

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FREEWHEEL MEDIA, INC.,
Petitioner,

v.

ALMONDNET, INC.,
Patent Owner.

Patent No. 11,564,015
Filing Date: April 6, 2022
Issue Date: January 24, 2023
Title: TARGETED TELEVISION ADVERTISEMENTS BASED ON ONLINE
BEHAVIOR

Inter Partes Review No.: IPR2024-00420

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42.100 *et seq.***

Petition 2 of 2

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EXHIBITS

Ex. 1101:	U.S. Patent No. 11,564,015 (“the ’015 Patent”)
Ex. 1102:	Declaration of Dr. David B. Lett in Support of Petition For <i>Inter Partes</i> Review Of U.S. Patent No. 11,564,015
Ex. 1103:	<i>Curriculum Vitae</i> of Dr. David B. Lett
Ex. 1104:	Certified Prosecution History for U.S. Patent No. 11,564,015
Ex. 1105:	Excerpts from Case Docket of <i>Meta Platforms Inc v. AlmondNet Inc et al.</i> , IPR2022-00773 (March 28, 2022)
Ex. 1106:	U.S. Patent Application Publication No. 2004/0076180 (“Satapati”)
Ex. 1107:	Reserved
Ex. 1108:	Reserved
Ex. 1109:	Reserved
Ex. 1110:	Reserved
Ex. 1111:	Reserved
Ex. 1112:	Excerpts from E. D. Zwicky <i>et al.</i> , <i>Building Internet Firewalls</i> (2d ed. 2000) (“Zwicky”)
Ex. 1113:	Declaration of Sylvia Ellis
Ex. 1114:	Declaration of Brian J. Emfinger
Ex. 1115:	U.S. Patent Application Publication No. 2006/0265507 (“Banga507”)
Ex. 1116:	Reserved
Ex. 1117:	U.S. Patent Application Publication No. 2006/0242294 (“Damick”)
Ex. 1118:	Reserved

- Ex. 1119: U.S. Patent No. 8,930,239 (“Ashbaugh”)
- Ex. 1120: U.S. Pat. App. Pub. No. 2007/0025306 (“Cox”)
- Ex. 1121: Complaint, *AlmondNet, Inc. v. FreeWheel Media, Inc.*, Case No. 1:23-cv-00220-MN (D. Del.)
- Ex. 1122: U.S. Patent No. 8,180,674 (“Madhavan”)
- Ex. 1123: U.S. Patent Application Publication No. 2006/0039386 (“Park”)
- Ex. 1124: U.S. Patent Application Publication No. 2008/0120178 (“Martinez”)
- Ex. 1125: U.S. Patent Application Publication No. 2004/0003292 (“Kato”)
- Ex. 1126: U.S. Patent No. 5,428,778 (“Brookes”)
- Ex. 1127: U.S. Patent No. 8,438,170 (“Koran”)
- Ex. 1128: U.S. Patent No. 6,415,322 (“Jaye”)
- Ex. 1129: Excerpts from Downing *et al.*, *Dictionary of Computer and Internet Terms* (8th ed. 2003)
- Ex. 1130: Excerpts from Newton, *Newton's Telecom Dictionary* (21st ed. 2005)
- Ex. 1131: U.S. Patent No. 6,282,548 (“Burner”)
- Ex. 1132: U.S. Patent No. 6,036,601 (“Heckel”)
- Ex. 1133: U.S. Patent Application Publication No. 2005/0096978 (“Black”)
- Ex. 1134: Reserved
- Ex. 1135: Hagel *et al.*, *Net Worth: Shaping Markets When Customers Make the Rules* (1999) (“Hagel”)
- Ex. 1136: Request for Comments: 1631, “The IP Network Address Translator (NAT)” (1994) (“RFC 1631”)

Ex. 1137:	<i>Zeff et al., Advertising on the Internet</i> , (2 nd ed. 1999) (“Zeff”)
Ex. 1138:	Reserved
Ex. 1139:	Reserved
Ex. 1140:	Reserved
Ex. 1141:	ANSI/IEEE Std 802.11, 1999 Edition, “Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications”
Ex. 1142:	Reserved
Ex. 1143:	Reserved
Ex. 1144:	Reserved
Ex. 1145:	Reserved
Ex. 1146:	Reserved
Ex. 1147:	Reserved
Ex. 1148:	Reserved
Ex. 1149:	Reserved
Ex. 1150:	International Publication No. WO 2007/078283 for International Patent Application No. PCT/US2005/047230 to Ashbaugh (“Ashbaugh PCT”)
Ex. 1151:	Claim Chart (Exhibit 8) Accompanying Complaint, <i>AlmondNet, Inc. v. FreeWheel Media, Inc.</i> , Case No. 1:23-cv-00220-MN (D. Del.)
Ex. 1152:	Notice of Allowance mailed on August 20, 2013, in U.S. Patent Application No. 13/167,605
Ex. 1153:	Notice of Allowance mailed on December 9, 2021, in U.S. Patent Application No. 16/925,655
Ex. 1154:	Reserved

Ex. 1155:	Reserved
Ex. 1156:	Reserved
Ex. 1157:	U.S. Patent Application Publication No. 2004/0111640 (“Baum”)
Ex. 1158:	Institution Decision from <i>Meta Platforms, Inc. f/k/a Facebook, Inc. v. Intent IQ, LLC et al.</i> , IPR2023-01281, Paper 7 (February 21, 2024)
Ex. 1159:	U.S. Patent No. 7,376,714 (“Gerken”)
Ex. 1160:	U.S. Patent No. 6,427,170 (“Sitaraman”)
Ex. 1161:	Korean Pat. App. Pub. No. 2006-0065969 (“Han”)
Ex. 1162:	Certified Translation of Korean Pat. Pub. App. No. 2006-0065969 (“Han”)
Ex. 1163:	US Pat. App. Pub. No. 2002/0083445 (“Flickinger”)
Ex. 1164:	US Pat. App. Pub. No. 2008/0040742 (“Howcroft”)
Ex. 1165:	Jakob Nielsen, <i>Request Marketing</i> (Oct. 2000), https://www.nngroup.com/articles/request-marketing/
Ex. 1166:	Bettina Fabos, <i>The Commercial Search Engine Industry and Alternatives to the Oligopoly</i> (Mar. 2006) EastBound Journal
Ex. 1167:	Susan Young, <i>Getting the Message: How the Internet is Changing Advertising</i> (May 16, 2000), https://hbswk.hbs.edu/item/getting-the-message-how-the-internet-is-changing-advertising
Ex. 1168:	US Pat. App. Pub. No. 2002/00998842 (“Jennings”)
Ex. 1169:	US Pat. App. Pub. No. 2002/0123928 (“Eldering”)
Ex. 1170:	US Pat. No. 7,634,789 (“Gerba”)
Ex. 1171:	U.S. Pat. App. Pub. No. 2007/0180147 (“Leigh”)

MANDATORY NOTICES

Real Parties in Interest (37 C.F.R. § 42.8(b)(1))

The real parties-in-interest for this petition are (i) FreeWheel Media, Inc., (ii) Beeswax.io Corp., (iii) Comcast Corporation, (iv) Comcast Cable Communications, LLC, and (v) Comcast Cable Communications Management, LLC.

No unnamed entity is funding, controlling, or directing this Petition for *inter partes* review (IPR) of U.S. Patent No. 11,564,015 (“the ’015 Patent”), or otherwise has an opportunity to control or direct this Petition or Petitioner’s participation in any resulting IPR.

The ’015 Patent is the subject of one other request for *inter partes* review filed by Petitioner. No arguments presented in this Petition were raised during prosecution of the ’015 Patent.

Related Matters (37 C.F.R. § 42.8(b)(2))

The ’015 Patent was asserted against FreeWheel Media, Inc. and Beeswax.io Corp. by AlmondNet, Inc. and Intent IQ, LLC (collectively “AlmondNet”) in the United States District Court for the District of Delaware: *AlmondNet, Inc. v. Freewheel Media, Inc.*, No. 1:23-cv-00220-MN (D. Del.) (“Corresponding District Court Litigation”). Ex. 1121. The earliest date of service of the complaint for the

Corresponding District Court Litigation on any of the real parties-in-interest was March 2, 2023.

This is the second of two petitions for *inter partes* review filed by Petitioner against the '015 Patent—the other petition is assigned IPR2024-00419. Petitioner is also filing four petitions for *inter partes* review against related U.S. Pat. No. 7,861,260—those four petitions are assigned IPR2024-00421, IPR2024-00422, IPR2024-00423, and IPR2024-00424.

According to the Office's records, the '015 Patent is a continuation of application Ser. No. 16/925,655, filed Jul. 10, 2020, now U.S. Pat. No. 11,303,973 ("the '973 Patent"), which is a continuation of application Ser. No. 16/228,479, filed Dec. 20, 2018, now U.S. Pat. No. 10,715,878 ("the '878 Patent"), which is a continuation of application Ser. No. 15/803,631, filed Nov. 3, 2017, now U.S. Pat. No. 10,178,442 ("the '442 Patent"), which is a continuation of application Ser. No. 15/179,356, filed Jun. 10, 2016, now U.S. Pat. No. 9,813,778 ("the '778 Patent"), which is a continuation of application Ser. No. 14/246,525, filed Apr. 7, 2014, now U.S. Pat. No. 9,369,779 ("the '779 Patent"), which is a divisional of application Ser. No. 13/097,885, filed Apr. 29, 2011, now U.S. Pat. No. 8,695,032 ("the '032 Patent"), which is a divisional of application Ser. No. 12/860,666, filed Aug. 20, 2010, now U.S. Pat. No. 8,281,336 ("the '336 Patent"), which is a

continuation of application Ser. No. 11/736,544, filed Apr. 17, 2007, now U.S. Pat. No. 7,861,260 (“the ’260 Patent”).

According to the Office’s records, the ’015 Patent is also related to: application Ser. No. 13/167,605, filed Jun. 23, 2011, now U.S. Pat. No. 8,677,398 (“the ’398 Patent”), which is a continuation of the ’336 Patent; and application Ser. No. 14/089,645, filed Nov. 25, 2013, now U.S. Pat. No. 10,321,198 (“the ’198 Patent”), which is a continuation of application Ser. No. 12/981,925, filed Dec. 30, 2010, now U.S. Pat. No. 8,595,069 (“the ’069 Patent”), which is a continuation of application Ser. No. 11/968,117, filed Dec. 31, 2007, now U.S. Pat. No. 8,566,164 (“the ’164 Patent”), which is a continuation-in-part of the ’260 Patent.

In addition to the Corresponding District Court Litigation, the ’015 Patent or its related patents have been the subject of the following district court cases:

- *AlmondNet, Inc. v. Viant Technology Inc.*, 1-23-cv-00174 (D. Del.), which is currently pending.
- *AlmondNet, Inc. v. Samsung Electronics Co., Ltd.*, 4-22-cv-07515 (N.D. Cal.) (“7515 N.D. Cal. case”), which is currently pending but stayed.
- *AlmondNet, Inc. et al. v. Samsung Electronics Co., Ltd. et al.*, 6-21-cv-00891 (W.D. Tex.), which was transferred to the 7515 N.D. Cal. case.

- *AlmondNet, Inc. v. Meta Platforms, Inc. f/k/a Facebook, Inc.*, 4-22-cv-08911 (N.D. Cal.) (“8911 N.D. Cal. case”), which was reassigned to the 7515 N.D. Cal. case and is otherwise stayed.
- *AlmondNet, Inc. v. Meta Platforms, Inc. f/k/a Facebook, Inc.*, 6-22-cv-01205 (W.D. Tex.), which was transferred to the 8911 N.D. Cal. case.
- *AlmondNet, Inc. v. Amazon.com, Inc.*, 6-22-cv-01204 (W.D. Tex.), which was terminated.
- *AlmondNet, Inc. v. Microsoft Corp.*, 6-22-cv-01206 (W.D. Tex.), which was consolidated into the 897 W.D. Tex. Case.
- *AlmondNet, Inc. et al v. Oath Holdings Inc.*, 1-19-cv-00247 (D. Del.) (“247 D. Del. case”), which was terminated on March 4, 2019, without a claim construction order.
- *AlmondNet, Inc. et al v. Yahoo! Inc.*, 1-16-cv-01557 (E. D. N.Y.), which was transferred to the 247 D. Del. case.
- *Roku, Inc. v. AlmondNet, Inc. et al.*, 1-21-cv-01035 (D. Del.), which is currently pending and awaiting a claim construction order.

The '015 Patent has not been subject to any prior U.S. Patent Office proceedings. Patents related to the '015 Patent have been the subject of the following U.S. Patent Office proceedings. Petitioner and its real parties-in-interest were not involved in any of these cases:

- *Meta Platforms, Inc. f/k/a Facebook, Inc. v. Intent IQ, LLC et al.*, IPR2022-00773, challenging claims of the '398 Patent on different grounds from those presented herein, was granted institution, but terminated due to settlement. Ex. 1105.
- *Amazon.com, Inc. et al. v. Intent IQ, LLC, et al.*, IPR2023-00227, challenging claims of the '398 Patent on different grounds from those presented herein, was denied institution.
- *Microsoft Corporation et al. v. Intent IQ, LLC*, IPR2022-01420, challenging claims of the '398 Patent on different grounds from those presented herein, was denied institution.
- *Roku, Inc. v. Intent IQ, LLC et al.*, IPR2022-01236, challenging claims of the '398 Patent on different grounds from those presented herein, was denied institution.
- *Yahoo! Inc. v. Intent IQ, LLC et al.*, IPR2017-01299, challenging claims of the '398 Patent on different grounds from those presented herein, was denied institution.
- *Roku, Inc. v. Intent IQ, LLC*, IPR2022-01315, challenging claims of the '878 Patent on different grounds from those presented herein, was denied institution.

- *Meta Platforms, Inc. f/k/a Facebook, Inc. v. Intent IQ, LLC et al.*, IPR2023-01281, challenging claims of the '878 patent on different grounds from those presented herein, was granted institution. Ex. 1158.
- *Samsung Electronics Co., Ltd. v. AlmondNet, Inc. et al.*, IPR2022-01505, challenging claims of the '878 Patent on different grounds from those presented herein, was denied institution.
- *Samsung Electronics Co., Ltd. v. Intent IQ, LLC*, IPR2022-01506, challenging claims of the '164 Patent on different grounds from those presented herein, was denied institution.
- *Roku, Inc. v. Intent IQ, LLC*, IPR2022-00953, challenging claims of the '164 Patent on different grounds from those presented herein, was denied institution.
- *Roku, Inc. v. Intent IQ, LLC*, IPR2022-00959, challenging claims of the '069 Patent on different grounds from those presented herein, was denied institution.
- *Roku, Inc. v. Intent IQ, LLC*, IPR2022-00960, challenging claims of the '198 Patent on different grounds from those presented herein, was denied institution.

- *Samsung Electronics Co., Ltd. v. Intent IQ, LLC*, IPR2022-01507, challenging claims of the '198 Patent on different grounds from those presented herein, was denied institution.

Lead and Back-Up Counsel (37 C.F.R. § 42.8(b)(3))

Petitioner designates counsel listed below. A power of attorney for counsel is being concurrently filed.

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Petitioner consents to electronic service by email at the following address and the above emails: ComcastIPRService@bannerwitcoff.com.

I. INTRODUCTION

FreeWheel Media, Inc. (“Petitioner”) petitions for *inter partes* review of claims 1-26 of U.S. Patent No. 11,564,015 (“the ’015 Patent”) (Ex. 1101). The ’015 Patent describes delivering targeted delivery advertisements “without employing personally identifiable information.” Ex. 1101, 1:27-31, Abstract. As the prior art demonstrates, the claims recite well-known technology for carrying out this obvious method. Accordingly, all challenged claims are unpatentable under the multiple grounds herein.

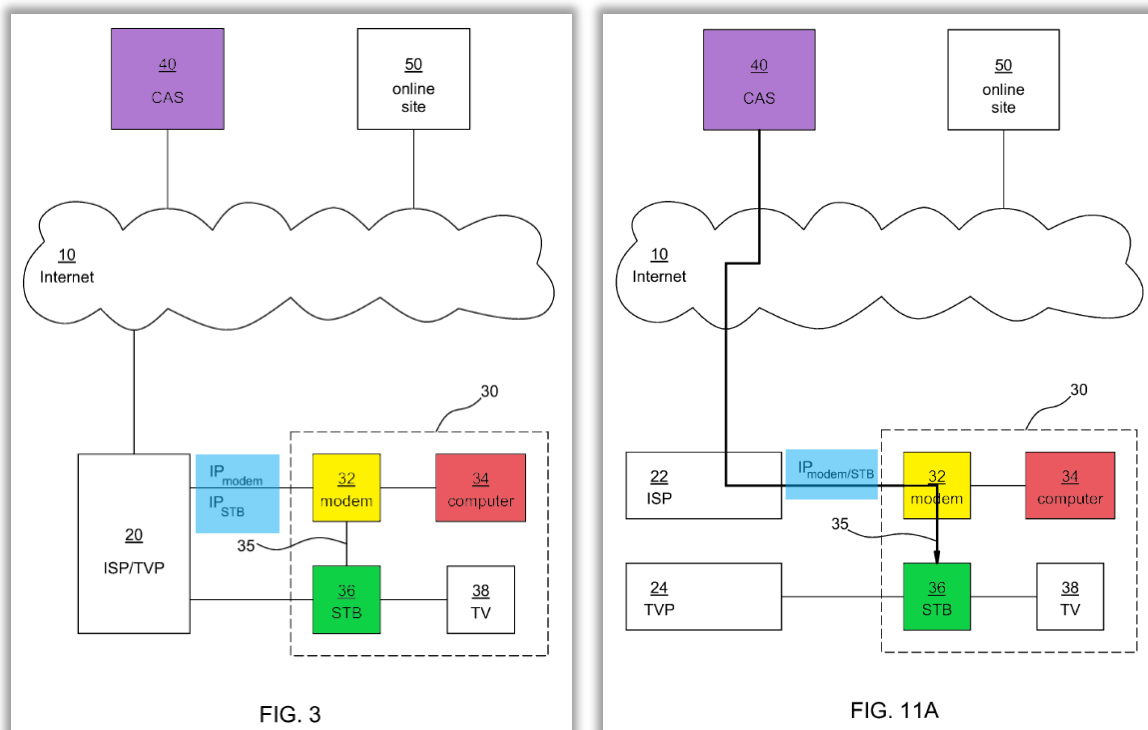
II. OVERVIEW OF THE ’015 PATENT

A. Brief Description

The ’015 Patent describes “a method for delivering targeted television advertisements based on online behavior.” Ex. 1101, Abstract, 1:27-31, 8:17-23, 8:56-9:12, 17:54-61. It admits using well-known technologies, including an online user device, set-top box (STB), central ad server (CAS), and user profiles. *Id.*, 1:49-2:7, 4:61-5:17. A user’s device is associated with another device (e.g., an STB), based on both having a common IP address. *Id.*, 1:49-2:7, 9:54-10:9, 10:42-55, 13:18-47. Such associations are used to deliver targeted television advertisements to the user’s devices based on user profiles. *Id.*, 11:6-17, 11:47-56.

The same or different providers may provide online access and television services. *Id.*, 8:38-45. As shown below, both of these configurations include a **CAS**, **modem**, **computer** (user online interface device), and **STB**. *Id.*, 9:35-60, 10:64-67,

13:8-13, FIGS. 3, 11A. The user device and STB access the Internet through the same modem, and thus share the modem's **IP address**. *Id.* Nothing about this topology is new. *Id.*, 12:35-13:4; Ex. 1102, ¶¶29-41.



Ex. 1101, FIGS. 3, 11A (annotated).

B. Priority

For these proceedings, Petitioner assumes the priority date is April 17, 2007.

Ex. 1101, pp. 1-2.

III. STATE OF THE ART

A. Technical Background

All claimed technical aspects were well-known, including targeting of advertisements, information sharing between devices in a network, and network address translation. Ex. 1102, ¶¶77-86.

B. Prior Art

The Petition's analogous prior art describes targeted advertising and collecting profile information. Ex. 1113 (librarian declaration addressing authenticity and public availability of Exs. 1112, 1135-1137, 1141); Ex. 1114 (attorney declaration addressing authenticity of Exs. 1112, 1129-1130).

Reference	Filed/Priority	Published/Issued	Basis	Expert Declaration (Ex. 1102)
Madhavan	3-Oct-2006	15-May-2012	102(e) ¹	¶¶87-93
Park	29-July-2005	23-Feb-2006	102(b)/(e)	¶¶94-98
Martinez	22-Nov-2006	22-May-2008	102(e)	¶¶105-110
Kato	1-Jul-2003	1-Jan-2004	102(b)/(e)	¶¶99-104
Koran	29-Mar-2006	7-May-2013	102(e)	¶¶111-115
Brookes	13-Feb-1992	27-Jun-1995	102(b)/(e)	¶¶122-124
Ashbaugh	29-Dec-2005	6-Jan-2015	102(e)	¶¶120-121

¹Citations refer to pre-AIA 35 U.S.C. §§102-103.

Banga507	12-May-2006	23-Nov-2006	102(a)/(e)	¶¶116-119
Sitaraman	08-Dec-1998	30-July-2002	102(a)/(e)	¶¶125-128

IV. IDENTIFICATION OF CHALLENGE

A. Claims Challenged and Grounds

Petitioner requests review of claims 1-26 on these grounds:

Ground	References	Basis	Claims Challenged
A	Madhavan-Park-Martinez	§103	1-10, 13-23, 26
B	Madhavan-Park-Martinez-Kato	§103	1-10, 13-23, 26
C	Madhavan-Park-Martinez-Brookes	§103	1-10, 13-23, 26
D	Madhavan-Park-Martinez-Kato-Brookes	§103	1-10, 13-23, 26
E	Madhavan-Park-Martinez-Koran	§103	1-10, 12-23, 25-26
F	Madhavan-Park-Martinez-Kato-Koran	§103	1-10, 12-23, 25-26
G	Madhavan-Park-Martinez-Ashbaugh	§103	11, 24
H	Madhavan-Park-Martinez-Kato-Ashbaugh	§103	11, 24
I	Madhavan-Park-Martinez-Banga507	§103	12, 25
J	Madhavan-Park-Martinez-Kato-Banga507	§103	12, 25

K	Madhavan-Park-Martinez-Sitaraman	§103	1-10, 13-23, 26
L	Madhavan-Park-Martinez-Brookes-Sitaraman	§103	1-10, 13-23, 26
M	Madhavan-Park-Martinez-Koran-Sitaraman	§103	1-10, 12-23, 25-26
N	Madhavan-Park-Martinez-Ashbaugh-Sitaraman	§103	11, 24
O	Madhavan-Park-Martinez-Banga507-Sitaraman	§103	12, 25

The expert testimony of David Lett and Exhibits 1101-1106, 1112-1115, 1117, 1119-1133, 1135-1137, 1141, 1150-1153, 1157-1171 support this petition. Ex. 1102, ¶¶1-418. The Claims Appendix lists the claims.

B. 314(a) Discretion Does Not Apply

The *Fintiv* factors in the Director’s June 21, 2022 Guidance Memorandum do not warrant discretionary denial.

Factor one appears neutral. Petitioner has filed an IPR petition challenging the ’015 Patent asserted in the District Court. If trial is instituted, Petitioner expects to request a stay, as a decision in Petitioner’s favor would resolve the dispute regarding the ’015 Patent.

Factor two favors institution. Trial is set for March 23, 2026—about 6 months after a final decision is expected.

Factor three does not warrant denial. Claim construction has not begun and fact discovery does not close until December 2024.

Factor four strongly favors institution. The petition challenges all claims in the '015 Patent while only claim 14 is asserted in the District Court as of the petition's filing date. Ex. 1121, 13-14; Ex. 1151.

Factor five does not warrant denial as Petitioner is a defendant in the District Court case.

Factor six favors institution. Petitioner presents compelling unpatentability challenges.

C. 325(d) Discretion Does Not Apply

The grounds herein are not the same or substantially the same as what the examiner considered during prosecution. Ex. 1102, ¶¶42-49 (summarizing prosecution history). To the extent they are, the examiner materially erred by not recognizing that features purportedly missing from the prior art (e.g., automatically taking an action with respect to Internet-accessing devices connected to a common access point) were well-known. Targeting advertisements based on information sharing between networked devices was well-known (which Madhavan shows). The Examiner erred by failing to consider such teachings in combination (e.g., Madhavan in combination with Park's IP router and Martinez's techniques for collecting network access information). *Id.*, ¶¶50-53; Ex. 1152, 8-9; Ex. 1153, 6-7.

D. Level of Ordinary Skill

A person of ordinary skill in the art (a “POSA”) at the time of the alleged invention would have had a degree in computer or electrical engineering, computer science, or a similar discipline, and two years of experience with the design and/or implementation of network-based content delivery systems and Internet advertising. Ex. 1102, ¶¶129-134. Petitioner’s expert, David Lett, at least meets this level of skill of a POSA. *Id.*, ¶16; *see also id.*, ¶¶1-15.

E. Claim Construction

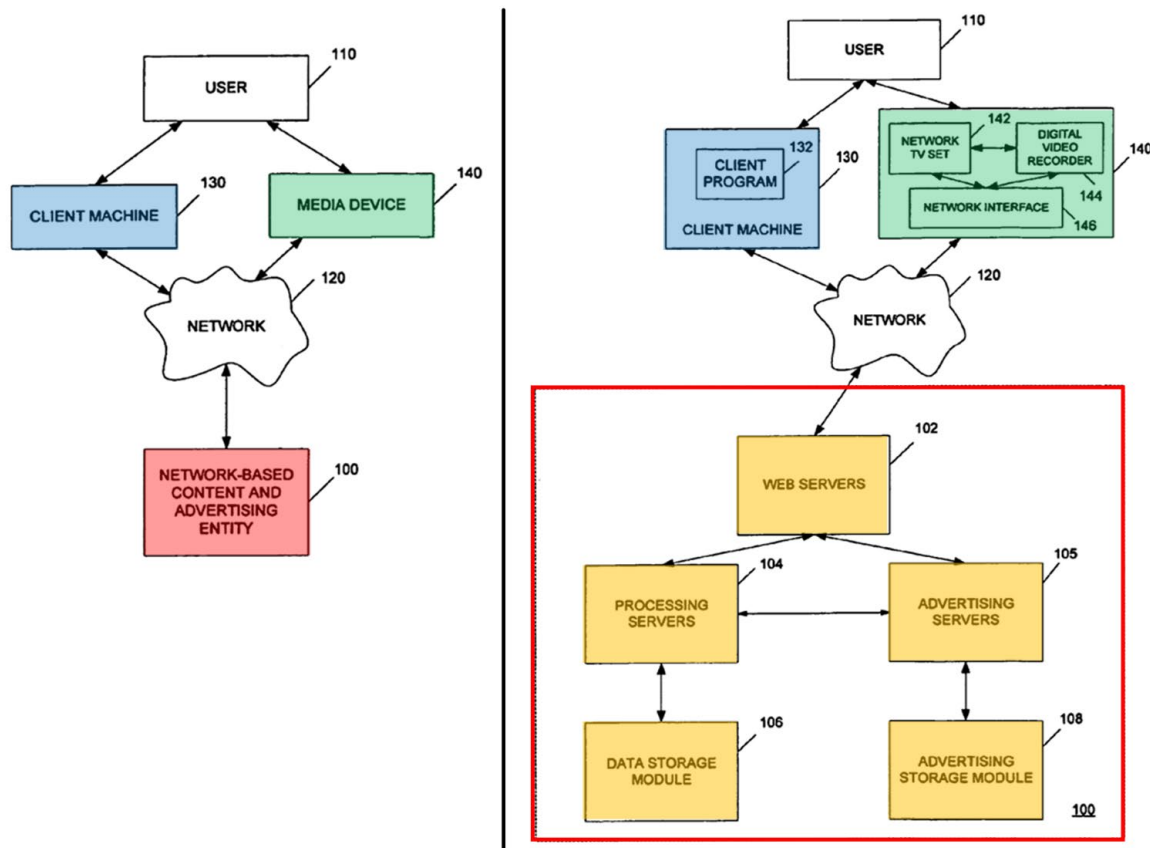
Petitioner applies the plain meaning for all claim terms. No express construction is necessary at this time. Ex. 1102, ¶135.

V. SPECIFIC GROUNDS FOR UNPATENTABILITY

A. Ground A: Madhavan-Park-Martinez Renders Claims 1-10, 13-23, and 26 Obvious

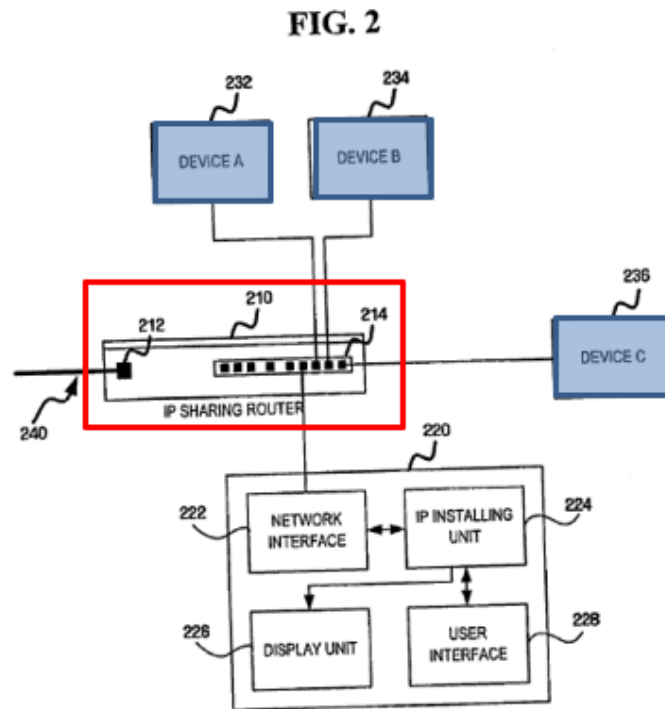
As shown below, the combination of Madhavan, Park, and Martinez renders obvious (1) associating, via device identifiers, mobile devices that access the Internet from a shared router and (2) automatically sending targeted advertisements to those devices based on data obtained from tracking the activity on either or both devices, including sending an advertisement to one device based on profile information from an associated second device. This combination teaches claims 1-10, 13-23, and 26. §§V.A.1-12, *infra*; Ex. 1102, ¶137.

Madhavan's system "facilitate[s] targeting of advertisements based on mutual information sharing between devices over a network," wherein the online activities of a user's **client machine** 130 and **media device** 140 are tracked, stored, and associated with each other by a network-based content and **advertising entity** 100, comprising **multiple servers**. Ex. 1102, ¶¶87-90. The advertising entity selects and delivers advertisements to the user's devices that are related to the previously-stored online activity. Ex. 1122, 1:36-2:3, 4:26-65, 5:18-6:12, 7:2-9:67, FIGS. 1-3, 5-6; Ex. 1102, ¶¶91-93. However, the user's devices do not necessarily connect to the Internet from the same access point. Ex. 1102, ¶138.



Ex. 1122, FIGS. 1-2 (annotated)

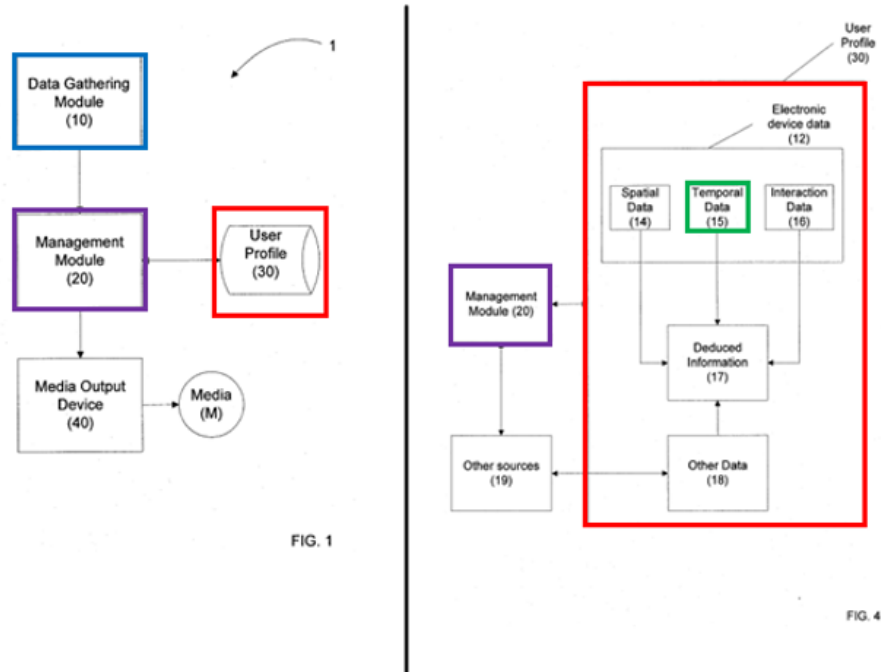
Park recognizes that a user's devices may connect to the Internet via a common access point. Its system comprises a local network having a **shared IP router** 210, which assigns a private IP address to **user devices** for use within the local network and connects the devices to the Internet using a common, public IP address. Ex. 1123, [0003], [0007]-[0012], [0029]-[0030], [0035]-[0038], FIGS. 1-2; Ex. 1102, ¶¶94-96, 139.



Ex. 1123, FIG. 2 (annotated)

Martinez was assigned to the same entity (i.e., Yahoo!) as Madhavan and teaches a system wherein data collected by a data gathering module (**blue**) is stored to **user profile** 30, and **management module** 20 selects advertisements to present to a user based on the profile. Ex. 1124, [0035]-[0036], [0045]-[0046], Abstract,

FIGS. 1, 4; Ex. 1102, ¶¶105-106. The data includes, among other things, **temporal data** (e.g., time stamps) showing when particular online activities occurred. Ex. 1124, [0036]-[0040], [0049], [0051]-[0054], [0057]-[0058], [0070]; Ex. 1102, ¶¶107-108, 140.



Ex. 1124, FIGS. 1, 4 (annotated)

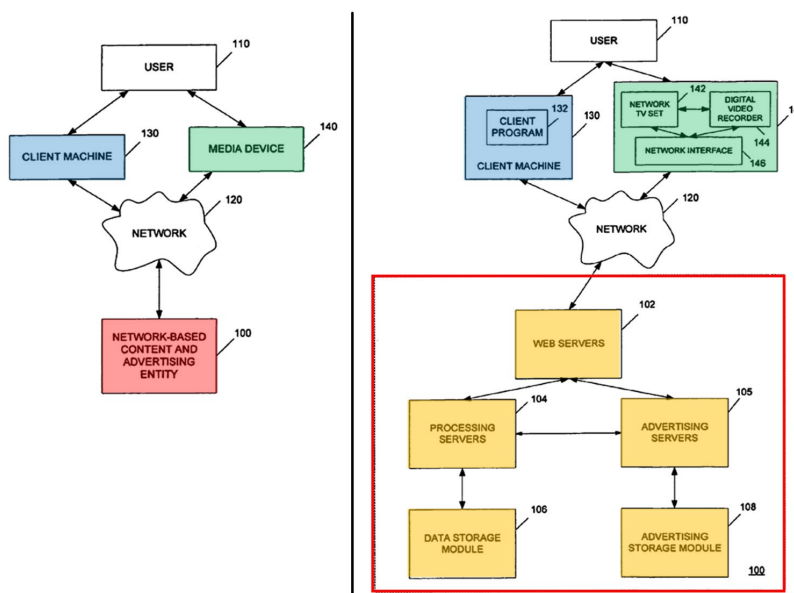
As described below, a POSA would have found it obvious to apply the above teachings of Park and Martinez to Madhavan's system so that, when it communicates with a user's devices having a common IP address, it associates the devices based in part on their common IP address and stores information about the devices' activity (including temporal data) in the user's profile. Further, the resulting system selects targeted advertisements to automatically send to the user based on this user profile. Ex. 1102, ¶141.

1. Independent Claim 1

a. [1A]

If limiting, Madhavan-Park-Martinez teaches Element [1A]. Ex. 1102, ¶¶142-162.

This combination results in a system with **a network-based content and advertising entity** 100 (claimed “**computer system**”²) that, as shown in Figures 1-2 below, comprises **multiple different servers** (“at least one hardware server computer”) and connects to a **client machine** 130 and one or more **media devices** 140 (“**multiple electronic devices**”) via network 120. Ex. 1122, 4:26-5:32, 8:5-56, 12:21-53; Ex. 1102, ¶¶142-145.



Ex. 1122, FIGS. 1-2 (annotated)

² Petitioner notes that claim terms have been bolded for emphasis.

As explained below, in the proposed combination, Madhavan-Park-Martinez’s system would be “**programmed and connected to perform a method of using common IP addresses to identify associations among multiple electronic devices and using an identified association to cause cross-device action**”—in the form of targeted advertisements sent to a user’s device(s)—that renders obvious the steps of claim 1. Ex. 1102, ¶¶146-237; §§V.A.1.a-i.

Madhavan-Park-Martinez identifies “**associations among multiple electronic devices**” because each user device³ provides respective identification information, called “user identification information,” (including an IP address (which may be a common IP address, as taught in Park)) to Madhavan’s servers. The servers store data (contained in activity tables 230 of database 200) about the online activity associated with each device’s identifier, and uses the data to create user profiles (contained in user tables 210 of database 200) which consolidate information (e.g., geographic, identification, behavioral data, etc.) from the multiple devices associated with each user. Ex. 1122, 5:48-6:12, 7:14-42, 8:44-48, 9:18-25; Ex. 1102 ¶¶147-149. A user’s profile thus contains the respective identification information and activity data from each of the devices associated with the user based

³ Herein, Madhavan’s “user device” refers to client machine 130 and/or media device 140.

on the identification information. Ex. 1122, 3:1-8, 5:53-6:12, 7:33-36, 8:9-25, 10:3-25, FIGS. 5-7; Ex. 1102, ¶¶149-150.

Having associated a user's devices, as described with respect to Figures 5-11⁴, Madhavan's content service provider (e.g., entity 100) will retrieve a user profile and its previously-stored data obtained from a first user device based on the identification information of a second (associated) user device, so that the data from the second device can be added to the database and the data from the first device can be used to direct ads to the second device. Ex. 1102, ¶¶149-150; Ex. 1122, 7:43-8:8, 8:26-9:67. Sending ads to one device based on user profile data taken from another device is an example of **“using an identified association to cause cross-device**

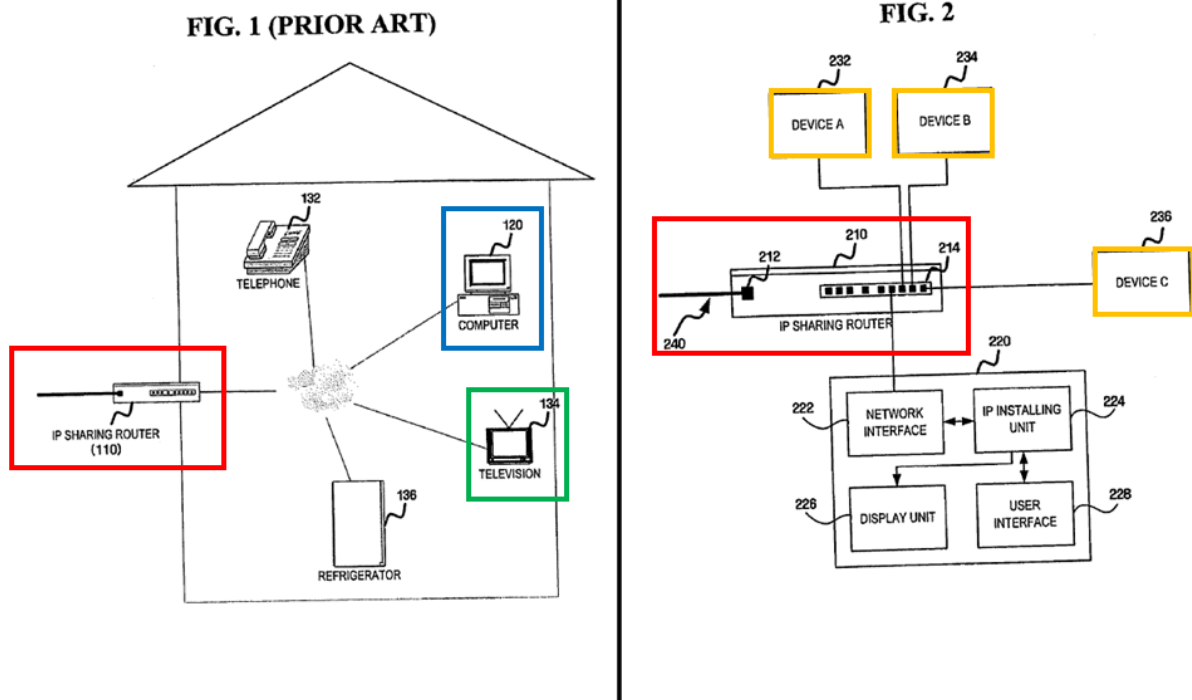
⁴ A POSA would have understood that the features discussed for Madhavan's Figures 5-11 are attributed and related to operations of Madhavan's system shown in Figures 1-2, and involve the same “network-based entity,” which in the proposed combination is the claimed **“computer system”** that performs the claimed “method” of claim 1. Ex. 1102, ¶152. To the extent it is argued these figures represent separate and distinct embodiments, a POSA would have found it obvious and been motivated to combine these embodiments to provide a method of targeted advertising across multiple user devices based on user profile information. *Id.*

action.” Ex. 1122, 7:33-53, 8:57-9:3, 9:36-10:46, FIGS. 5-6; Ex. 1102, ¶150. And, Madhavan-Park-Martinez’s system implements the claimed method (“**programmed and connected to perform [the] method**”) using software running on hardware. Ex. 1122, 12:21-53, FIGS. 1-3, 12⁵; Ex. 1102, ¶¶151-152.

Madhavan uses the IP addresses of a user’s devices as identification information to associate different devices to a particular user. While some of the user’s devices appear to have the same Internet access point, not all are shown in that manner. Ex. 1102, ¶153. However, Park uses an “IP sharing router” to connect multiple devices to the internet using a common IP address. Park, [0003], Abstract; Ex. 1102, ¶¶154-157.

Figures 1-2 of Park (below) illustrate a home network with an IP **sharing router** 110 and user devices—e.g., **computer** 120, **television** 134, and **devices** 232-236. Ex. 1123, [0007]-[0008], [0029]-[0030].

⁵ A POSA would have understood that Figures 1-3 and 12 and their related disclosure in Madhavan are the same system, which in the proposed combination is the claimed “**computer system**” that performs the claimed “method” of claim 1. Ex. 1102, ¶152.

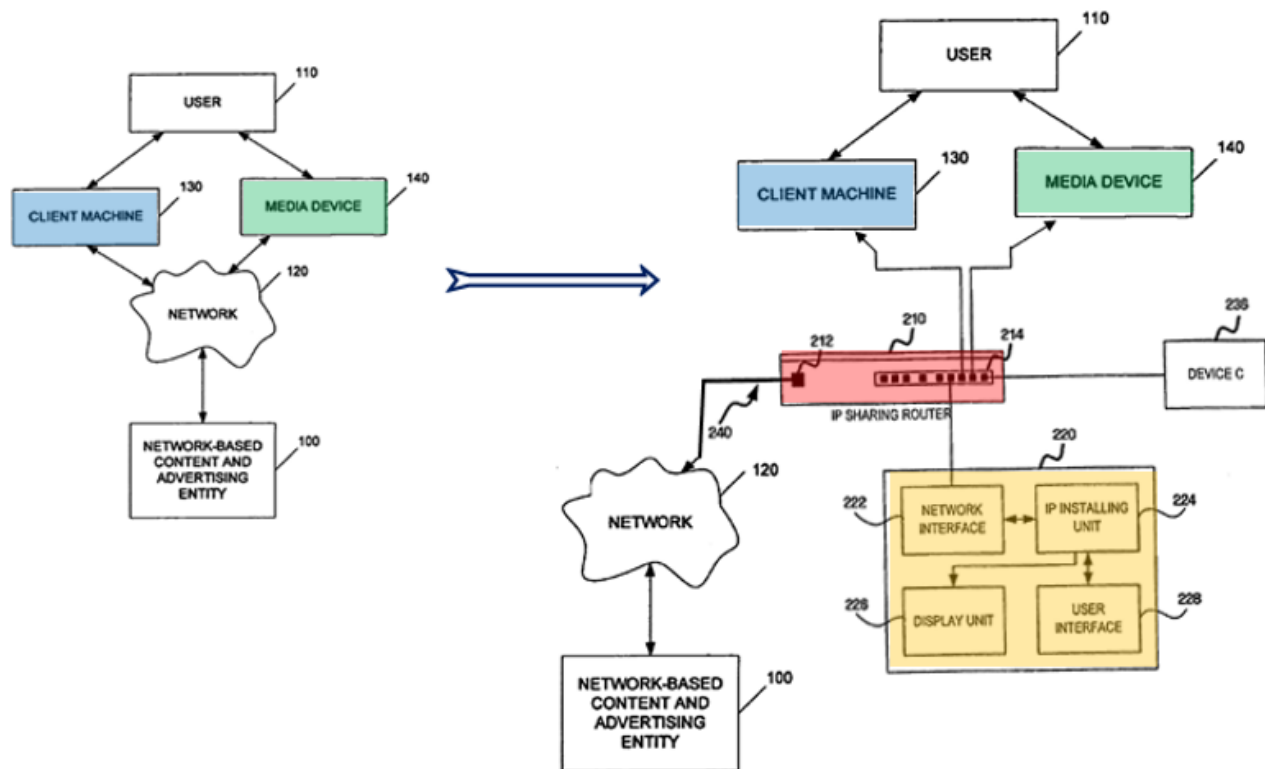


Ex. 1123, FIGS. 1-2 (annotated)

Each device is assigned a private IP address by the router 110/210 for internal use, but access the Internet with a public IP address assigned to the IP sharing router (“**common IP address**”), which beneficially conserves the limited number of public IP addresses. Ex. 1123, [0009]-[0016], [0029]-[0034]; Ex. 1102, ¶154. A POSA would understand that the router’s IP address would be dynamically assigned using industry-standard dynamic host configuration protocol (DHCP), which was well-known and admitted prior art in the ’015 Patent. Ex. 1102, ¶¶154, 204; Ex. 1101, 4:37-42; Ex. 1160, 3:21-4:1; Ex. 1159, 5:44-57; Ex. 1120, ¶¶12-14, 22-23; Ex. 1161, ¶¶11-30, FIG. 1.

Park's IP sharing router includes well-known network address translation (NAT) functions wherein the router is assigned a public IP address by an ISP, and the router assigns private IP addresses to devices connected to the router. Ex. 1123, [0030]-[0038]; Ex. 1102, ¶¶97-98, 156; Ex. 1112, pp. 36-38; Ex. 1106, [0004]-[0019]. Park's router performs port translation (PAT), e.g., it translates the private IP address of the local device to the router's public IP address and adds the device's internal port number—thus enabling an external device to distinguish between and send data to the various local devices sharing the public IP address of Park's router. Ex. 1123, [0038]; Ex. 1102, ¶157.

A POSA would have found it obvious apply Park's teachings to Madhavan, for example, by adding an IP sharing router with NAT/PAT functionality, as taught by Park, to Madhavan's system as illustrated below. Ex. 1102, ¶¶158-161.



Ex. 1122, FIG. 1 (annotated)

Ex. 1122, FIG. 1 (Park's router 210 and installer 220 added)

In the proposed Madhavan-Park-Martinez combination, the content service provider 100 (“**computer system**”) would have “**identif[ied] associations among multiple electronic devices**” based on their use of the “common IP address,” which is the IP address of the router. Ex. 1102, ¶158. A POSA would have been motivated to add an IP sharing router to Madhavan’s system because this was a well-known technique to reduce the number of public IP addresses used by a system such as Madhavan’s, resulting in cost reduction, increased security, and simplified network management. Ex. 1123, [0010]-[0011], [0035]-[0038]; Ex. 1102, ¶159.

This represents the simple combination of prior art elements (Madhavan's system and an IP sharing router with NAT/PAT functionality as taught by Park) according to known methods (connecting Park's router to the Internet and to devices in a local network) to yield predictable results (devices within the local network communicate externally via a common IP address). *KSR Intl. Co. v. Teleflex Inc.*, 550 U.S. 398, 401-402 (2007); Ex. 1122, 4:37-42, 5:3-32, 7:15-19, 8:42-48, FIGS. 1-2; Ex. 1123, [0010]-[0011], [0030]-[0038], FIGS. 1-2; Ex. 1102, ¶160.

A POSA would have had the skills to implement the combination, including the proposed implementation of a router like that of Park within Madhavan's system, with a reasonable expectation of success. Ex. 1102, ¶¶160-161. Connecting devices to an IP sharing router is straightforward. *Id.*; Ex. 1122, 2:55-61, 12:64-13:2; Ex. 1123, [0027]. Such routers are equipped to handle communication between Madhavan's devices and, e.g., the Internet using a common, public IP address. Ex. 1102, ¶¶160-161; Ex. 1122, 1:46-54, 3:55-63, 4:37-5:11, 7:15-19, 9:18-22; Ex. 1123, [0008]-[0012]. And, the use of NAT and PAT were well known at the time. Ex. 1102, ¶160. A POSA would have also understood that the use of a shared IP router and a common IP address, as taught by Park, would not interfere with the operations of Madhavan's system. Ex. 1102, ¶161.

b. [1B]

Madhavan-Park-Martinez teaches Element [1B]. *Id.*, ¶¶163-173.

Referring to Figure 2 (below), Madhavan’s **media device** 140 and **client machine** 130 access the **content service provider** (entity 100) via network 120 (e.g., Internet) (“two or more Internet-accessing electronic devices of a multitude of Internet-accessing electronic devices”). Ex. 1122, 4:37-5:32, FIG. 1.

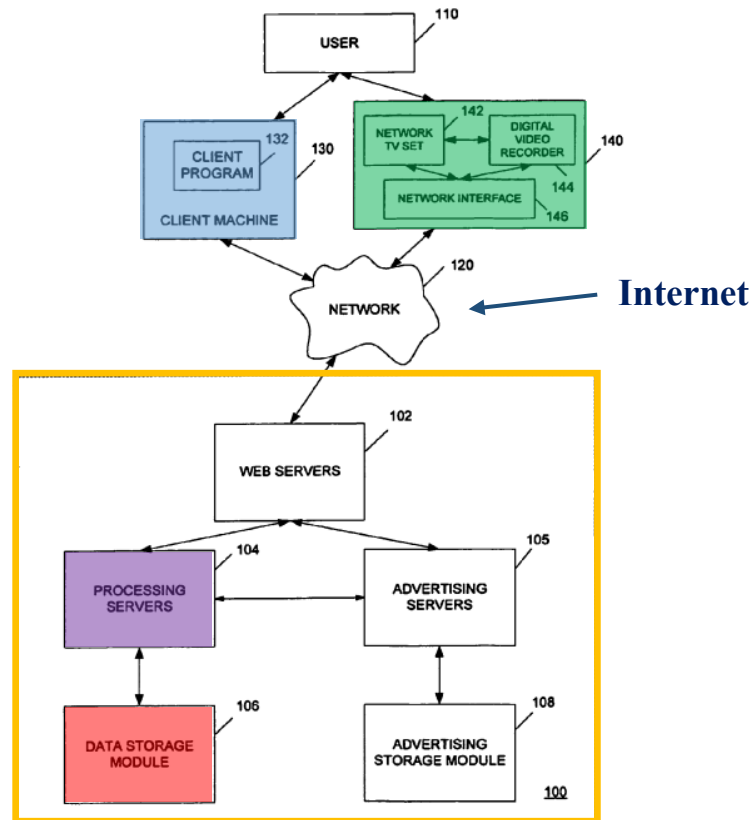


FIG. 2

Ex. 1122, FIG. 2 (annotated)

In accessing the Internet, users 110 and their devices provide data obtained by **processing servers** 104 of Madhavan’s content service provider. Ex. 1122, 2:62-67, 4:46-65, 5:53-66, 7:35-67, 10:3-14. The data includes “any type of online navigational interaction or search-related events,” and is stored within **data storage**

module 106, e.g., database 200 comprising multiple tables. Ex. 1122, 3:1-4:6, 4:57-65, 5:37-47, 7:2-6, 8:37-41, 10:15-18, FIGS. 5-6.

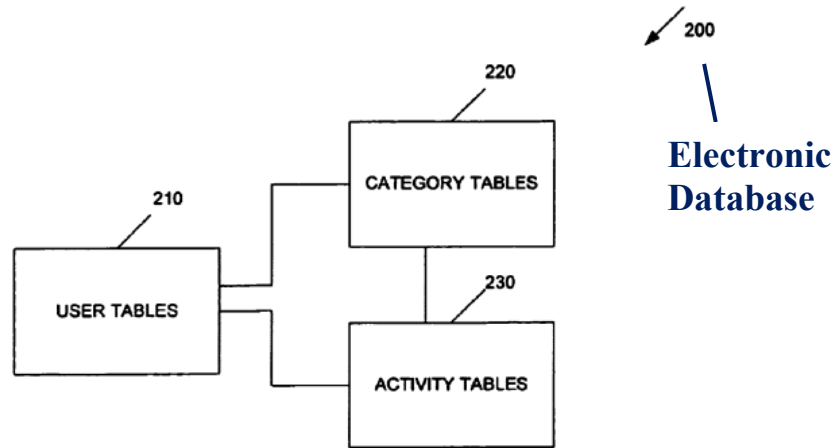


FIG. 3

Ex. 1122, FIG. 3 (annotated)

Content service provider 100 of Madhavan-Park-Martinez “**creat[es] an electronic database**” (database 200), which includes user profiles (contained in user tables 210) that associate the data obtained from each of a user’s various devices. Ex. 1102, ¶¶165-166. Data from a particular device is associated with a particular user’s profile because content service provider 100 uses identification information, such as IP address and port numbers (“**device identifiers**”), to associate multiple devices as belonging to the same user (*i.e.*, the associations in the database “**each indicat[e] an association between device identifiers of two or more Internet-accessing electronic devices ...**”). *Id.*; Ex. 1122, 5:43-66, 7:33-53, 8:57-67,

9:36-40, 10:3-25. In this fashion, content service provider 100 uses the identification information to retrieve previously-stored data provided by any devices previously associated with the user. Ex. 1122, 7:43-53, 8:9-15, 8:57-67, 9:36-40, 10:10-25, 11:7-22; Ex. 1102, ¶¶168-169.

As explained above (§V.A.1), as part of NAT/PAT, each device sharing a router communicates over the Internet using a common public IP address, along with a port number that is different for each device connected to a different port. As was well-known, data packets sent over the Internet include an IP address of the source and destination devices. Ex. 1102, ¶170; Ex. 1106, [0002]-[0010], Abstract, FIGS. 1-2. Thus, in Madhavan-Park-Martinez, the “**device identifier[]**” for claim 1 is Madhavan-Park-Martinez’s identification information, which is the combination of: (i) an IP address of a router used to connect to the Internet (e.g., the public IP address of Madhavan-Park-Martinez’s router), and (ii) a port number associated with the user device (“**Internet-accessing electronic device**”). *Id.*

This IP address and port number provides a “**device identifier[]**” because, together, they uniquely identify a particular user device that connects to the content service provider via network 120. Ex. 1102, ¶171. This is consistent with the ’015 Patent, which explains that the device identifier may include any “identifying code or data element,” including an IP address. *Id.*; Ex. 1101, 15:32-47.

Madhavan's content service provider 100 identifies "**an association between device identifiers of two or more Internet-accessing electronic devices**" based on their use of a common IP address, more specifically, when the content service provider stores device identifiers having the router's common IP address to a common user profile, thereby associating the respective device identifiers (and corresponding user devices) as well as the user's data obtained therefrom. Ex. 1122, 5:48-66, FIG. 3; Ex. 1102, ¶¶171-172; Ex. 1101, 14:7-9.

c. [1C]

Madhavan-Park-Martinez teaches Element [1C]. Ex. 1102, ¶¶174-191.

As shown for Element [1B], the Madhavan-Park-Martinez system includes content service provider 100 that receives identification information ("**device identifier**") for each user device that connects to the content service provider. This device identifier includes the public IP address of the IP sharing router ("**IP address through which the one of the devices accessed the Internet**") and a port number associated with the device. The device identifier and related user data is stored in database 200 ("**stored data relating to Internet access by various of the multitude of devices**"). *Id.*, ¶175.

As also explained for Element [1B], Madhavan-Park-Martinez's content service provider 100 associates device identifiers of the user's devices based on their use of a common IP address. *Id.*, ¶176. More specifically, it stores the device

identifiers (IP address and port number) within a common user profile thereby associating them (“**each of the associations is determined using stored data relating to Internet access by various of the multitude of devices**”). *Id.*; Ex. 1122, 5:48-6:12, 7:48-53, 8:8-67.

Although Madhavan discloses that a user’s profile may include data indicating “short term behavior” or “long term behavior” of the user (Ex. 1122, 5:66-6:2), it does not disclose “**a timestamp identifying when the one of the devices accessed the Internet.**” However, storing such timestamp information was well known and is taught by Martinez. Ex. 1102, ¶¶177-180; Ex. 1117, [0069], [0072]-[0073], FIG. 6B; Ex. 1128, 9:45-10:3; Ex. 1115, [0036], [0054], [0074]. As shown below, Martinez’s system collects user data to present targeted advertisements. It includes a **data gathering module** 10, and a **management module** 20 that manages (creates and updates) a **user profile** 30. Ex. 1124, [0035]-[0038], [0045]-[0046], [0096], Abstract, FIGS. 1, 4, 9; Ex. 1102, ¶¶107-110, 179-180.

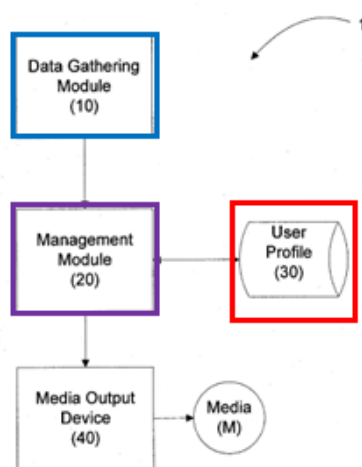


FIG. 1



FIG. 4

Ex. 1124, FIGS. 1, 4 (annotated)

Martinez's user profile stores various data, including interaction data 16, deduced information 17, and **temporal data** 15, *i.e.*, "time based data (e.g., time stamps) that, relate to specific times and/or events associated with a user and/or the electronic device." Ex. 1124, [0036]-[0040], [0049]-[0051], [0058], [0070], [0102]-[0103]. Interaction data 16 catalogs a user's online activity, and is correlated with the temporal data 15 to discern a user's activities and patterns associated therewith (deduced information). Ex. 1124, [0004], [0046]-[0063].

A POSA would have been motivated and found it obvious to collect and store, in a user profile, timestamp data associated with network access of a user device, as taught by Martinez, because it allows a content service provider (like Madhavan's)

to better deduce a user's temporal activities and behavioral patterns when targeting advertisements. Ex. 1124, [0002]-[0006], [0046]-[0049], [0072]-[0073]; Ex. 1122, 5:66-6:2; Ex. 1102, ¶181.

A POSA thus would have found it obvious to adapt the content service provider 100 in Madhavan's modified system to obtain and store timestamp information for user devices in the user profile as taught by Martinez. Ex. 1102, ¶¶184-188. This represents the simple combination of prior art elements (Madhavan-Park's system that uses device identifiers to associate user activity data from various devices with the same user profile, and Martinez's user profiles that contain useful time-stamp data) according to known methods (programming the system to collect and store temporal data in a user's profile) to yield predictable results (profile information, including temporal data, is used to deduce behavioral patterns to better target users with advertisements). *Id.*; *KSR*, 550 U.S. at 401-402.

Madhavan-Park-Martinez also uses known techniques (Martinez's collecting and storing—as part of a user profile—temporal data) to improve a similar system (Madhavan-Park's system that uses device identifiers to associate user activity data from various devices with a common user profile) in the same way (temporal data allows for better targeting of advertisements to the user). Ex. 1102, ¶¶186-188. The systems are similar because both target advertisements based on user profiles and associate devices within a profile using, e.g., device identifiers. Ex. 1122, 1:7-11,

1:36-2:3, 5:53-66, 7:33-53, 8:9-15, 8:57-67, 9:36-40, 10:10-25, Abstract; Ex. 1124, [0001]-[0006], [0011]-[0012], [0043]-[0048], [0063], [0084]; Ex. 1102, ¶182. And, Martinez’s use of temporal data dovetails with Madhavan’s desire to track long and short-term behavior of users. Ex. 1122, 5:66-6:2. Further, combining Madhavan-Park with Martinez would have been merely applying a known technique to a known system ready for improvement. Ex. 1102, ¶¶187-188. The system to be improved is the Madhavan-Park system, which tracks various types of user events but does not explicitly teach storing and correlating within a user profile a user’s online activities (user data) and corresponding dates and times (temporal data) for those activities, which may be used to facilitate the selection of advertisements. *Id.*; Ex. 1122, 3:1-47. Martinez teaches the known technique of correlating temporal data and other information, stored in a user profile, to deduce user activity and behavioral patterns associated therewith, which may be used to “deliver useful services and information to end users, and provide commercial opportunities to advertisers and retailers”—e.g., targeted advertising. Ex. 1102, ¶¶187-188; Ex. 1124, [0002], [0038], [0049], [0053]-[0058], [0063], [0076], [0084].

A POSA would have had the skills to implement the combination with a reasonable expectation of success. Ex. 1102, ¶¶181-183, 189-190. For example, it would have been straightforward to program Madhavan-Park’s system to collect

temporal data, use this information to deduce patterns of behavior (e.g., short-term versus long-term behavior) and target advertisements accordingly. *Id.*

d. [1D]

Madhavan-Park-Martinez teaches Element [1D]. Ex. 1102, ¶¶192-201.

As explained above (§§V.A.1.a-c), when a user connects to Madhavan-Park-Martinez's content service provider 100, it receives identification information ("**device identifier**") for the user's device (e.g., common IP address and port number) along with corresponding user data. Ex. 1122, 7:27-42, 8:42-59, 10:3-14. The content service provider links the device identifier and corresponding user data to the user's profile, which also contains the device identifier and corresponding user data for the user's other devices that have connected to the content service provider, thereby associating the devices with each other. *Id.*, 7:43-53. In this fashion, two devices using the common IP address of the shared router are associated with each other, via respective device identifiers, in the same user profile ("**at least some of the associations indicate association between at least two devices of the two or more Internet-accessing electronic devices, which association is determined by using the stored data to determine that both of the at least two devices have accessed the Internet via a common IP address**"). *Id.*, 5:53-67, 7:33-55, 8:42-9:2, 10:15-25; Ex. 1102, ¶¶193-197. This determination of an association is consistent with the '015 Patent, which teaches that the existence of the common IP address for

two devices associates their respective device identifiers with each other. *Id.*; Ex. 1101, 14:2-9 (“the existence of the common IP address associates the online access IP address and the set-top box IP address”), 13:18-22.

In Madhavan-Park-Martinez, the content service provider also would have **“determine[d] that both of the at least two devices have accessed the Internet via a common IP address at respective times satisfying a predetermined time-relation criterion.”** Ex. 1102, ¶¶198-199. Madhavan describes associating data from different devices within a user profile that represents “near short term behavior” as opposed to long term behavior. Ex. 1122, 5:59-6:2, 7:43-8:15, 10:10-25, 11:62-12:20. The linking of data from a user’s different devices that constitutes near short term behavior indicates that the system determines which of the devices accessed the Internet via the common IP address within a certain time-relation criterion (i.e., did so within the near short term, e.g., within the last 24 hours). This determination is consistent with the ’015 Patent. Ex. 1101, 19:1-12 (describing time-relation criterion for maintaining device associations); 4:25-29 (device associations expire within predetermined period of time); 14:10-16; Ex. 1102, ¶200. Using the temporal data, the Madhavan-Park-Martinez system would have associated devices as well as retrieved classification categories related to previously-stored user data satisfying this criterion. *Id.*; Ex. 1102, ¶¶198-200; Ex. 1124, [0047]-[0058], [0070], [0077]. Thus, Madhavan-Park-Martinez would have associated the data from two

(or more) devices with device identifiers (common IP address and port number) associated with the same user, that accessed the Internet in the near short term. Ex. 1102, ¶¶198-200.

e. [1E]

Madhavan-Park-Martinez teaches Element [1E]. Ex. 1102, ¶¶202-206.

Element [1E] requires that devices be associated without using personally identifiable information (PII). As explained above (§V.A.1.d), Madhavan-Park-Martinez’s content service provider links identification information (common IP address and port number) for separate user devices (e.g., client machine 130, media device 140) to a same user profile. *Id.*, ¶¶194-197.

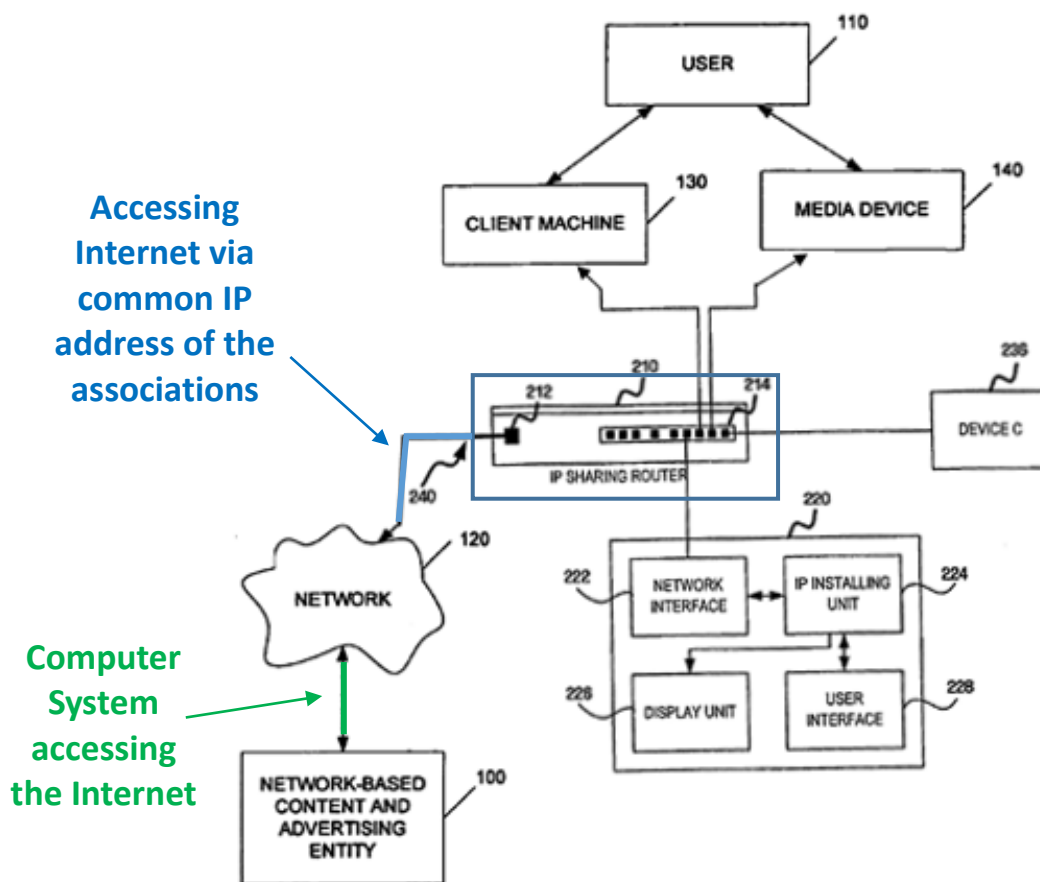
As discussed (§V.A.1.a), a POSA would understand the IP address of Madhavan-Park-Martinez’s router would be dynamically assigned. Ex. 1102, ¶¶154, 204. Associating devices using this dynamically-assigned IP address does not use PII because the IP address cannot be used, by itself, to identify any specific person. Ex. 1102, ¶¶203-205; Ex. 1101, 6:25-44 (defining PII and non-PII).

f. [1F]

Madhavan-Park-Martinez teaches Element [1F]. Ex. 1102, ¶¶207-210.

Element [1F] requires the computer system to access the Internet without using the common IP address. This requirement is met by Madhavan-Park-Martinez. Madhavan’s Figure 1 shows content service provider 100 (“**the computer**

system determining the associations”) accessing network 120 (e.g., Internet), without using the IP sharing router, used by client machine 130 and media device 140. Ex. 1122, 4:37-42; Ex. 1123, [0009]-[0011], [0035]-[0038].



Ex. 1122, FIG. 1 (edited to include Park’s router 210 and installer 220)

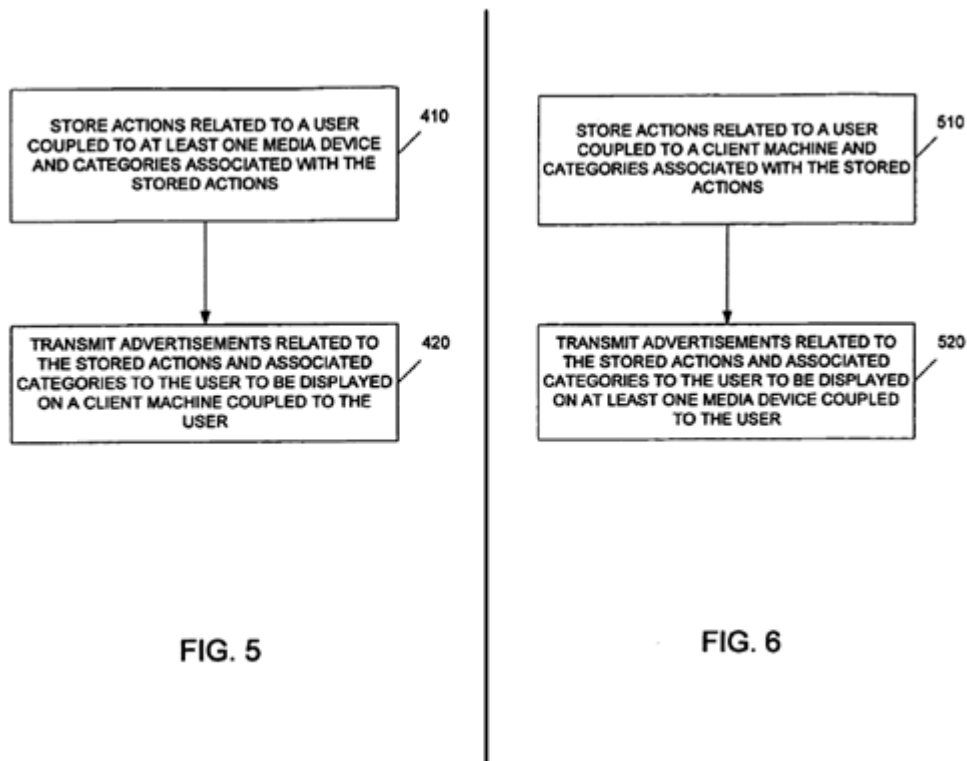
Thus, the content service provider uses a different IP address than the common IP address of the router. Ex. 1102, ¶¶208-209. Madhavan-Park-Martinez’s content service provider “**accesses the Internet without using any of the common IP addresses of the associations identified in part (ii).**” *Id.*

g. [1G]

Madhavan-Park-Martinez teaches Element [1G]. Ex. 1102, ¶¶211-226.

As discussed (§§V.A.1.a-b, V.A.1.d), Madhavan-Park-Martinez's content service provider 100 collects user data (such as data and categorizations of the user's online activity) and corresponding device identifiers from multiple user devices (e.g., client machine 130, media device 140), and links them to the same user profile. Ex. 1122, 3:52-63, 5:53-66, 6:3-12, 7:15-9:40, FIGS. 5-6. Once the devices and their data are linked, the advertising servers 105 of content service provider 100 are able to use the data provided by one device (e.g., client machine 130) to select an advertisement provided to another device of the user (e.g., media device 140). Ex. 1122, 7:43-53, 8:9-67, 9:36-54, FIGS. 2-3; Ex. 1102, ¶¶212-214.

This is shown in Figures 5 and 6 of Madhavan, which indicate that content service provider 100 may send advertisements to a user device (e.g., client machine 130) based on previously-stored user events that were collected from a different user device (e.g., media device 140) (see Figure 5)—and vice versa (see Figure 6). Ex. 1102, ¶¶216-217.



Ex. 1122, FIGS. 5 and 6

Madhavan-Park-Martinez’s targeting of advertisements based on this mutual information sharing between user devices teaches Element [1G]. Ex. 1102, ¶¶215-225. In Madhavan-Park-Martinez, while a user is connected to content service provider 100 using media device 140 (“**when the computer system and a first device identified in a first association are in communication with one another**”), the content service provider will automatically select and send to media device 140 a targeted advertisement that is selected using user profile information that was obtained from the user’s client machine 130. In so doing, the system uses the device identifier of media device 140 as well as user profile information generated from client machine 130 (which was previously linked to the user’s

profile) to select and send the targeted advertisement to media device 140, and thus teaches the element: “**with the computer system using a device identifier of the first device and user profile information associated with a device identifier of a second device identified in the first association to cause an automatic action to be taken with respect to the first device.**” Ex. 1122, 1:55-2:3, 3:52-4:13, 7:7-9:67, FIGS. 5-6, Abstract; Ex. 1102, ¶¶216-217.

In this example, user 110 initially accesses Madhavan-Park-Martinez’s content service provider 100 using media device 140 (“**first device**”), and the content service provider links user data—obtained from media device 140—with the user’s profile based on the device identifier (common IP address and port number) for media device 140. Ex. 1122, 5:53-6:8, 7:2-38, 10:1-20, FIGS. 5, 7; Ex. 1102, ¶¶218-221. Thereafter, the user accesses the content service provider for one or more online sessions using client machine 130 (“**second device**”). As shown above in step 510 of Figure 6, a user’s actions on client machine 130 are received by the content service provider, along with the device identifier for client machine 130, and stored to database 200 (e.g., user tables 210) in association with the user’s profile. Since the user had accessed the Internet via media device 140 (“**first device**”), the user profile now has an association (“**first association**”) between the respective device identifiers of the first and second devices. Ex. 1122, 3:1-8, 5:53-59, 7:33-67, 8:9-67, 9:36-10:25, 11:7-22; Ex. 1102, ¶221. By linking the user’s actions

performed on client machine 130 with the user's profile, the user's action data ("**user profile information**") is also associated—via the device identifier of client machine 130—with data from other linked user devices, e.g., media device 140. *Id.*

Thereafter, as shown in step 520 of Figure 6, when the user accesses the content service provider using media device 140, targeted advertisements are delivered to the media device ("**first device**") based on its device identifier and the stored user data associated with client machine 130 ("**second device**"), e.g., because the user data associated with client machine 130 represents relevant near-term (or long-term) user behavior. Ex. 1122, 7:14-22, 8:34-41, 9:4-67; Ex. 1102, ¶¶222-223. More specifically, the content service provider 100 uses the device identifier (common IP address and port number) of media device 140 to identify the user's profile and to access respective tables within data storage module 106 (e.g., database 200) to retrieve classification categories related to previously-stored user data (e.g., online activity data previously collected from client machine 130). Ex. 1122, 7:48-8:33, 9:36-67, 11:34-61; Ex. 1102, ¶¶223-224.

Additionally, each of the selection, delivery, and display of the targeted advertisements is "**an automatic action**" because it occurs without the user having to request receipt or initiate the selection, delivery, or display of the targeted advertisements. Ex. 1102, ¶225; Ex. 1122, 7:56-59, 8:26-33, 9:4-8, FIG. 5 (step 420), FIG. 6 (step 520), Abstract.

h. [1H]

Madhavan-Park Martinez teaches Element [1H]. Ex. 1102, ¶¶227-231.

As previously explained, the “**first association**” discussed above with respect to Element [1G] is also an association described with respect to Element [1D] in that the Madhavan-Park-Martinez system uses respective device identifiers and temporal information (e.g., network access times) to identify associations between device identifiers of two or more Internet-accessing devices. *Id.*, ¶228. In so doing, as discussed in Sections V.A.1.b-d, user data—originating from separate user devices sharing a common IP address—that satisfy criterion indicating, e.g., near-term behavior of the user, are linked. *Id.*, ¶229. The association in Element [1G] between the device identifiers is one of these associations, stored in database 200 (“**the first association is one of the associations identified in part (a)(ii)**”). *Id.*, ¶230.

i. [1I]

Madhavan-Park Martinez teaches Element [1I]. Ex. 1102, ¶¶232-237.

As explained in the example provided for Element [1G] (§V.A.1.g), a user accesses content service provider 100 from media device 140 and client machine 130. Once he has done so, the claimed “**first association**” between these devices has been stored in database 200 of Madhavan-Park-Martinez because each device is associated with the user’s profile, which contains the device identifier and associated user data from each of the two devices (e.g., devices 130 and 140). *Id.*, ¶¶232-233.

Thereafter, when the user accesses the Internet via media device 140, a targeted advertisement is automatically selected and sent to media device 140, based on user profile information (e.g., user data) collected from client machine 130. Thus, in this example, the first association was stored in the database 200 prior to the communication session between media device 140 and content service provider 100 that causes the targeted advertisement to be sent to media device 140 (“**the first association was stored in the electronic database described in part (a) prior to the computer system and the first device being in communication with one another as described in part (b).**”). *Id.*, ¶¶234-236, Ex. 1122, 3:1-8, 5:53-6:8, 7:2-38, 8:37-10:25, FIGS. 5-7.

2. Dependent Claim 2

Madhavan-Park-Martinez teaches claim 2, which depends from claim 1. Ex. 1102, ¶¶238-244; §V.A.1.

Madhavan-Park-Martinez tracks the “near short term behavior” of the user. Ex. 1122, 5:59-6:19, 7:48-53, 8:9-15, 10:10-25, 11:62-12:20. As explained above, it does this by linking user profile data from different user devices that were generated within a predetermined short period of time, such as 24 hours. Ex. 1102, ¶239; §§V.A.1.c-d, V.A.1.h-i. Thus, the linking of the devices, via their respective device identifiers, is done using a “**criterion that one of the two or more Internet accessing electronic devices ... accessed the Internet within a specified length of**

time after a time when another of the ... devices ... accessed the Internet” as recited in claim 2. *Id.*

For example, Madhavan-Park-Martinez’s media device 140 (“**another of the two or more Internet-accessing electronic devices**”) provides data (e.g., user data, temporal data, etc.) to content service provider 100, and subsequently the user may use client machine 130 (“**one of the two or more Internet-accessing electronic devices referenced in part (a)(ii)**”), thereby providing additional user data. Ex. 1102, ¶240; Ex. 1122, 7:14-8:33, 10:3-11:6, FIGS. 5-9. By determining, via a user profile, that the user data separately provided by both client machine 130 and media device 140 each corresponds to near short-term behavior of the user, the Madhavan-Park-Martinez system would have determined that media device 140 and client machine 130 each accessed the content service provider via the Internet within the claimed “**specified length of time**” (corresponding to the amount of time that constitutes short term behavior, e.g., 24 hours) (“**accessed the Internet within a specified length of time after a time when another of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet**”). Ex. 1102, ¶¶241-242. If one of the devices had accessed the Internet more than the specified length of time after the other, they would not both be associated as near short term behavior. *Id.*, ¶243.

3. Dependent Claim 3

Madhavan-Park-Martinez teaches claim 3, which depends from claim 1. *Id.*, ¶¶245-254; §V.A.1.

To the extent it is determined the “**predetermined time-relation criterion**” recited in claim 3 requires that one device (first device) accessed the Internet within a time window (e.g., “between two times”) when the other device (second device) accessed the Internet, Madhavan-Park-Martinez teaches claim 3. Ex. 1102, ¶¶246-250.

As discussed (§V.A.2), Madhavan-Park-Martinez tracks the “near short term behavior” by linking user profile data from different user devices that was generated within a predetermined short period of time, such as 24 hours. Ex. 1122, 5:59-6:19, 7:48-53, 8:9-15, 10:10-25, 11:62-12:20; §§V.A.1.c-d, V.A.1.h-i; Ex. 1102, ¶247. Thus, the linking of the devices, via their respective device identifiers, is done using a “**criterion that one of the two or more Internet accessing electronic devices ... accessed the Internet between two times when another one of the ... devices ... accessed the Internet.**” Ex. 1102, ¶247. By determining, via a user profile, that the user data separately provided by both the client machine 130 and media device 140 each corresponds to a short-term behavior of the user, the Madhavan-Park-Martinez system would have determined that the client machine 130 (“**one of the two or more Internet-accessing electronic devices**”) accessed the content service provider via

the Internet within a time window (e.g., between now and 24 hours ago) when the media device 140 (“**another one of the two or more Internet-accessing electronic devices**”) accessed the Internet. *Id.*, ¶¶248-250.

Although the '015 Patent provides no support for claim 3, much less the following construction, to the extent the “**predetermined time-relation criterion**” requires that the one device accessed the Internet between two separate instances of another device having accessed the Internet, Madhavan-Park-Martinez still teaches claim 3. *Id.*, ¶¶251-252. Appreciating the possibility of incorrect associations between devices within an environment where IP addresses (such as the IP address of Madhavan-Park-Martinez’s router) are dynamically assigned, a POSA would have been motivated and found it obvious to determine and use associations based on a first device (e.g., client machine 130) accessing the Internet between two separate instances of a second device (e.g., media device 140) having accessed the Internet (all using the same common IP address) because it provides greater assurance that the devices are being used by the same user. Ex. 1102, ¶251.

Referring to the example discussed above (§§V.A.1.g, V.A.2), after initially accessing content service provider 100 via the Internet using media device 140 (“**another one of the two or more Internet-accessing electronic devices**”), the user may access the content service provider via the Internet using client machine 130 (“**one of the two or more Internet-accessing electronic devices**”). Ex. 1122,

3:1-8, 7:3-8:48, 9:9-40, 10:1--11:26, FIGS. 5-9. At that point, the content service provider would receive, and determine whether to link via the user's profile, user data collected from media device 140 and client machine 130 (respectively). *Id.*; Ex. 1102, ¶252. Whether or not it did so, a POSA may wish to make an (additional) association only after media device 140 again accesses content service provider 100 using the common IP address, this association indicating a higher likelihood that the devices are being used by the same user. Because an IP address of a router used by a device to access the content service provider may, over time, be reassigned to a different router associated with a different user, the single use by devices of a common IP address may simply be the result of different users using an IP address that was first assigned to one router and then, later, dynamically reassigned to a different router. Associating devices that use a common IP address in a repetitive or overlapping manner obviously and beneficially indicates the higher likelihood that the devices are in fact being used by the same user. Ex. 1102, ¶252; Ex. 1122, 7:33-36, 7:60-67.

Therefore (to continue the example from Section V.A.1.g), when the user accesses the content service provider—for a second time—using media device 140, the content service provider 100 would recognize the repetitive use of the common IP address (access by device 140, then access by device 130, then access by device 140), and create an association between the devices within the user profile,

causing, e.g., the data from one device to be used to direct advertisements to the other device (“**the predetermined time-relation criterion comprises the criterion that one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet between two times when another one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet**”). Ex. 1102, ¶253. This association, based on the criterion of claim 3, would beneficially enable the content service provider to confirm—using the devices’ respective identification information—that the IP address used to link data from media device 140 with the user’s profile was not reassigned to a different router associated with a different user when client machine 130 accessed the content service provider using the same IP address as media device 140. *Id.*

4. Dependent Claim 4

Madhavan-Park-Martinez teaches claim 4, which depends from claim 1. *Id.*, ¶¶255-256; §V.A.1.

None of the “associations” discussed herein are determined using PII, therefore the “**first association**” discussed above concerning Elements [1G]-[1I] meets the requirement of Element [1E] that the association between device identifiers of two devices is determined without using PII. §§V.A.1.e, V.A.1.g-i; Ex. 1102, ¶255.

5. Dependent Claim 5

Madhavan-Park-Martinez teaches claim 5, which depends from claim 1. Ex. 1102, ¶¶257-266; §V.A.1.

Referring to the example discussed above (§V.A.1.g), the user may connect to Madhavan-Park-Martinez's content service provider 100 via the Internet using client machine 130 ("**second device**"), which may be a cellular telephone, personal digital assistant (PDA), or other wireless device (each a "**mobile device**"). Ex. 1122, 5:3-17, 12:21-48; Ex. 1102, ¶¶258-259.

Content service provider 100 stores, in the user profile, "geographic data detailing user access locations" (Ex. 1122, 5:59-66), and a POSA would understand that a user accesses the content service provider from various different geographic locations (via different access points having different IP addresses) as he travels with his mobile device. The content service provider may also link or otherwise associate user data (or other information stored in database 200) with a user's profile based on password information, which would allow for the associating of devices that had previously been associated because of a common IP address even when one of the devices later accesses the network from a different location. Ex. 1122, 7:33-67, 8:42-48; Ex. 1102, ¶¶259-261. The data collected from a device from the different location will be added to the user's profile and used to target advertisements to the

user, even when he is accessing the network from a different device using the common IP address again. Ex. 1102, ¶¶262-263.

Accordingly, before (and/or after) client machine 130 connects to content service provider 100 via the shared IP router, the user may use client machine 130 to connect to the content service provider via a different router having a different IP address (“**a mobile device that accessed the Internet both via the common IP address of the first association and via at least one different IP address**”). *Id.*, ¶¶264-265. In this example, the content service provider collects user data associated with the online activity of client machine 130 using the different router and stores that data to activity tables 230, linking the stored data with the user’s profile. *Id.*; Ex. 1122, 3:9-38, 5:53-6:8, 8:1-8, 8:42-56, FIG. 6. The user may subsequently access the content service provider via media device 140. Ex. 1122, FIG. 6. Thereafter, as explained above (§V.A.1.g), the content service provider will retrieve classification categories related to the previously-stored actions of the user—e.g., actions performed while using client machine 130 to access the Internet, even from a different location—and send, to media device 140, targeted advertisements related to the previously-stored actions of the user (“**user profile information**”). *Id.*, 9:30-46, FIG. 6; Ex. 1102, ¶265.

6. Dependent Claim 6

Madhavan-Park-Martinez teaches claim 6, which depends from claim 5. Ex. 1102, ¶¶267-272; §V.A.5.

As discussed (§§V.A.1.a-d, V.A.1.g-i, V.A.2-5), two devices in Madhavan-Park-Martinez may be initially linked to each other in a user profile (the “**first association**”) based on non-PII identification information such as a common IP address and a port number. Ex. 1102, ¶268. Further, as explained for claim 5, after such an association is made, one of the devices such as client machine 130 (the user’s mobile device) may access the content service provider from a different location and the data collected from that activity also will be added to the user’s profile and used to target advertising to the user’s media device 140, when media device 140 is later used to access the content service provider from the common IP address. *Id.*, ¶269. In this situation, described above for claim 5, “**the user profile information of part (b)**” (*i.e.*, the data obtained when client machine 130 accessed the content service provider from the different location) “**was collected after the computer system has determined the first association**” as required by claim 6 because the first association was made when devices 130 and 140 earlier accessed the content service provider from the common IP address. Ex. 1122, 5:53-6:8, 8:42-9-67; §V.A.5; Ex. 1102, ¶270.

Moreover, the first association based on the common IP address and port number of client machine 130 and media device 140 is made without using PII. §§V.A.1.e, V.A.1.g-i, V.A.4; Ex. 1102, ¶271.

7. Dependent Claim 7

Madhavan-Park-Martinez teaches claim 7, which depends from claim 5, for the same reasons as claim 3. §§V.A.1.c-d, V.A.1.h-i, V.A.3, V.A.5-6; Ex. 1122, 3:1-8, 5:53-6:19, 7:2-8:15, 9:4-10:25, 10:67-11:26, FIGS. 5-9; Ex. 1102, ¶¶273-275.

8. Dependent Claim 8

Madhavan-Park-Martinez teaches the limitations of claim 8, which depends from claim 7. Ex. 1102, ¶¶276-289; §V.A.7.

a. [8A]

Element [8A] requires the first device to be a STB. Madhavan-Park-Martinez teaches this. Ex. 1102, ¶¶277-280.

Media device 140 includes a network-enabled television set 142 coupled to a digital video recording device 144, and a user may watch a television broadcast via the television set 142. *Id.*; Ex. 1122, 1:55-60, 5:18-36, 9:9-18. Accordingly, Madhavan’s media device (“**first device**”) teaches a “**television set-top box**” because the media device enables the user to view a television broadcast. *Id.* This comports with the ’015 Patent, in which a STB includes any device “that connects a television and a signal source,” or may be implemented as a circuit or software that is physically integrated into a television. Ex. 1101, 1:49-2:7; Ex. 1102, ¶279.

b. [8B]

Madhavan-Park-Martinez teaches Element [8B]. Ex. 1102, ¶¶281-283.

Element [8B] requires the second device to be an “**online user interface device**,” which is “any user interface device used to access a remote network such as the Internet, including ... a cell phone or mobile handset.” Ex. 1101, 2:52-56. As explained above (§§V.A.1, V.A.5), client machine 130 may be a cell phone (“**online user interface device**”; **second device**) used to access the content service provider 100 via the Internet. Ex. 1122, 5:3-17, 7:60-63, 8:42-44; Ex. 1102, ¶282.

c. [8C]-[8D]

Madhavan-Park-Martinez teaches Elements [8C] and [8D], which parallel claim 6, at least for the same reasons as claim 6. §V.A.6; Ex. 1102, ¶¶284-289.

9. Dependent Claim 9

Madhavan-Park-Martinez teaches claim 9, which depends from claim 1, at least for the same reasons as claim 6. §§V.A.1, V.A.5-6; Ex. 1102, ¶¶290-293. More specifically, as explained for the example that renders obvious claims 5 and 6, the “**user profile information of part (b)**” (the data collected from client machine 130 during an online session occurring after devices 130 and 140 have been associated) is “**collected after the computer system has determined the first association.**” *Id.*

10. Dependent Claim 10

Madhavan-Park-Martinez teaches claim 10, which depends from claim 1. Ex. 1102, ¶¶294-303; §V.A.1.

Madhavan teaches that content service provider 100 may determine classification categories based on previously-stored data associated with a user, and select an advertisement—from multiple advertisements stored at advertising storage module 108—to send to the user’s device (**“selecting an advertisement, from among a plurality of possible advertisements, based at least in part on at least a portion of the user profile information”**). Ex. 1122, 4:57-65; 7:43-8:15, 8:57-67, 9:36-67; Ex. 1102, ¶295. User data (**“user profile information”**) collected from client machine 130 is **“associated with the device identifier of the second device”** because this data is stored to database 200 and linked to the user’s profile via the identification information (**device identifier**) of client machine 130 (**“second device”**). Ex. 1122, 5:48-66, 7:43-8:15, 11:3-22; Ex. 1102, ¶296. As explained above (§§V.A.1-3, V.A.5-6, V.A.9), when media device 140 accesses the content service provider, the previously stored user data—provided by client machine 130—is used to select an advertisement to send to the media device 140.

A user may connect to the content service provider via the Internet using multiple devices at the same time and, the content service provider sends retrieved advertisements to be displayed on each of those devices. Ex. 1122, 1:46-54, 3:53-63,

7:22-26, 9:9-29, 9:58-10:6, 11:55-61, FIGS. 5, 6 (displaying advertisement on “at least one” media device), 7, 10; Ex. 1102, ¶297. A POSA would have been motivated and found it obvious to have the content service provider of Madhavan-Park-Martinez’s system send targeted advertisements to be displayed on both types of devices, indeed all user devices that are concurrently accessing the content service provider because this would increase the probability of the user viewing the advertisement. Ex. 1102, ¶¶298-302; Ex. 1122, 2:55-61, 12:63-13:1. A selected advertisement, determined based on previously-stored user data collected from multiple user devices, would have been relevant to the user notwithstanding which device (or devices) the user watches it on. Providing the advertisement that is sent to media device 140 to client machine 130 as well beneficially increases the likelihood that the user views the advertisement, which would be desirable to the content service provider and advertiser supplying the advertisement. Ex. 1102, ¶298. Further, a POSA would have had the skills and knowledge to send advertisements to all of the user’s connected devices with a reasonable expectation of success given that Madhavan-Park-Martinez’s system already connects and sends targeted advertisements to multiple media devices 140. *Id.*, ¶299.

Madhavan-Park-Martinez’s modified system thus would have “**caus[ed] the selected advertisement to be directed to the second device**” at least because, when both media device 140 and client machine 130 access the content service provider

via the Internet, the previously-stored user data—obtained from client machine 130—would be used to automatically select and send an advertisement to media device 140 (**first device**), as discussed above regarding Element [1G] (§V.A.1.g), as well as client machine 130 (**second device**). Ex. 1122, 3:53-63, 7:60-8:33, 10:30-64, 11:55-61, FIG. 8; Ex. 1102, ¶300.

This would have been the simple application of a known technique (sending ads to a user’s multiple devices at the same time) to improve a known/similar method (Madhavan-Park-Martinez’s targeting of advertisements to user devices connected to its content service provider wherein client machine 130 and media device 140 both connect to the content service provider) in the same way to yield predictable results (displaying targeted advertisements at multiple user devices, including both devices 130 and 140, that are accessing the content service provider). Ex. 1102, ¶¶301-302.

11. Dependent Claim 13

Madhavan-Park-Martinez teaches claim 13, which depends from claim 1. *Id.*, ¶¶304-306; §V.A.1.

As discussed (§§V.A.1.b-c, V.A.1.e), the claimed “**device identifier**” comprises a common IP address and port number. Neither, by itself, would have identified any particular person and thus does not constitute “PII.” Ex. 1102, ¶305; §V.A.1.e; Ex. 1101, 6:25-44 (defining PII and non-PII).

12. Independent Claim 14 and Dependent Claims 15-23 and 26

Independent claim 14 is the counterpart tangible data storage medium claim to independent claim 1. The differences from claim 1 are non-substantive. *See* Claims Appendix.

The “**article comprising a tangible data storage medium that is not a transitory propagating signal encoding computer-readable instructions**” in Madhavan-Park-Martinez is computer memory within the one or more servers of content service provider 100, for example, as shown in Figure 12. Ex. 1122, 4:43-65, 12:21-62, FIGS. 2, 12; Ex. 1102, ¶308. The multiple servers of Madhavan-Park-Martinez’s content service provider “**perform a method**” that renders obvious the steps of claims 1-10 and 13. §§V.A.1-11. Madhavan’s software (e.g., software 1226) would also have been encoded on a “**tangible data storage medium that is not a transitory propagating signal,**” e.g., memory for storing computer programs. Ex. 1122, 12:41-62, FIG. 12; Ex. 1102, ¶308.

Therefore, Madhavan-Park-Martinez teaches independent claim 14 and dependent claims 15-23 and 26 for the same reasons as for claims 1-10 and 13. Ex. 1102, ¶¶307-309.

B. Ground B: Madhavan-Park-Martinez-Kato Renders Claims 1-10, 13-23, and 26 Obvious

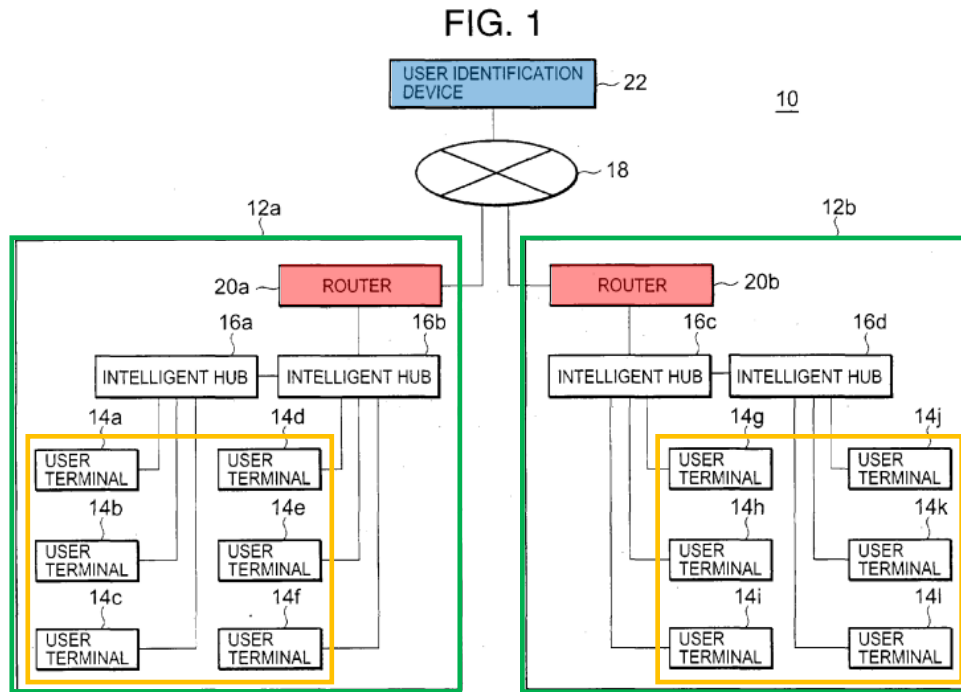
Madhavan-Park-Martinez in view of Kato teaches the limitations recited in claims 1-10, 13-23, and 26. Ex. 1102, ¶¶310-339.

1. Claim 1: Elements [1B]-[1C] and [1G].

To the extent it is argued that the use of a common IP address and a port number in Madhavan-Park-Martinez does not disclose the claimed “**device identifier**” as recited in Elements [1B], [1C], and [1G] of claim 1, Madhavan-Park-Martinez-Kato teaches these limitations. As explained below, it would have been obvious to incorporate Kato’s teachings of, *e.g.*, using a MAC address to uniquely identity a user device within the Madhavan-Park-Martinez system. *Id.*, ¶¶311-326.

Kato recognized that content providers, such as Madhavan’s content service provider 100, use IP addresses to identify which device sent information over a network. Ex. 1125, [0004]. Noting that multiple devices may use a common IP address (Ex. 1125, [0005]), Kato identifies a particular terminal device based on associations between terminal identification information (*e.g.*, MAC address), a private IP address, port information, and a common IP address assigned to user terminals. Ex. 1125, [0006], [0009]-[0011], [0031]-[0036], [0038]-[0057]; Ex. 1102, ¶¶102-104, 312.

As shown below, Kato’s system 10 includes a **plurality of user terminals** 14*a*-14*l* connected to **routers** 20*a* and 20*b*, which connect the **LANs** 12*a* and 12*b* to the Internet 18. Ex. 1125, [0030]-[0031], FIG. 1; Ex. 1102, ¶¶99-101, 313.



Ex. 1125, FIG. 1 (annotated)

Kato's system collects: (i) information indicating a correspondence between the physical ports of intelligent hub 16 and terminal identification information (e.g., the MAC address) identifying a user terminal (e.g., user terminals 14a-14l) connected to the port; (ii) information "indicating a correspondence between a MAC address and the private IP address assigned thereto;" and (iii) information "indicating a correspondence between the private IP address and the global IP address." Ex. 1125, [0031]-[0035]; Ex. 1102, ¶¶314-315. Kato's identification device 22 uses this information to determine the MAC address of a terminal associated with a particular user using a designated global IP address. Ex. 1125, [0031]-[0041]. Accordingly, Kato's system uses a MAC address to identify a user

terminal, and also tracks the global IP address and port number that was used by the terminal to access the Internet. *Id.*; Ex. 1102, ¶315.

The use of MAC addresses as device identifiers was well known. Ex. 1102, ¶317; Ex. 1123, [0034]; Ex. 1157, [0041]; Ex. 1115, [0025]. A POSA would have understood that Madhavan’s devices, and thus the devices in the proposed combination, likewise would have had device identifiers (e.g., MAC addresses) as taught by Kato. Ex. 1102, ¶¶316-317. Further, a POSA would have found it obvious to utilize the relationship between the public IP address, private IP address, port information, and MAC address of a user’s device, as taught by Kato, to identify a user device (and corresponding user profile) in the Madhavan-Park-Martinez system, which (like Kato) already tracks the common IP address and port numbers for its connected devices. *Id.*, ¶¶318-324. The combined system, in addition to the common IP address and port number, would also store a device’s MAC address in the user profile, and additionally use the MAC address as a device identifier, which is the known purpose of MAC addresses. *Id.*, ¶319. For example, instead of (or in addition to) the Madhavan-Park-Martinez system using the combination of the public IP address of the shared IP router and device port number as “*identification information*” for a user’s device, the Madhavan-Park-Martinez-Kato system identifies the user’s profile based on the relationship between the device’s MAC address and the common IP address used by that device to access the Internet. *Id.*

A POSA would have been motivated to do so because it helps the system to accurately identify a user's device (and corresponding user profile) that shares a common IP address with other devices. *Id.*, ¶¶320-321; Ex. 1125, [0005]-[0006], [0030]-[0039]. And, by associating the MAC address of a user device with the user's profile, the combined system would more readily associate user data from the user's devices with the user's profile when the user accesses content service provider 100 via different IP addresses, because the MAC address is constant. *Id.*; Ex. 1122, 7:15-19.

The combination merely applies a known technique to a known system ready for improvement to yield predictable results. Ex. 1102, ¶322. The system to be improved is Madhavan-Park-Martinez's system including content service provider 100, which associates devices via user profiles, but not using the devices' MAC addresses. *Id.*; Ex. 1122, 5:53-66, 7:15-19. Kato teaches the known technique of identifying a user's device based on its MAC address, and correlating this to the public IP address used by the device to access the Internet. Ex. 1102, ¶322; Ex. 1125, [0005]-[0006], [0031]-[0038]. The predictable result is that the MAC address is included in the user profile, along with the public IP address and port number, and is used to identify devices. *Id.*

Further, applying Kato's teachings simply uses a known technique (Kato's identifying a user device based on a determined relationship between the MAC

address, private IP address, port information, and public IP address used by the device to access the Internet) to improve similar methods (using identification information for a device to associate user data, provided by the device, to a particular user profile) in the same way to yield predictable results (providing a mechanism for uniquely identifying a device that accesses the system and associating that device and corresponding user data with a particular user profile). Ex. 1122, 5:53-66, 7:15-9:57, FIGS. 5-6; Ex. 1125, [0005]-[0006], [0031]-[0038]; Ex. 1102, ¶323.

A POSA would have reasonably expected success. Ex. 1102, ¶¶324-325. Madhavan-Park-Martinez's system already stores device identification information within a user profile and the devices already have MAC addresses, so using the MAC address information and associating it with the IP addresses already used would require relatively simple software modifications to the server to include the MAC addresses in the user profiles, which were well within the skill set of a POSA. *Id.*

2. Claim 1 (Element [1E]) and Claims 4, 6, 8, 10, and 13

As discussed (§V.B.1), in the Madhavan-Park-Martinez-Kato system, content service provider 100 would have received identification information (e.g., common IP address and MAC address) from a user's device, and used this information to link user data with the user's profile. Ex. 1122, 5:53-66, 7:33-35; Ex. 1102, ¶328. Additionally, the content service provider would have used this identification information to determine classification categories associated with previously-stored

user data and to target advertisements to the user's device. Ex. 1122, 8:9-15, 8:57-67, 9:36-46; Ex. 1102, ¶328.

Under the proposed Madhavan-Park-Martinez-Kato combination, the device's identification information is the IP address of a router used by the device to connect to the Internet (e.g., the common IP address of Madhavan-Park-Martinez-Kato's shared IP router), as well as the MAC address associated with the device. Ex. 1102, ¶329. Neither is or can be used to identify a specific person (neither is PII). *Id.*

Accordingly, Madhavan-Park-Martinez-Kato teaches Element [1E] and dependent claims 4, 6, 8, 10, and 13 for the same reasons as discussed above under Ground A for the proposed Madhavan-Park-Martinez combination except that the identification information (**device identifier**) for a user's device includes the device's MAC address. Ex. 1102, ¶330; *see* §§V.A, V.B.1.

3. Claim 1 (Elements [1A], [1D], [1F], and [1H]-[1I]), and claims 2-5, 7, and 9

Claim 1 (Elements [1A], [1D], [1F], and [1H]-[1I]) and claims 2-5, 7, and 9 are taught by Madhavan-Park-Martinez-Kato for the same reasons as discussed under **Ground A** for the proposed Madhavan-Park-Martinez combination, except that the identification information (**device identifier**) for a user device includes the device's MAC address. Ex. 1102, ¶¶332-334; §§V.A, V.B.1.

4. **Independent Claim 14 and Dependent Claims 15-23, and 26**

Independent claim 14 recites substantially the same language as independent claim 1. Any differences are not substantive. *See* Claims Appendix. Madhavan-Park-Martinez-Kato teaches and renders obvious claims 14, 17, 19, 21, 23 and 26 for the same reasons as discussed above under **Ground B** (see §§V.B.1-V.B.3), and also teaches and renders obvious claims 15-16, 18, 20, and 22 for the same reasons as the Madhavan-Park-Martinez combination discussed above under **Ground A**, except that the identification information for a user's device includes the device's MAC address. Ex. 1102, ¶¶335-339; §V.A.12.

C. **Grounds C-D and E-F: Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) in view of Brookes or Koran Render Claims 1-10, 13-23, and 26 Obvious**

1. **Claim 1 (Elements [1D] and [1H]) and Claims 2-3, and 7**

Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) in view of either Brookes (**Grounds C-D**) or Koran (**Grounds E-F**) teach Element [1D], Element [1H], and claims 2-3 and 7. §§V.A.1.d, V.A.1.h, V.A.2-3, V.A.7; Ex. 1102, ¶¶340-365.

To the extent it is argued that Madhavan-Park-Martinez (or Madhavan-Park-Martinez-Kato) does not teach the claimed “**predetermined time-relation criterion**” as recited directly or indirectly in Elements [1D] and [1H] of claim 1, and claims 2-3 and 7, Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) in view of either Brookes or Koran teach these limitations. Ex. 1102, ¶342.

As explained above for Element [1D], Madhavan’s user profile associates data and devices indicating short term behavior of a user, which is used to target advertisements based on recent user behavior. *Id.*; §V.A.1.d; Ex. 1122, 5:59-6:2, 11:62-12:20. Generating user profiles for advertisement targeting based on recent user behavior was well known: both Koran and Brookes teach these techniques. Ex. 1102, ¶¶343-355.

Koran serves targeted advertisements by determining user behavioral profiles based on online activity. Ex. 1127, 1:38-46, 2:27-56, 3:23-35, 4:50-60, 6:21-25, 11:29-48, Abstract; Ex. 1102, ¶¶111-112, 343-344. Koran’s system uses recency, decay and other parameters to generate a user profile that is used to predict user propensity for marketing efforts (e.g., direct response advertising). Ex. 1102, ¶¶113-115, 345-347; Ex. 1127, 2:37-47, 5:44-60, 11:29-17:13, 22:39-48. For example, Koran’s system generates long-term and short-term user behavioral profiles that compile activities of the user over “a relatively long period of time (e.g., over at least 24 hours)” and/or “a short period of time, such as an hour.” Ex. 1127, 6:2-7, 11:29-48; Ex. 1102, ¶¶349-351. Koran’s targeting system categorizes and processes received user events, and then applies various parameters—including a recency parameter that “weighs one or more events based upon how recent the events have occurred” and a decay parameter that indicates how fast user event data is phased out—to generate interest scores for different event types. Ex. 1127, 5:42-64,

12:29-67, 13:23-26, 14:29-42, 16:2-40, 22:39-42; Ex. 1102, ¶348. Koran's system uses the generated interest scores "for target optimization purposes as they provide predictive information regarding a user's action relative to categories of interest." Ex. 1127, 20:38-47; Ex. 1102, ¶352.

Similarly, Brookes describes a method for efficiently disseminating information to users. Ex. 1126, 1:9-14, 1:36-50, Abstract; Ex. 1102, ¶¶122-124, 353. Brookes' system generates an interest profile for each user that lists categories of information of interest to the user. Ex. 1126, 1:66-2:3, 7:1-9, Abstract. Data parameters, such as a time stamp, are assigned to collected information items. And, the parameters include "a value indicative of an expiry date, at which time the utility of the information item is deemed to be negligible." Ex. 1126, 2:66-3:5, 5:38-45; Ex. 1102, ¶354. After the expiry date is reached, information items are deleted or archived. Ex. 1126, 5:38-45, 6:13-19, 9:60-67, 13:11-15; Ex. 1102, ¶355.

A POSA would have found it obvious to apply either Koran's or Brookes' teachings to Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato). Ex. 1102, ¶¶356-364. Specifically, a POSA would have found it obvious for the combined systems to associate, via device identifiers, devices that are linked to user data indicating online user activity at times satisfying predetermined recency criteria of a user behavioral profile, as taught by Koran and Brookes. Ex. 1102, ¶¶356-358; Ex. 1127, 6:2-7, 11:29-48, 24:4-8; Ex. 1126, 2:66-3:5, 5:38-45; Ex. 1122, 5:59-6:2,

11:62-12:20. The content service provider 100 of Madhavan-Park-Martinez and Madhavan-Park-Martinez-Kato would have associated, in database 200, particular user data that satisfies this predetermined time-based criterion by including them (and their respective device identifiers) in a user profile in which the data is temporally linked. Ex. 1102, ¶¶359-360. The determination that the devices accessed the Internet at respective times satisfying the predetermined recency criterion would have been determined using the stored time stamps indicating the date and time of the user's online activity (**“at least some of the associations indicate association between at least two devices of the two or more Internet-accessing electronic devices, which association is determined by using the stored data to determine that both of the at least two devices have accessed the Internet via a common IP address at respective times satisfying a predetermined time-relation criterion”**). *Id.*; see Ex. 1124, [0051].

A POSA would have been motivated to implement the time-based profile management techniques, as taught by Brookes/Koran, in the Madhavan-Park-Martinez system (**Grounds C/E**) and the Madhavan-Park-Martinez-Kato system (**Ground D/F**) because, by doing so, the content service provider would be better enabled to determine useful associations between user data and devices to provide advertising directed to a user's recent interests. Ex. 1122, Abstract, FIGS. 5-6;

Ex. 1127, 6:2-7, 11:29-48, 24:4-8; Ex. 1126, 2:66-3:5, 5:38-45; Ex. 1102, ¶¶356-357, 361.

This combination applies a known technique to a known device ready for improvement to yield predictable results. Ex. 1102, ¶362. The known technique includes Koran's or Brookes' use of timing information and predetermined recency criteria to identify and compile user activities, within a profile, that are relevant to a user's current interests, thereby improving advertisement targeting and the dissemination of information to a user. *Id.*; Ex. 1127, 6:2-7, 11:29-48, 14:29-42; Ex. 1126, 2:66-3:5, 5:38-45. The known device includes the Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) systems, including content service provider 100, which collects user data and corresponding temporal data, and uses them to determine associations between user devices and facilitate the targeting of advertisements to those devices. Ex. 1102, ¶362; Ex. 1122, 1:7-11, 5:53-6:2, 7:33-59, FIGS. 5-6; Ex. 1124, [0051]. The improvement includes the use of more relevant profile information (e.g., user data) leading to better targeting of advertisements based on a user's current (or long-term) interests. Ex. 1102, ¶362. Another benefit is efficiently using storage space within database 200 that would otherwise be occupied by stale or irrelevant data. *Id.*; Ex. 1126, 9:60-67, 13:11-15. The predictable results yield systems that determine associations between user devices that satisfy predetermined time-based criterion of a desired user behavioral

profile. Ex. 1102, ¶362; Ex. 1122, 5:59-6:2, 11:62-12:20. Additionally, the proposed combination would have merely been the simple combination of prior art elements (Madhavan-Park-Martinez and Madhavan-Park-Martinez-Kato systems, and Koran's behavioral targeting system or Brookes' information system) according to known methods (programming Madhavan's modified systems to implement Koran's/Brookes' techniques for using timing information to identify user data satisfying time-based criteria for a user behavioral profile) to yield predictable results. Ex. 1102, ¶363.

A POSA would have also had the skills to implement the combination with a reasonable expectation of success. Ex. 1102, ¶364. The content service provider is already configured to obtain, store, and analyze data (including temporal data) generated by a behavioral targeting system. *Id.*; Ex. 1122, 5:59-66, 11:62-12:20, FIG. 11; Ex. 1127, 1:38-46, 2:27-56, Abstract. It would have been straightforward for a POSA to program the combined system to use stored temporal data to identify user data (e.g., user activity) that satisfies predetermined recency criteria, as taught by Koran and Brookes and use it to provide targeted advertising that better reflects the user's current (or long-term) interests. Ex. 1102, ¶364.

2. Claim 1 (Elements [1A]-[1C], [1E]-[1G] and [1I]) and Claims 4-6, 8-10, and 13

Claim 1 (Elements [1A]-[1C], [1E]-[1G], and [1I], and claims 4-6, 8-10, and 13 are taught by Madhavan-Park-Martinez and Madhavan-Park-Martinez-Kato

in view of Brookes (**Grounds C-D**) or Koran (**Grounds E-F**) for the same reasons as discussed under **Ground A** for the proposed Madhavan-Park-Martinez combination and under **Ground B** for the proposed Madhavan-Park-Martinez-Kato combination. Ex. 1102, ¶¶366-367; §§V.A.1.a-c, V.A.1.e-g, V.A.1.i, V.A.4-6, V.A.8-11.

3. Independent Claim 14 and Dependent Claims 15-23, and 26

Independent claim 14 recites substantially the same language as independent claim 1. Any differences are not substantive. *See* Claims Appendix. Madhavan-Park-Martinez and Madhavan-Park-Martinez-Kato in view of Brookes (**Grounds C-D**) or Koran (**Grounds E-F**) render obvious claims 14-23 and 26 for the same reasons as discussed above under **Grounds C-F**. Ex. 1102, ¶¶368-371; §§V.C.1-2.

D. Grounds E-F (continued): Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) in view of Koran Also Render Claims 12 and 25 Obvious

Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) in view of Koran teaches the limitations recited in claims 12 and 25, which respectively depend from claims 1 and 14. §§V.A.1, V.A.12, V.B; Ex. 1102, ¶¶372-378. These claims require that device identifiers are “**stored in a cookie readable by the computer system.**”

Koran teaches this. Ex. 1102, ¶373; Ex. 1127, 23:49-60. As discussed (§V.C.1), Koran’s behavioral targeting system determines user profiles from online activity, including interests and behavior of online users, to target users with advertisements. Ex. 1127, Abstract. In Koran, a user profile database stores user profiles for multiple users (or client systems), and each profile assigns a unique identifier (e.g., user-identification number) to a particular client device associated with a user. Ex. 1127, 23:33-60, Abstract. Koran teaches that this unique identifier may be stored in a cookie on the associated client device and, when the user requests content from a content server, the cookie is transferred—via the content server—from the client system to a behavioral targeting server that uses the device identifier in the cookie “to retrieve the particular user profile from the user profile database.” *Id.*; Ex. 1102, ¶373.

A POSA would have found it obvious to configure the Madhavan-Park-Martinez system (**Ground E**) to store identification information, e.g., IP address and port number, of a user device (*see* §V.A.1.a-e), and to configure the Madhavan-Park-Martinez-Kato system (**Ground F**) to store identification information, e.g., IP address and MAC address of a user device (*see* §V.B.1), in a cookie readable by the servers of content service provider 100 because cookies are useful ways to efficiently and easily transfer information and identify devices, which are used when tracking

user activity and determining targeted advertisements. Ex. 1122, 5:48-66, 7:33-8:19, 8:42-9:46, 11:30-52, FIGS. 5-6; Ex. 1102, ¶¶374-377.

Doing so combines prior art elements (Madhavan-Park-Martinez and Madhavan-Park-Martinez-Kato systems that use device identifiers, and Koran's cookies comprising device identifiers) according to known methods (programming the user's device to store and the content service provider's servers to retrieve cookies containing device identifiers) to yield predictable results (using a cookie to identify and retrieve device identifiers). Ex. 1102, ¶¶374-375, 377.

Cookies and their implementation were well-known, even ubiquitous, leading to an expectation of success. Ex. 1102, ¶376; *see* Ex. 1122, 7:33-8:19, 8:42-9:46; Ex. 1127, 23:33-60. A POSA would be familiar with using cookies to transfer information (such as device identifiers) from a user's device, and using a cookie to do so in the combined system would have been well within the skill set of a POSA. Ex. 1115, [0007], [0031]; Ex. 1128, 5:27-67, 7:58-8:14, FIG. 3; Ex. 1102, ¶377.

E. Grounds G-H: Grounds A and B in view of Ashbaugh Renders Claims 11 and 24 Obvious

Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) in view of Ashbaugh teach the limitations recited in claims 11 and 24, which respectively depend from claims 10 and 23 taught by Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato). §§V.A.10, V.A.12, V.B.2, V.B.4; Ex. 1102, ¶¶379-391.

These claims require that the automatic action occur “**when the first device is redirected to the computer system to receive delivery of an advertisement.**”

Ashbaugh teaches using the redirect feature of HTTP to request advertisements for display in an advertising frame of a webpage. Ex. 1119, 9:36-38, 10:1-9, 11:43-66, FIG. 1; Ex. 1150, 14-15, 17, FIG. 1; Ex. 1102, ¶¶120-121, 381-384. The benefit of using such a redirect is that it would have advantageously provide better resistance to known ad-blocking techniques due to using native HTML and HTTP features (*i.e.*, advertising frames and redirection) that were not easily circumvented. Ex. 1102, ¶¶385-387; Ex. 1119, 10:1-9, 11:43-66; Ex. 1150, 14-15, 17; Ex. 1122, 5:3-12.

Client machine 130 of Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) executes client program 132 (e.g., web browser) to access content service provider 100, which delivers web content and targeted advertisements to client machine via the web browser. Ex. 1122, 4:46-56, 5:3-27, 8:1-8, 11:27-61, Abstract. A POSA thus would have found it obvious to include an advertising frame, as taught by Ashbaugh, in the webpages provided by the content service provider 100 of Madhavan-Park-Martinez (**Ground G**) and Madhavan-Park-Martinez-Kato (**Ground H**) and use HTTP’s redirect feature to redirect the user’s devices, e.g., media device 140 (first device), to receive the targeted advertisements intended for the user’s devices as described for Element [1G] and claim 10. §§V.A.1.g, V.A.10,

V.B.1-2; Ex. 1122, 4:46-56, 5:3-27, 8:5-8; Ex. 1102, ¶¶388-389. A POSA would have been motivated to adapt Madhavan’s modified systems to include such features because using advertising frames and redirection to display advertisements would make it significantly more difficult for a third-party to prevent the display of intended content, thereby improving the user’s web-browsing experience. Ex. 1102, ¶¶386-387. In this manner, the combined systems meet the requirement (“**wherein part (b) takes place when the first device is redirected to the computer system to receive delivery of an advertisement**”). Ex. 1102, ¶¶386, 390.

This would have been the simple application of a known technique (Ashbaugh’s redirection to an advertisement server for advertisements in a webpage frame) to improve a known and similar system (Madhavan’s modified systems that deliver targeted ads from a server to user devices) in the same way to yield predictable results (ads presented via redirect, exhibiting better resistance to known ad-blocking techniques). Ex. 1122, 4:7-25, 4:46-5:27, 8:5-8, 8:30-33; Ex. 1119, 10:1-9, 11:43-66; Ex. 1150, 14-15, 17; Ex. 1102, ¶¶388-390.

F. Grounds I-J: Grounds A-B in further view of Banga507 Renders Claims 12 and 25 Obvious

Madhavan-Park-Martinez (and Madhavan-Park-Martinez-Kato) in view of Banga507 teach claims 12 and 25, which respectively depend from claims 1 and 14. §§V.A.1, V.A.12, V.B; Ex. 1102, ¶¶392-401. These claims require that device

identifiers are stored in a cookie. Banga507 teaches this. Ex. 1102, ¶¶116-119, 393-396.

Banga507 describes a system whereby multiple network access devices (ADs) 110 access content providers 140 over a network 130, such as the Internet, via a shared access point 210. Ex. 1115, [0022]-[0023], [0026]-[0027], [0033]-[0034], FIGS. 1-2; Ex. 1102, ¶394. Banga507's AD "may be identified by a hybrid cookie/device identifier combination." Ex. 1115, [0031]. Although Banga507 recognizes certain drawbacks associated with cookies, Banga507 explains that this "cookie/device identifier combination" would still provide benefits to advertisers that continued to rely on cookies for Internet advertising. Ex. 1115, [0007], [0031]; Ex. 1102, ¶395. Banga507 teaches that cookies stored on users' ADs were capable of storing information such as identifiers and user preferences. Ex. 1115, [0007]; Ex. 1102, ¶396.

It would have been obvious for a POSA to apply Banga507 to Madhavan-Park-Martinez and Madhavan-Park-Martinez-Kato to yield a combined system in which the device identifiers are contained within cookies (claimed "**at least one of the device identifier of the first device of part (b) and the device identifier of the second device of part (b) is stored in a cookie readable by the computer system**"). Ex. 1102, ¶¶397, 400. A POSA would have recognized, in view of Banga507's teachings, that a cookie would have been able to store the same

information included in Madhavan-Park-Martinez’s and Madhavan-Park-Martinez-Kato’s identification information (common IP address, port number, MAC address, etc.). Ex. 1102, ¶397. A POSA would have been motivated to do so because Banga507 teaches that a “cookie/device identifier combination” benefits advertisers that still rely on cookie-based approaches to provide advertisements. Ex. 1115, [0031]; Ex. 1102, ¶398.

Given how well-known cookies and their implementation are, a POSA would have had the skills to implement this combination, which would have been the simple application of a known technique (Banga507’s use of a cookie/device identifier combination to identify devices) to improve a known and similar system (Madhavan’s modified systems) in the same way to yield predictable results (device identifiers are stored in cookies, allowing for better integration by Madhavan’s systems with advertising entities that rely on cookie-based systems). Ex. 1102, ¶399; Ex. 1122, 1:26-32, 4:57-5:2.

G. Grounds K-O: Grounds A, C, E, G, and I in view of Sitaraman Renders Claims 1-26 Obvious

As discussed (§§V.A.1.a, V.A.1.e), a POSA would have understood that Madhavan-Park-Martinez’s router uses a dynamically-assigned IP address, as this was well-known and admitted prior art. Ex. 1102, ¶204, 403; Ex. 1101, 4:37-42. This also would have been obvious to a POSA as there are only two options for assigning IP addresses—static or dynamic assignment. Ex. 1102, ¶403. To the

extent it is argued that Grounds A, C, E, G, and I do not teach that the claimed “association” is determined without use of PII because the router of Madhavan’s modified systems does not have a dynamically-assigned IP address, this would have been obvious in view of Sitaraman. Ex. 1102, ¶¶125-128, 402-415. Sitaraman explains that ISPs dynamically assign IP addresses from a pool of available addresses, using DHCP servers. *Id.*, ¶404; Ex. 1160, 3:31-51; 3:64-4:1, 6:63-66.

It would have been obvious to combine Madhavan’s modified systems in the above-identified Grounds with Sitaraman, predictably resulting in systems wherein the router’s common IP address is dynamically-assigned using known DHCP techniques. Ex. 1102, ¶¶405-406. The dynamically-assigned common IP address in the combined systems would not reveal PII. Thus, the association between device identifiers (which includes the router’s IP address) would be determined without the use of PII. Ex. 1102, ¶407.

The operation and functionality of Madhavan’s modified systems described above as meeting the claims would not be materially impacted by the router’s use of a dynamically-assigned IP address. Ex. 1102, ¶¶410-411. The proposed combinations rely on the router’s common IP address as “identification information” for correlating user data with a particular user profile. Ex. 1122, 5:53-6:12. This remains the case, even if the router has a dynamically-assigned IP address. Ex. 1102, ¶¶410-411. Madhavan contemplates such dynamic assignments, dynamic IP

addresses can be assigned for extended periods of time, and DHCP servers often reassign the same dynamic IP address to a device to which it was previously assigned. *Id.*; Ex. 1122, 5:53-6:12, 7:9-15.

A POSA would have had many reasons to combine. Ex. 1102, ¶¶406, 409, 412. First, dynamic IP address assignment makes more efficient use of available IP addresses and was developed to help solve the shortage of IP addresses. *Id.*; Ex. 1160, 3:25-33. Second, dynamic IP addresses offer cost savings over static IP addresses. Ex. 1102, ¶412. Third, systems using dynamic IP addresses would be less susceptible to malicious network attacks. *Id.* And, the proposed combinations merely apply a known technique (dynamically assigning IP addresses) to a known device ready for improvement (the shared IP router) to yield predictable results (the router has a dynamically-assigned IP address). *Id.*, ¶¶405-406. A POSA would have a reasonable expectation of success because DHCP was within the general knowledge of skilled artisans. *Id.*, ¶¶413-414.

Additionally, for the same reasons as discussed above in §§V.A.3 and V.A.12, it would have been obvious to use associations based on a first device (e.g., client machine 130) accessing the Internet between two separate instances of a second device (e.g., media device 140) having accessed the Internet via a router having a dynamically-assigned IP address as taught by Sitaraman. Ex. 1102, ¶415.

VI. GROUNDS FOR STANDING & FEE PAYMENT

Petitioner hereby certifies that the '015 Patent is available for, and Petitioner is not barred or estopped from requesting, *inter partes* review challenging claims 1-26.

Pursuant to 37 C.F.R. § 42.103, the undersigned authorizes the charge of any required fees to Deposit Account No. 19-0733.

VII. CONCLUSION

Inter partes review should be instituted and claims 1-26 canceled.

Dated: March 1, 2024

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CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for Inter Partes Review totals 13,533, which is less than the 14,000 allowed under 37 CFR § 42.24(a)(1)(i). This total includes 13,516 words as counted by the Word Count feature of Microsoft Word and 17 words used in annotations.

Pursuant to 37 C.F.R. § 42.24(a)(1), this count does not include the table of contents, the table of authorities, mandatory notices under § 42.8, the certificate of service, this certification of word count, the claims listing appendix, or appendix of exhibits.

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.105, I hereby certify that I caused a true and correct copy of this Petition for *Inter Partes* Review in connection with U.S. Patent No. 11,564,015 and supporting evidence to be served via FedEx Priority Overnight on March 1, 2024, on the following:

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CLAIM LISTING APPENDIX

U.S. Pat. No. 11,564,015

Designation	Claim Language
Claim 1	
[1A]	1. A computer system comprising at least one hardware server computer, wherein the computer system is programmed and connected to perform a method of using common IP addresses to identify associations among multiple electronic devices and using an identified association to cause cross-device action, the method comprising:
[1B]	(a) with the computer system, creating an electronic database containing a multitude of associations, each indicating an association between device identifiers of two or more Internet-accessing electronic devices of a multitude of Internet-accessing electronic devices, wherein:
[1C]	(i) each of the associations is determined using stored data relating to Internet access by various of the multitude of devices, the stored data comprising (A) a device identifier of one of the Internet-accessing devices, (B) an IP address through which the one of the devices accessed the Internet, and (C) a timestamp identifying when the one of the devices accessed the Internet;
[1D]	(ii) at least some of the associations indicate association between at least two devices of the two or more Internet-accessing electronic devices, which association is determined by using the stored data to determine that both of the at least two devices have accessed the Internet via a common IP address at respective times satisfying a predetermined time-relation criterion;
[1E]	(iii) at least some of the associations indicate association between at least two devices of the two or more Internet-accessing electronic devices, which association is determined without use of personally identifiable information; and
[1F]	(iv) the computer system determining the associations accesses the Internet without using any of the common IP addresses of the associations identified in part (ii); and
[1G]	(b) when the computer system and a first device identified in a first association are in communication with one another,

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	with the computer system using a device identifier of the first device and user profile information associated with a device identifier of a second device identified in the first association to cause an automatic action to be taken with respect to the first device, wherein:
[1H]	(i) the first association is one of the associations identified in part (a)(ii); and
[1I]	(ii) the first association was stored in the electronic database described in part (a) prior to the computer system and the first device being in communication with one another as described in part (b).
Claim 2	
2	2. The computer system of claim 1 wherein the predetermined time-relation criterion comprises the criterion that one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet within a specified length of time after a time when another of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet.
Claim 3	
3	3. The computer system of claim 1 wherein the predetermined time-relation criterion comprises the criterion that one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet between two times when another one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet.
Claim 4	
4	4. The computer system of claim 1 wherein the first association of part (b) is one of the associations identified in part (a)(iii).
Claim 5	
5	5. The computer system of claim 1 wherein the second device of part (b) comprises a mobile device that accessed the Internet both via the common IP address of the first association and via at least one different IP address, and wherein the user profile information of part (b) was collected when the mobile device accessed the Internet other than via the common IP address.
Claim 6	

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6	6. The computer system of claim 5 wherein the user profile information of part (b) was collected after the computer system has determined the first association, and wherein the first association of part (b) is one of the associations identified in part (a)(iii).
Claim 7	
7	7. The computer system of claim 5 wherein the predetermined time-relation criterion comprises the criterion that one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet between two times when another one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet.
Claim 8	
[8A]	8. The computer system of claim 7 wherein: (A) the first device of part (b) is a television set-top box;
[8B]	(B) the second device of part (b) is an online user interface device;
[8C]	(C) the user profile information of part (b) was collected after the computer system has determined the first association; and
[8D]	(D) the first association of part (b) is one of the associations identified in part (a)(iii).
Claim 9	
9	9. The computer system of claim 1 wherein the user profile information of part (b) was collected after the computer system has determined the first association.
Claim 10	
10	10. The computer system of claim 1 wherein the automatic action of part (b) comprises selecting an advertisement, from among a plurality of possible advertisements, based at least in part on at least a portion of the user profile information associated with the device identifier of the second device, and causing the selected advertisement to be directed to the second device.
Claim 11	
11	11. The computer system of claim 10 wherein part (b) takes place when the first device is redirected to the computer system to receive delivery of an advertisement.
Claim 12	

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12	12. The computer system of claim 1 wherein at least one of the device identifier of the first device of part (b) and the device identifier of the second device of part (b) is stored in a cookie readable by the computer system.
Claim 13	
13	13. The computer system of claim 1 wherein the device identifier of the first device of part (b) and the device identifier of the second device of part (b) include no personally identifiable information pertaining to a user of the first device or the second device.
Claim 14	
[14A]	14. An article comprising a tangible data storage medium that is not a transitory propagating signal encoding computer-readable instructions that, when applied to a computer system comprising at least one hardware server computer, instruct the computer system to perform a method comprising:
[14B]	(a) with the computer system, creating an electronic database containing a multitude of associations, each indicating an association between device identifiers of two or more Internet-accessing electronic devices of a multitude of Internet-accessing electronic devices, wherein:
[14C]	(i) each of the associations is determined using stored data relating to Internet access by various of the multitude of devices, the stored data comprising (A) a device identifier of one of the Internet-accessing devices, (B) an IP address through which the one of the devices accessed the Internet, and (C) a timestamp identifying when the one of the devices accessed the Internet;
[14D]	(ii) at least some of the associations indicate association between at least two devices of the two or more Internet-accessing electronic devices, which association is determined by using the stored data to determine that both of the at least two devices have accessed the Internet via a common IP address at respective times satisfying a predetermined time-relation criterion;
[14E]	(iii) at least some of the associations indicate association between at least two devices of the two or more Internet-

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	accessing electronic devices, which association is determined without use of personally identifiable information; and
[14F]	(iv) the computer system determining the associations accesses the Internet without using any of the common IP addresses of the associations identified in part (ii); and
[14G]	(b) when the computer system and a first device identified in a first association are in communication with one another, with the computer system using a device identifier of the first device and user profile information associated with a device identifier of a second device identified in the first association to cause an automatic action to be taken with respect to the first device, wherein:
[14H]	(i) the first association is one of the associations identified in part (a)(ii); and
[14I]	(ii) the first association was stored in the electronic database described in part (a) prior to the computer system and the first device being in communication with one another as described in part (b).
Claim 15	
15	15. The article of claim 14 wherein the predetermined time-relation criterion comprises the criterion that one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet within a specified length of time after a time when another of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet.
Claim 16	
16	16. The article of claim 14 wherein the predetermined time-relation criterion comprises the criterion that one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet between two times when another one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet.
Claim 17	
17	17. The article of claim 14 wherein the first association of part (b) is one of the associations identified in part (a)(iii).
Claim 18	

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18	18. The article of claim 14 wherein the second device of part (b) comprises a mobile device that accessed the Internet both via the common IP address of the first association and via at least one different IP address, and wherein the user profile information of part (b) was collected when the mobile device accessed the Internet other than via the common IP address.
Claim 19	
19	19. The article of claim 18 wherein the user profile information of part (b) was collected after the computer system has determined the first association, and wherein the first association of part (b) is one of the associations identified in part (a)(iii).
Claim 20	
20	20. The article of claim 18 wherein the predetermined time-relation criterion comprises the criterion that one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet between two times when another one of the two or more Internet-accessing electronic devices referenced in part (a)(ii) accessed the Internet.
Claim 21	
[21A]	21. The article of claim 20 wherein: (A) the first device of part (b) is a television set-top box;
[21B]	(B) the second device of part (b) is an online user interface device;
[21C]	(C) the user profile information of part (b) was collected after the computer system has determined the first association; and
[21D]	(D) the first association of part (b) is one of the associations identified in part (a)(iii).
Claim 22	
22	22. The article of claim 14 wherein the user profile information of part (b) was collected after the computer system has determined the first association.
Claim 23	
23	23. The article of claim 14 wherein the automatic action of part (b) comprises selecting an advertisement, from among a plurality of possible advertisements, based at least in part on at least a portion of the user profile information associated with

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	the device identifier of the second device, and causing the selected advertisement to be directed to the second device.
Claim 24	
24	24. The article of claim 23 wherein part (b) takes place when the first device is redirected to the computer system to receive delivery of an advertisement.
Claim 25	
25	25. The article of claim 14 wherein at least one of the device identifier of the first device of part (b) and the device identifier of the second device of part (b) is stored in a cookie readable by the computer system.
Claim 26	
26	26. The article of claim 14 wherein the device identifier of the first device of part (b) and the device identifier of the second device of part (b) include no personally identifiable information pertaining to a user of the first device or the second device.