ¶57.

Based on this scenario, Petitioner alleges that “a POSITA would have recognized or found it obvious that the targeted ad from the AKMS was based on a *quality level* (PIC score) for Susan that was calculated based on her historic shopping behavior, including her past product purchases,” and that “[o]ne of these historic purchases is the *first purchase* on which her quality level (PIC score) is based that was used to send the targeted ad as disclosed.” Pet., 17 (citing EX1007, ¶57). But a POSITA would not have understood the “shopping behavior” referenced by Petitioner to include past product purchases. EX1007, ¶57; EX2005, ¶¶75-76.

The referenced paragraph of Grannan states, “[t]he targeted advertisement Susan received on her cellphone was based on her historic surfing/shopping behavior combined with Susan’s presence in a certain location that is close to a merchant selling products in which she is interested determined by her surfing/shopping behavior.” EX1007, ¶57. But Grannan makes clear in the

previous paragraph that the “historic surfing/shopping behavior” refers to online browsing of retailer websites—*not* past purchases: “[Susan] **goes online to a retailer's web site and browses** through a number of titles but decides to hold off on a purchase. Presuming Susan has exercised an opt-in preference that allows the AKMS system to monitor her URI and her Internet surfing behavior as a subscriber for this Internet session, **this URI visitation information regarding the retailer's web site is mined and stored.**” *Id.*, ¶56 (emphasis added); EX2005, ¶77.

Tellingly, Petitioner’s expert could not identify any “*first purchase*” in Grannan during his deposition, attempting to avoid the question by vaguely referencing his declaration. *See, e.g.* EX2009, 32:4-34:15 (Q. “Could you tell me where Grannan describes a first purchase?” A. “[W]hen I look at the first purchase associated with the user profile and form an opinion about whether or not a POSITA could from the prior art arrive at that claim or arrive at that limitation, I look at all the paragraphs that I cite. **I'm not relying on one specific sentence but the entire analysis.**”; “**I think the paragraphs [of my declaration] speak for themselves** because they reference Grannan.”; “I'm responding to the first purchase, and **my response is contained in the aggregate in the paragraphs** as well as the references.”) (emphasis added). Indeed, Mr. Sherwood could not identify the claimed “*first purchase*” because Grannan’s “Susan” example discusses only one, single purchase, which Petitioner relies on for the claimed

“*third purchase*.” EX1007, ¶¶56-57; Pet., 31. As Grannan explains, Susan’s determination of “interest” in children’s books is based on “the web pages visited by Susan,” not any previous purchases, which are not needed for Grannan’s system to appropriately tailor the advertisement. EX1007, ¶56; EX2005, ¶78.

Petitioner, therefore, fails to identify any “*first purchase*” used in Grannan to determine the recited “*first quality level*.” See *Palo Alto Networks, Inc. v. BT Americas Inc.*, IPR2023-00888, Paper 9 (Decision Denying Institution) at 34 n.7 (P.T.A.B. Nov. 17, 2023) (for “method” claims and “those that recite configuration,” Petitioner must show that the prior art actually “performs the step[s]” of the claim).

Petitioner similarly fails to identify a “*second purchase*” in Grannan used to determine an “*indication of interest in the first category*.” Petitioner identifies Grannan’s “contribution scores” as the claimed “*indication of interest*,” Pet., 24, but Petitioner does not identify a “*second purchase*” upon which Grannan’s contribution score is based. EX2005, ¶79.

Specifically, Petitioner alleges that “[t]he disclosed ‘contribution score’ is an indication of interest that is calculated based on the subscriber’s purchases, since Grannan also discloses that the ‘final [PIC] score is tallied by evaluating . . . previous purchases.’” Pet., 25 (citing EX1007, ¶90). But nowhere does Grannan disclose that these “previous purchases” are used to calculate a contribution score.

See EX1007, ¶90 (containing no discussion of a contribution score). EX2005, ¶80.

Again, Petitioner’s expert could not identify any portion of Grannan where a “second purchase” is taught, pointing only to a user’s online activity (i.e., “URL links a user may browse”). See, e.g., EX2009, 57:6-64:4 (Q. “[W]here does Grannan disclose a second purchase?” A. “[M]y analysis is based on Grannan’s disclosure and what a POSITA would have learned from that. . . . And [my declaration] goes on to explain the same way that a second purchase associated with the user profile as explained in [1b].”; “In paragraph 102, I discuss what Grannan discloses that renders obvious in the AKMS using contribution scores that reflect the user’s interest in certain products and product categories. **Contribution scores are calculated based on URL links a user may browse.**”) (emphasis added).

In an attempt to remedy this deficiency, Petitioner again references the same “Susan” example in Grannan. Pet., 25-26. Petitioner fabricates a scenario in which “a PIC score for Susan [] was calculated based on multiple contribution scores calculated from multiple purchases and web surfing in Susan’s historic behavior.” Pet., 25 (emphasis removed). But Petitioner’s hindsight-driven scenario is not disclosed or suggested in Grannan. EX2005, ¶81; *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988) (“One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”);

Cheese Sys., Inc. v. Tetra Pak Cheese & Powder Sys., Inc., 725 F.3d 1341, 1352

(Fed. Cir. 2013). As noted above, Grannan explains that Susan’s determination of “interest” in children’s books is based on “the web pages visited by Susan,” not any previous purchases. EX1007, ¶56; EX2005, ¶81. Petitioner, therefore, similarly fails to identify any “*second purchase*” in Grannan.

Chung does not fill Grannan’s gaps with respect to the claimed “*first purchase*” or “*second purchase*.” Petitioner does not allege that Chung discloses a “*purchase*” upon which a “*first quality level*” is based. Pet., 17-19, 26-28. Indeed, Chung’s list of “events” relied on by Petitioner does not include purchases. Pet., 18, 26-27 (citing EX1005, 2:48-49, 6:38-41); EX2009, 96:2-97:10; EX2005, ¶82. And Petitioner’s expert, Mr. Sherwood, adds nothing to the obviousness inquiry, repeating the Petition almost verbatim. *Compare* Pet., 24-26, with EX1003, ¶¶102-105; *Bytemark*, IPR2022-00624, Paper 9 at 15; *TQ Delta*, 942 F.3d at 1359 (Fed. Cir. 2019).

Accordingly, the Petition fails to establish that Grannan, in combination with Chung, Yang, and/or Ramaiyer, renders obvious either “*a first purchase*” or “*a second purchase*” as recited in elements [1b] and [1d].

2. Petitioner does not identify “a first search” used to determine “a first quality level” and “a second search” used to determine “an indication of interest in a first category.”

Without identification of “*a first purchase*” or “*a second purchase*,”

Petitioner is left with the requirement to show “*a first search*” used to determine “*a first quality level*” and “*a second search*” used to determine “*an indication of interest in a first category*,” as recited in elements [1b] and [1d]. Petitioner fails to make this showing.

Petitioner first fails to identify a “*first search*” or “*second search*” in Grannan. EX2005, ¶84. For the claimed “*first search*,” Petitioner points to Grannan’s disclosure of “browsing to a new web site” and “web surfing history.” Pet., 15-16 (citing EX1007, ¶¶76, 80, 83-90, 98). Similarly, for the claimed “*second search*,” Petitioner alleges that Grannan’s “[c]ontribution scores are calculated based on URI links that a user may browse.” Pet., 24 (citing EX1007, ¶83). But, as detailed below, web “browsing”/“surfing” is different from performing a “*search*,” as recited in the claims. EX2005, ¶84.

In the portions of Grannan cited by Petitioner, Grannan explains that “contribution score[s]” are generated when a user browses (i.e., “surfs”) to a particular website:

This spidering information can be used to create a high product interest correlation “contribution” score for Autos→By Make→Manufacturer→Model as well as Autos→By

Style→Sedans→Midsize→Manufacturer Model. **When a subscriber subsequently surfs to this link**, the “contribution” score can be added to the subscriber’s current product interest correlation score for this particular category.

EX1007, ¶83 (emphasis added); EX2005, ¶85.

A POSITA would have understood that searching, as recited in the independent claims, is different from Web surfing, as disclosed by Grannan. EX2005, ¶86. For example, the Microsoft Computer Dictionary explains that “[a] search is carried out by a program through comparison or calculation to determine whether a match to some pattern exists or whether some other criteria have been met,” and a “search engine,” “[o]n the Internet [is] a program that searches for keywords in files and documents found on the World Wide Web.” EX2017, 469. In contrast to searching, “surf” is defined as “[t]o browse among collections of information on the Internet, in newsgroups, in Gopherspace, and especially on the World Wide Web.” *Id.*, 503. Petitioner’s citations to Grannan refer only to browsing activity. Pet., 15-16, 24-26 (citing EX1007, ¶¶57, 60, 76, 83, 98, 100); EX2005, ¶¶86-87. Petitioner does not identify a “*search*” that Grannan’s contribution score is based upon, let alone a “*second search*” different from a “*first search*,” as required by the claims. EX2005, ¶87.

Recognizing this deficiency, Petitioner asserts, “[t]o the extent that web ‘browsing’ and ‘surfing’ are not expressly a first search, a POSITA would have

found it obvious to calculate the Grannan PIC score based on the user’s web search engine queries, in addition to user browsing information,” which would allegedly “improve the accuracy of the PIC score.” Pet., 16. Neither Petitioner nor its expert, however, cite any support in Grannan—or any other corroborating evidence—to support this assertion. *Id.*; EX1003, ¶¶85-86; *TQ Delta*, 942 F.3d at 1359 (Fed. Cir. 2019); EX2005, ¶88.

As Dr. Jansen explains, Grannan already includes “a web spidering process” that “parses the text on each web page visited by a subscriber and infers product category interest intent for a subscriber visiting the web page for one or more product categories.” EX1007, ¶70; EX2005, ¶89. As in the “Susan” example, Susan’s “brows[ing] through a number of titles” on the “retailer’s web site” provides more than enough information to “determine her intent for the URI visit and correlate[] this intent to an interest in certain product categories.” EX1007, ¶56; EX2005, ¶89. Incorporating a user’s web search engine queries, as Petitioner suggests, would add little benefit to Grannan’s system considering that search results browsed by the user would already be captured as part of Grannan’s web spidering process. EX2005, ¶89. Petitioner provides no reason why incorporating web search queries would have improved the accuracy of Grannan’s existing web spidering process and, therefore, Petitioner fails to establish that Grannan teaches the claimed “*first search*” or “*second search*.”

Petitioner further alleges that Chung teaches the claimed “*first search*” or “*second search*,” Pet., 17-19, 26-27, but Chung’s disclosure does not fill the gaps of Grannan’s. Petitioner identifies Chung’s “mapped score” as the recited “*first quality level*” of element [1b], Pet., 17, and Chung’s “user interest score” / “interest score” / “user profile score” as the recited “*indication of interest in a first category*,” Pet., 26-27. Petitioner alleges that “[u]ser events, such as user search queries, are input into Chung’s system and used to determine user scores which are in turn used to produce the mapped score.” Pet., 18 (citing EX1005, 6:39-41), 26. Petitioner ignores that Chung’s “score[s]” are based on the *same* events, not separate “*first*” and “*second*” searches, as the claims recite. EX2005, ¶90.

Specifically, although Chung describes “search queries” as potential events, EX1005, 6:38-41, Petitioner does not identify “*a second search*” relevant to element [1d] that is different from “*a first search*” identified for element [1b]. Indeed, Petitioner points to the exact same disclosure in Chung for both elements. *Compare* Pet., 18 (citing EX1005, 6:39-41), *with* Pet., 26-27 (citing EX1005, 6:38-41); EX2005, ¶91.

Chung describes that “classified events are input to dimension processing 450 and to model & rules 440” to generate a “user interest score.” EX1005, 5:21-22, 5:43-48. Then, as Petitioner explains, “the user interest score is input to a mapping module 460’ to generate the ‘mapped score.’” Pet., 13 (citing EX1005,

5:49-50); *see also* EX1005, 5:50-51 (“In general, the mapping module maps raw user scores to one or more output metrics.”); EX2009, 94:7-10; EX2005, ¶92.

Significantly, as Dr. Jansen explains, Chung’s “mapped score” does not take into account additional event data; it simply provides a different representation of the raw user interest score. EX2005, ¶93 (citing EX1005, 20:46-49). Thus, Chung’s “user interest score” and “mapped score” are based on the *same* events and are calculated as part of the *same* process. In other words, “events” in Chung are used only to calculate raw user interest scores, which are simply converted to mapped scores. EX2005, ¶93; EX2009, 94:7-10 (Petitioner’s expert confirming this operation: Q. “So events are used to determine user scores, and then user scores are used to create mapped scores, correct?” A. “That sounds correct, yes.”).

In contrast, the claims require that the recited “*first quality level*” and “*indication of interest in a first category*” be based on *different* events (i.e., searches or purchases). *See* EX1001, Claim 1; EX2005, ¶94. Petitioner has not (and cannot) make such a showing. *Becton*, 616 F.3d at 1254 (“Where a claim lists elements separately, the clear implication of the claim language is that those elements are distinct component[s] of the patented invention”) (cleaned up); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1404-05 (Fed. Cir. 1996) (concluding that where a claim provides for two separate elements, a “second portion” and a “return portion,” these two elements “logically cannot be one and the same.”).

In its Institution Decision, the Board stated that “Petitioner does not rely on Chung’s disclosure for a single search event or the same search.” DI, 31. But Petitioner’s contention that “Chung updates interest scores / user profile scores based on multiple user events,” Pet., 26, does not salvage its argument. Regardless of whether Chung bases its “interest score” on one or multiple events, its “interest score” and “mapped score” would still be based on the *same* events—as Chung explains, “the user interest score is input to a mapping module,” which simply “maps raw user scores to one or more output metrics,” without accounting for additional events. EX1005, 5:49-51; EX2005, ¶93; EX2009, 94:7-10. Thus, even assuming Petitioner is correct that Chung may base its “interest scores” on multiple events, that is insufficient to satisfy the claim elements, which require “*a second search*” used to determine “*an indication of interest in a first category*” that is different from “*a first search*” used to determine “*a first quality level*.” *Becton*, 616 F.3d at 1254; *Lockformer*, 96 F.3d at 1404-05. Moreover, Petitioner’s failure to map any particular search queries in Chung to the claimed “*first search*” and “*second search*” is insufficient to render these elements obvious. *Palo Alto*, IPR2023-00888, Paper 9 at 34 n.7; 37 C.F.R. § 42.104(b)(4).

The Board further stated that Grannan’s “initial PIC score is based on ‘a first search,’” and Grannan’s system “may update a subscriber’s product interest correlation scoring matrix in real time by adding the contribution score (e.g.,

indication of interest) that is based on a subscriber's behaviors after the initial PIC score is generated." DI, 31. But the Board respectfully overlooks the combination presented in the Petition. In particular, Petitioner alleges that "a POSITA would have found it obvious to modify Grannan by **substituting Chung's mapped score for Grannan's PIC score.**" Pet., 18 (emphasis added); *see also* EX2009, 99:19-100:4 (Q. "In Paragraph 91 you don't say that you should combine the two scores [(Grannan's PIC score and Chung's mapped score)]. You say you should substitute Chung's mapped score. Do you see that?" A. "Yes, that's right."). And, as discussed above, Chung's "mapped score" is simply derived from a previously determined "user interest score," both of which are based on the same events. EX1005, 5:49-51; EX2005, ¶93. Therefore, considering the combination presented in the Petition, Petitioner fails to show "*a first search*" used to determine "*a first quality level*" and "*a second search*" used to determine "*an indication of interest in a first category*," as recited in elements [1b] and [1d]. *SAS*, 584 U.S. at 365-367; *Intelligent Bio-Sys.*, 821 F.3d at 1369.

Once again, Petitioner's expert adds nothing to the obviousness inquiry, repeating the Petition almost verbatim without citing any additional evidence. *See* EX1003, ¶¶107-08; *Bytemark*, IPR2022-00624, Paper 9 at 15; *TQ Delta*, 942 F.3d at 1359 (Fed. Cir. 2019). Even in deposition, Mr. Sherwood could not add further detail; he merely read from his declaration verbatim. EX2009, 99:19-100:22. Mr.

Sherwood was also unable to provide any details on how the substitution of Chung's mapped score for Grannan's PIC score could work from a technical perspective, such as how Chung's mapped score could be incorporated into Grannan's system without also incorporating Chung's user profile scores. EX2009, 106:4-107:19 ("The user profile scores are used to create the mapped score, yes. . . . So the hypothetical of what would happen if there's no user profile scores, I don't see that I have addressed that or made that kind of analysis.").

Accordingly, the Petition fails to establish that Grannan, in combination with Chung, Yang, and/or Ramaiyer, renders obvious "*a first search*" used to determine "*a first quality level*" and "*a second search*" used to determine "*an indication of interest in a first category*," as recited in elements [1b] and [1d].

D. Petitioner fails to establish that Grannan and Chung render obvious dependent claims 6 and 15.

Each of dependent claims 6 and 15 requires that "*at least one of the first quality level or the second quality level is determined with respect to the advertisement.*" EX1001, 18:41-43, 19:43-45. Petitioner asserts that "Grannan discloses that the *first quality level* (PIC score) is based at least in part on a conversion assessment associated with the user profile," "for example, purchasing a car." Pet., 51 (emphasis in original). Petitioner then concludes that Grannan teaches the subject matter of these claims because "the PIC scores are applied to an advertisement database **to select an advertisement in the product category** to

send to the user.” *Id.* (emphasis added); *see also* EX1003, ¶153 (Petitioner’s expert repeating same); EX2005, ¶96.

Claims 6 and 15, however, require “*the advertisement*” to be used as a basis for determining the claimed “*first quality level or the second quality level*.”

EX1001, 18:41-43 (“*at least one of the first quality level or the second quality level is determined with respect to the advertisement.*”); EX2005, ¶97. For example, the ’402 patent describes “generat[ing] a **quality measure** for the user **in the context of one or more particular advertisements**—such as an advertisement for a camera lens of a particular type.” EX1001, 10:42-46; *see also id.*, 9:37-39 (describing a “quality metric” “indicating how likely it is that a given individual will click on an advertisement”); EX2005, ¶98. Neither Petitioner nor its expert explain how the claimed “*first quality level*” is “*determined with respect to the advertisement.*” Pet., 51; EX1003, ¶¶152-53; EX2005, ¶99. Accordingly, Petitioner fails to establish that the prior art renders obvious claims 6 and 15.

E. Petitioner fails to establish that Grannan and Chung render obvious dependent claims 7 and 16.

Each of dependent claims 7 and 16 requires that “*at least one of the first quality level or the second quality level is used to determine at least one of a discount or a surcharge.*” EX1001, 18:44-46, 19:46-48. Petitioner contends that “Grannan discloses using discounts and surcharges” because, for example, “Grannan discloses text advertisements are lower cost than TV advertisements, . . .

and that advertisers can set [PIC] score thresholds for when text advertisements versus TV advertisements are sent to users.” Pet., 52. But Grannan’s selection of a particular advertisement does not involve applying any “*discount*” or “*surcharge*” to the cost of that advertisement. EX2005, ¶100.

In particular, Grannan describes that “a [PIC] score may range from 1 to 100,” and “[a]n advertiser may set a score threshold of 20 for sending a text advertisement to a subscriber’s cell phone, a score threshold of 50 for sending a video advertisement to the subscriber’s cell phone and set a score threshold of 90 for sending a video advertisement to the subscriber’s IPTV receiver.” EX1007, ¶63. Although Grannan explains that a text advertisement may be “lower cost” compared to a TV advertisement, Grannan does not disclose applying a discount or surcharge to either advertisement. EX1007, ¶¶63, 77; EX2005, ¶101. In other words, the cost of each advertisement is not adjusted in any manner—the cost remains the same regardless of a user’s PIC score. EX2005, ¶101.

In contrast, the ’402 patent discloses applying “*a discount or a surcharge*” to the price of a particular advertisement based on quality levels. For example, “if a user is found to have a quality level of 8 out of 10 at the time discounts are applied, and an advertiser bids \$0.10 for an impression to be displayed to this user, then the system may discount the impression by 20% (or 2 out of 10).” EX1001, 15:8-12. Petitioner has not shown that Grannan teaches this claimed operation and,

therefore, fails to establish that the prior art renders obvious claims 7 and 16. Pet.,
52; EX2005, ¶102.

V. CONCLUSION

For at least the foregoing reasons, Petitioner has failed to show that any
challenged claim is unpatentable. Therefore, the Board should uphold the
patentability of the challenged claims.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT (37 C.F.R. § 42.24(d))

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