UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UBER TECHNOLOGIES, INC.,
Petitioner

v.

SURGETECH LLC,
Patent Owner

Case IPR2023-00736
Patent 11,334,598

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 11,334,598

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LIST OF EXHIBITS

Exhibit	Description
EX1001	U.S. Patent No. 11,334,598
EX1002	U.S. Patent No. 11,334,598 File History
EX1003	Declaration of Dr. Amelia Regan
EX1004	U.S. Patent Pub. No. 2007/0075136 ("Jacob")
EX1005	Certified Translation of Japanese Patent Application Publication JP 2005-332346 ("Tamura")
EX1006	Japanese Patent Application Publication JP 2005-332346
EX1007	Certified Translation of Japanese Patent Application Publication JP 2002-104622 ("Kono")
EX1008	Japanese Patent Application Publication JP 2002-104622
EX1009	Franklin & Zdonik, "Dissemination-Based Information Systems," "*Bulletin of the Technical Committee on Data Engineering*," Vol. 19, No. 3 (September 1996) ("Franklin")
EX1010	U.S. Patent No. 7,996,265 ("Evangelist")
EX1011	U.S Patent No. 7,894,936 ("Walker")
EX1012	U.S. Patent Pub. No. 2006/0085296 ("Strickland")
EX1013	U.S. Patent Pub. No. 2002/0186144 ("Meunier")
EX1014	U.S. Patent No. 8,050,976 ("Staib")
EX1015	U.S. Patent No. 8,051,015 ("Veit")
EX1016	U.S. Provisional Patent App. No. 60/737,071 ("Staib Provisional Application")
EX1017	*U.S. District Courts—National Judicial Caseload Profile*, *available at* https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_distprofile0930.2022.pdf (September 30, 2022)
EX1018	Dkt. 34 (Scheduling Order), Dkt. 49 (Stipulation to Extend Time), Dkt. 55 (Stipulation to Extend Time), *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1019	Declaration of Sayem Osman on March 28, 2023
EX1020	March 27, 2023 Email re: SurgeTech, LLC v. Uber Technologies, Inc. (Fintiv Stipulation)

EX1021	Defendant Uber Technologies, Inc's Identification of Claim Constructions, *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1022	Plaintiff SurgeTech LLC's Responses and Proposed Constructions to Defendant Uber Technologies, Inc.'s Identification of Claim Constructions, *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1023	Plaintiff's Disclosure of Asserted Claims and Infringement Contentions, Exhibit A, Uber Technologies, Inc's Identification of Claim Constructions, *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1024	March 22, 2023 Affidavit of Nathaniel E. Frank-White (regarding Franklin)
EX1025	IEEE Technical Committee on Data Engineering, Data Engineering Bulletin Issues, available at http://sites.computer.org/debull/bull_issues.html
EX1026	Choi, S. and Kimes, S., "Electronic Distribution Channels' Effect on Hotel Revenue Management," Cornell Hotel and Restaurant Administration Quarterly, Vol.43, Issue 2, June 2002.
EX1027	Listing of Issues of Cornell Hotel and Restaurant Administration Quarterly, *available at* https://www.sciencedirect.com/journal/the-cornell-hotel-and-restaurant-administration-quarterly/issues.
EX1028	Screenshot of https://journals.sagepub.com/doi/abs/10.1177/0010880402433002 showing Electronic Distribution Channels' effect on Hotel Revenue Management
EX1029	Excerpts of Phillips, R., "Pricing and Revenue Optimization" (2005) ("Phillips")[1]
EX1030	OMITTED
EX1031	Excerpts of Phillips, R., "Pricing and Revenue Optimization" (2005) from Library of Congress from Copies 1 and 2 (including March 27 and 28, 2023 Declarations of Kyle Noreiga)
EX1032	March 22, 2023 Affidavit of Nathaniel E. Frank-White (regarding Phillips)

[1] Petitioner is willing to provide a full copy of Phillips for inspection upon request.

EX1033	Excerpts of Phillips, R., "Pricing and Revenue Optimization" (2005) from George Washington University Library
EX1034	Gelman Library at George Washington University MARC Record for EX1033
EX1035	Library of Congress Catalog Record for EX1031
EX1036	University of Washington Catalog Record for EX1029

Uber Technologies, Inc. ("Petitioner") petitions, under §§311-319 and §42.1,[2] for IPR of Claims 6-7, 14-15, and 19-20 ("Claims") of U.S. Patent 11,334,598 ("'598"), assigned to SurgeTech, LLC ("PO"/"SurgeTech"). There is a reasonable likelihood at least one Claim is unpatentable for the reasons herein, and Petitioner requests review of, and judgment against, these Claims under §103.

The Claims generally concern concepts well-known long before '598's earliest-claimed May 18, 2006 priority date:[3] ***allocating inventory*** (transportation services inventory) to online distribution channels, ***receiving sale data*** pertaining to online bookings, ***processing*** that sale data, and ***adjusting price and/or allocation*** of such inventory based on the results. The Claims' remaining limitations merely catalog trivial implementation choices well understood by "POSITA"[4]—and the resulting combinations were certainly obvious.

I. '598 PATENT

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[2] Sections are from 35 U.S.C. or 37 C.F.R. as context indicates, and emphases/annotations added (including highlighting and red marking in figures) and internal quotations/citations omitted unless noted.

[3] This is through a continuation-in-part and Australian provisional. *See* EX1002, 366-367. Petitioner reserves the right to argue that a later date applies.

[4] Persons of ordinary skill in the art, as of May 18, 2006. *See* §VI.B.

’598 issued from App. No.17/542,933 (EX1002) and recites a “method of managing online bookings,” such as “hotel rooms.” EX1001, 1:50-52, 3:63-66, 4:10-14. Inventory vendors/administrators use a networked “computer” to receive and process “sales performance” data related to inventory allocated to “distribution channels” (*e.g.*, “resellers”), and then adjust pricing or allocation. *See, e.g.*, EX1001, 4:16-19, 4:24-37, 5:32-35, 39:12-16, cls.22, 24, Fig.1, EX1003, ¶¶73-79:

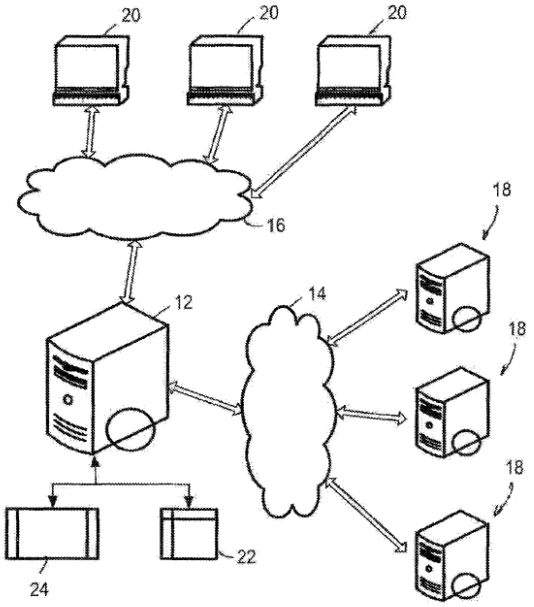


FIG. 1

’598’s claims generally require linking, via a network, transportation services inventory items with online distribution channels (*e.g.*, “resellers stored on servers,” EX1001, 4:24-28), receiving and processing sale data pertaining to inventory items allocated to the channels, and adjusting price and/or re-allocating items among channels. EX1001, 1:52-2:12; EX1003, ¶31, 4:32-36, Figs.2-3.

II. BACKGROUND OF THE ART

'598's claimed concepts were well-known before the earliest-claimed 2006 priority date. *See* EX1003, ¶¶21-32. For example:

Linking, via a computerized network, each item in inventory, with one of a plurality of online distribution channels, by allocating the item to the respective online distribution channel was well-known. *E.g.*, EX1004 (**Jacob**),[5] Abstract, ¶¶[0007], [0077], [0085]-[0086], [0154], [0180]-[0181], [0185], Fig.7:

[5] *See* VI.C.1.

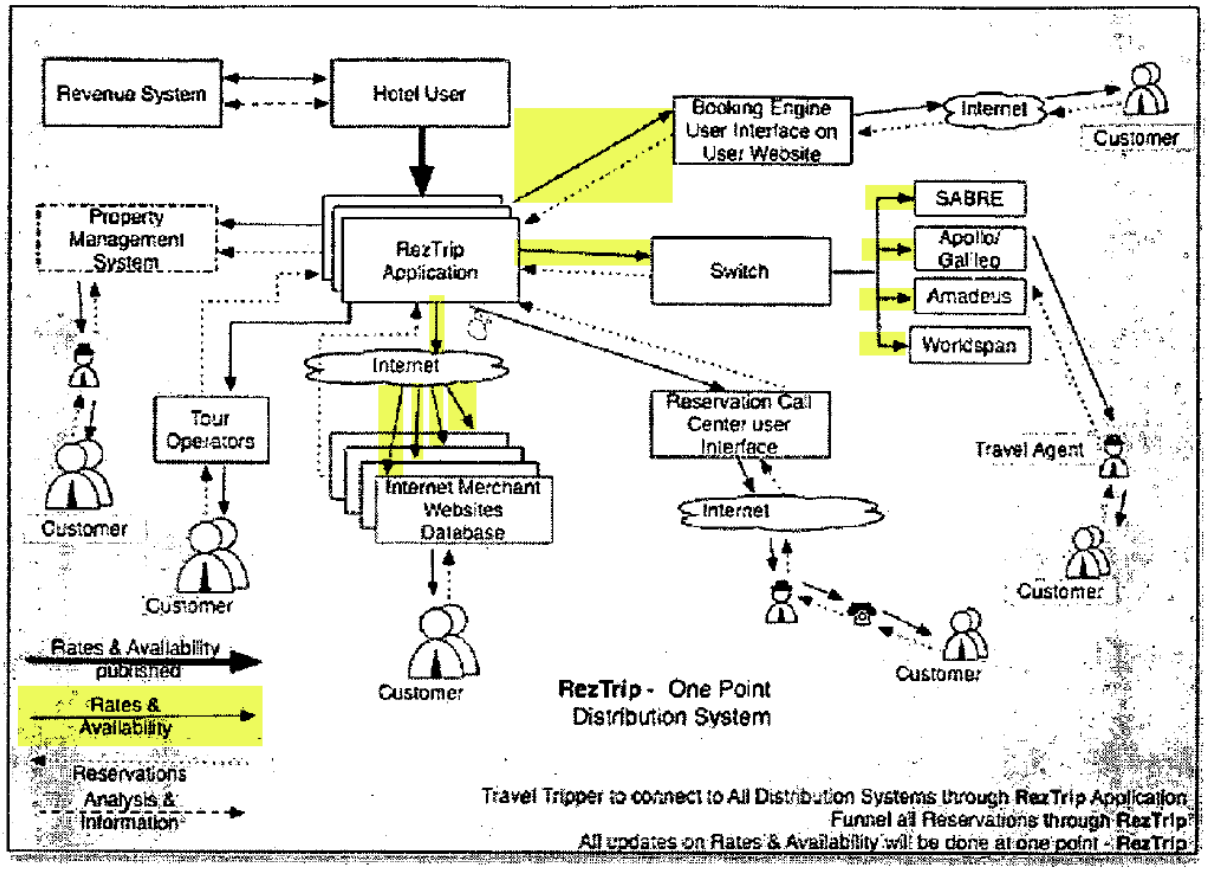


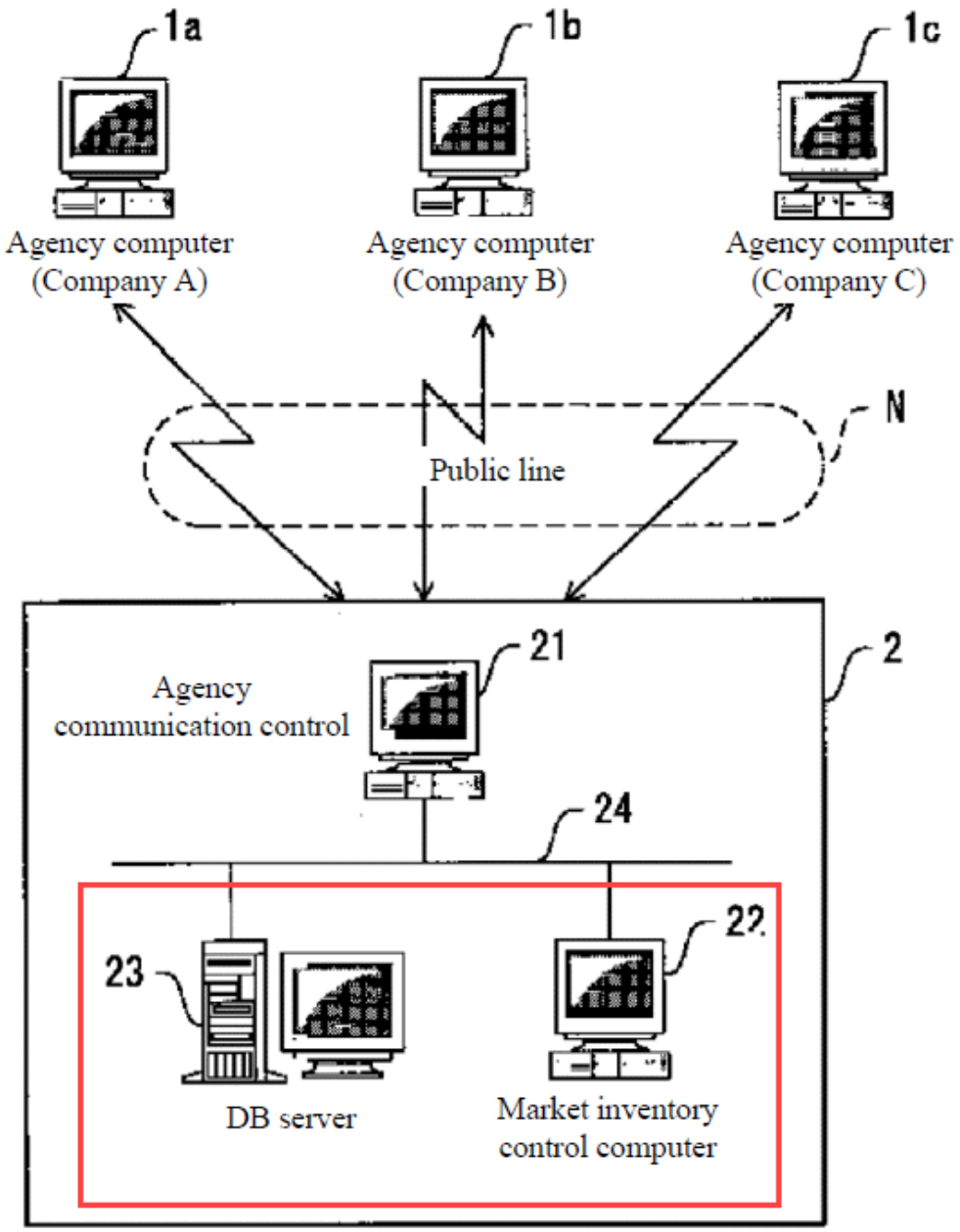
Figure 7

- EX1005 (**Tamura**),[6] ¶¶[0010], [0013], [0018], cl.1, Fig.3:
- EX1007 (**Kono**),[7] ¶¶[0026], [0042]-[0043], Figs.1-2, 4:

[6] *See* VI.C.2.

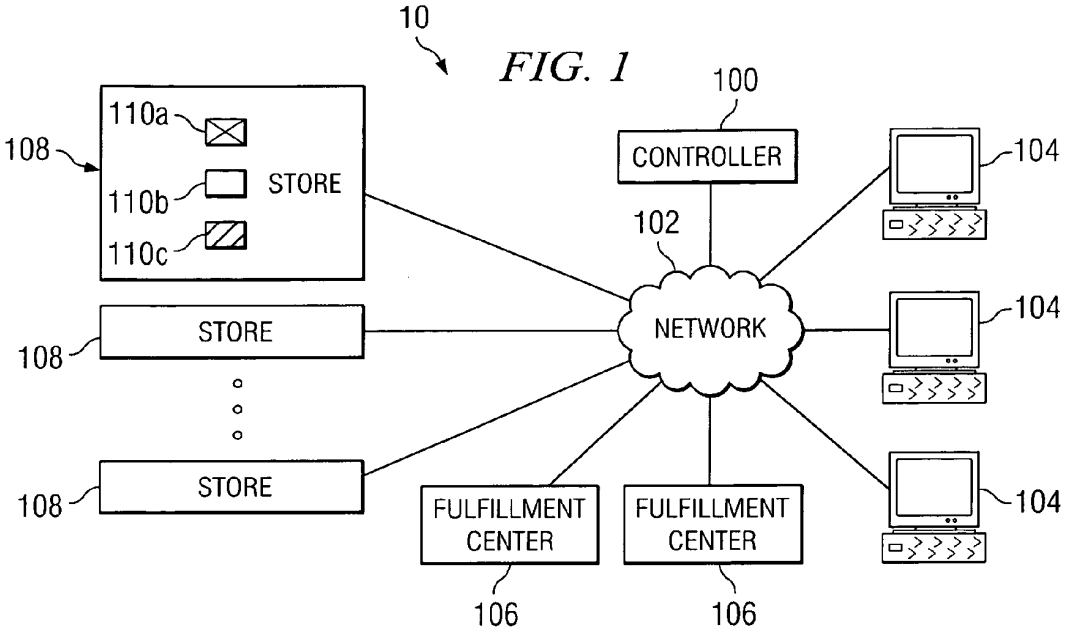
[7] *See* VI.C.3.

[FIG. 1]



- EX1013 (U.S. Pub. 2002/0186144 (published 12/12/2002)), Abstract, ¶[0062], cls.1, 18, Fig.5B:

- EX1010 (**Evangelist**),[8] Abstract, 7:29-36, 8:16-23; 9:48-51 ("Controller 100 performs allocation….").



- *See also* EX1029,[9] 26, 79-80, 120; EX1003, ¶¶33-39.

Receiving, from each channel in real time, sale data about the allocated inventory (cl.9[b]) was also found throughout the art. *E.g.*: EX1004, ¶¶[0005],

[8] *See* VI.C.3.

[9] Petitioner has cited to the original pages of Phillips for simplicity and to maintain pagination with proceedings on related patents, except when indicated with "p."

[0009]-[0010], [0086], [0192], Fig. 7; EX1005, ¶¶[0014], [0017], [0022], [0024]-[0025], cl.5, Figs.1-3; EX1003, ¶¶40-46:

Fig. 2

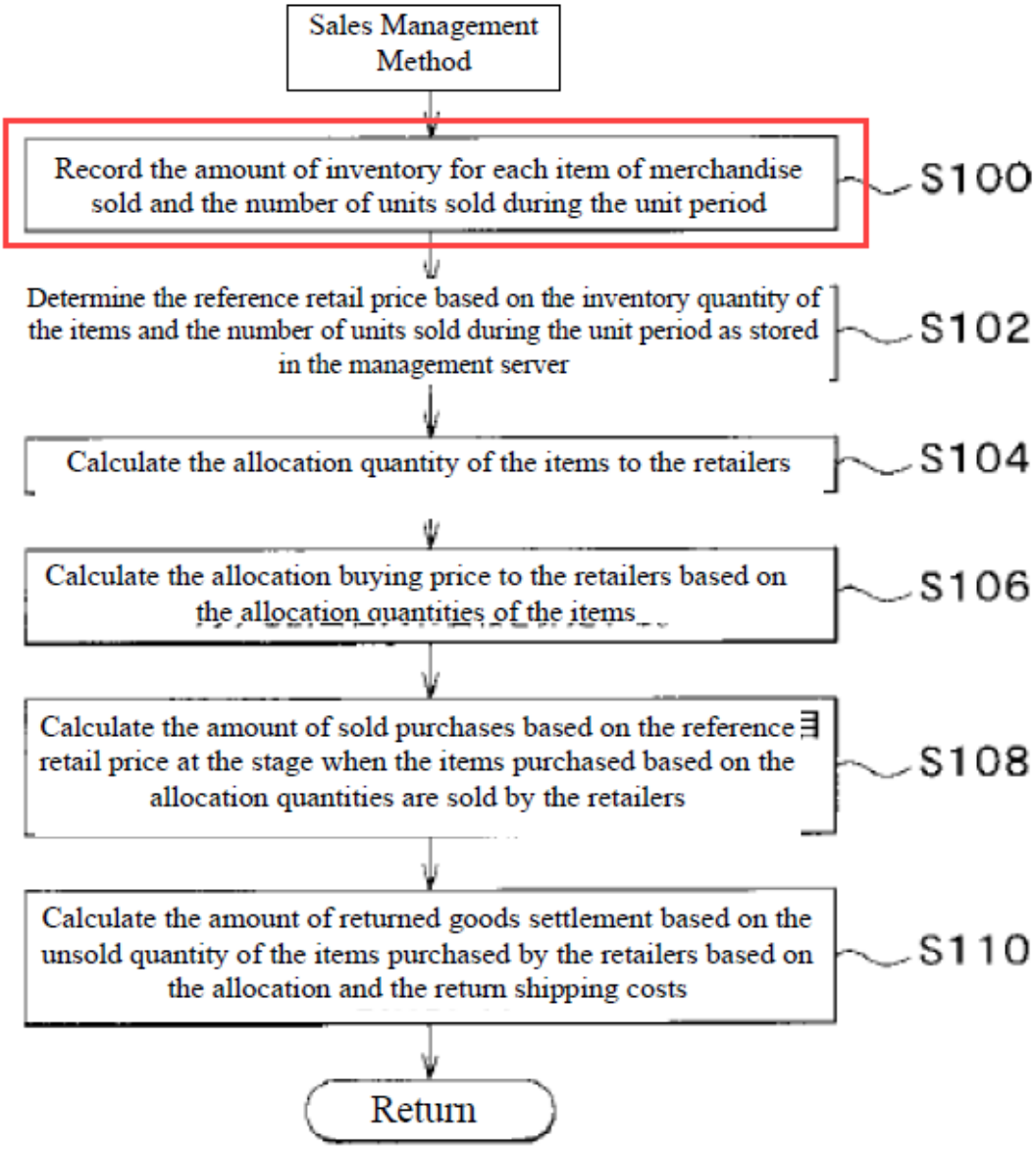
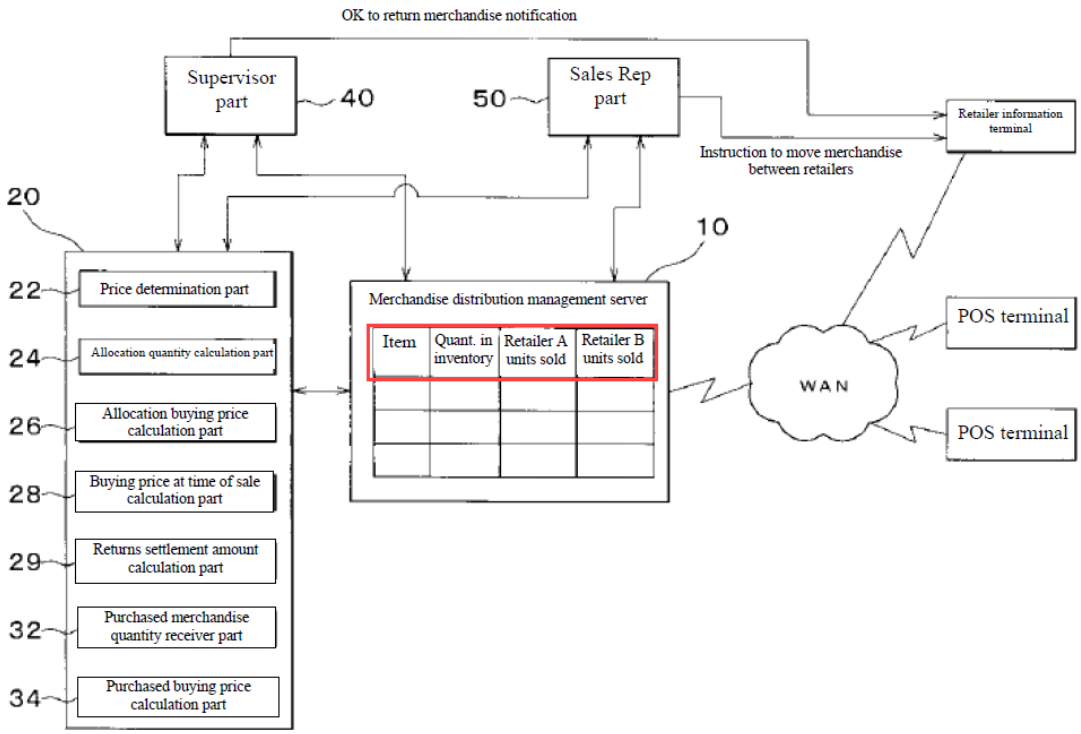


Fig. 3



- EX1007, ¶¶[0010], [0014]; *see also id.* ¶¶[0026], [0042].
- EX1010, 5:20-26, Figs.1-2:

FIG. 2

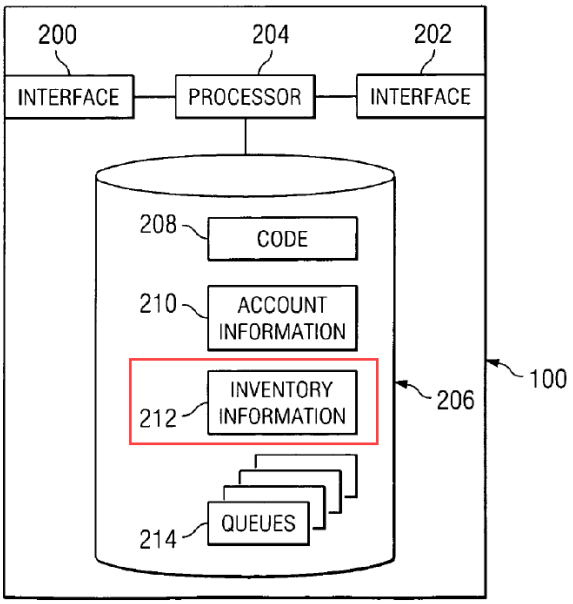
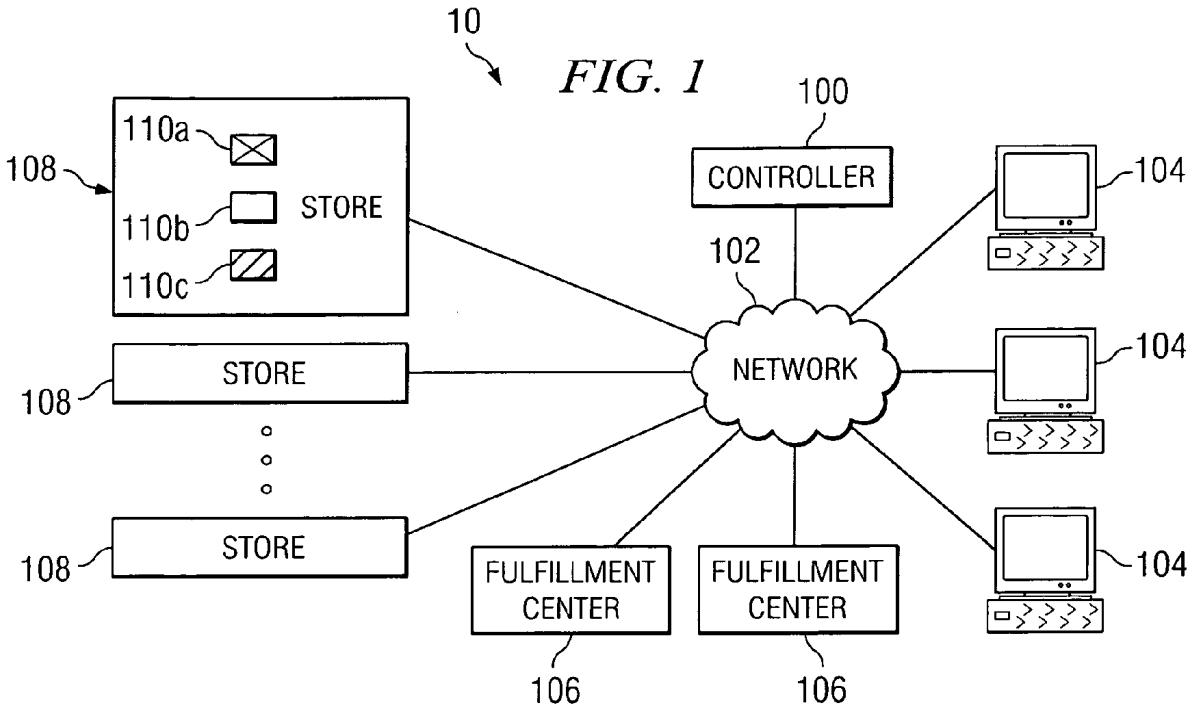


FIG. 1



- EX1009 (**Franklin**),[10] ¶¶[0002], [0029].

[10] *See* VI.C.2.

- *See also* EX1029, 7, 30, 33, 123, 126, 135-136.

As discussed below, '598's other claimed features were also well-known, and combining them would have been obvious. *E.g.*:

Processing sale data by calculating a performance rating for channels; *see* EX1003, ¶¶47-52. *E.g.*, EX1004, ¶¶[0010], [0131]-[0133], [0180], Fig.7; EX1005, ¶¶[0013], [0035] (retailer where "product… ***not selling well***"), cl.4, Figs.2-3; EX1007, ¶¶[0009]-[0010], [0014], [0025], cls.1, 3, Figs.2-3; EX1010, cls.7, 15-16, 23, 5:26-32.

Querying whether the performance rating of each online distribution channel is greater than a performance rating of other channels; *see* EX1003, ¶¶53-56. *E.g.*, EX1004, ¶[0180]; EX1005, cl.4, ¶¶[0013]-[0014], [0035], Figs.2-3; EX1007, Summary, ¶¶[0009]-[0010], [0014], [0025]-[0026], cl.1, 3, Figs.2-3.

Based on the query being answered in the affirmative, adjusting inventory prices via a network; *see* EX1003, ¶¶57-63. *E.g.*, EX1004, ¶¶[0074], [0180], Fig.7, cl.13, *see infra* cl.9[c]-[f]; EX1005, Means of Solving the Problem, ¶¶[0019], [0025], cl.1, Figs.2-3; EX1011 (U.S. Pat. 7,894,936, filed 10/15/2004), 5:34-37 ("automatically and dynamically determine, adjust and manage product pricing"); EX1014 (U.S. Pat. 8,050,976 (provisional filed November 15, 2005)), 3:57-4:7, 5:33-36; *see also* EX1016, 3-4, 6; EX1015 (U.S. Pat. 8,051,015 (filed

7/28/2004)), 2:15-22 ("automated control of pricing of a product…"); *see also* EX1029, 26, 101; EX1003, ¶61.

And/or based on the query being answered in the affirmative, modifying, via the computerized network, the inventory item linkage, by re-allocating the items between the online channels; *see* EX1003, ¶¶64-70. *E.g.*, EX1004, ¶¶[0180], [0185], [0191], cls.5-6, Fig.7; EX1005, ¶¶[0013], [0035], cl.4, Fig.3; EX1007, ¶[0009], Summary, ¶¶[0010], [0014], [0025], [0045], [0046], cl.1, Fig.3; EX1010, 6:53-57, 7:53-61; EX1012 (U.S. Pub. 2006/0085296) (published 4/20/2006), ¶[0029]*; see also* EX1029, 80, 101; EX1003, ¶69.

And as '598 itself concedes, processors, non-transitory computer-readable storage media, and data structures for storing information were also well-known. *E.g.*, EX1001, 8:23-24, 11:13-15, 33:19-22, 33:64-34:10, 33:47-49, 39:12-26; EX1004, ¶¶[0082]-[0083]; EX1010, 4:9-18, 4:36-61; EX1011, 3:34-42, 3:55-4:17; *see also* EX1003, ¶¶71-72.

III. MANDATORY NOTICES (§42.8)

Petitioner and Real Parties in Interest: Uber Technologies, Inc. is sole petitioner. Out of an abundance of caution, Petitioner also identifies, as a potential RPI, Uber Freight Holding Corp., the entity that controls the Uber Freight product/service, which PO has maintained is infringing '598 in litigation. The listing of a non-Petitioner RPI entity should not be deemed as an acknowledgement

or admission that any such entity actually controls this matter.

Related Matters Under Rule §42.8(b)(2): PO asserted '598 (and two related patents) against Uber Technologies, Inc. in *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, Case No. 1:22-cv-00882-GBW (D. Del.).[11] Uber has filed a second petition against '598, IPR2023-00736. Uber has also challenged, in IPR2023-00737 and IPR2023-00738 respectively, two other patents asserted against Uber.[12]

Lead and Back-Up Counsel and Service Information Under §§42.8(b)(3)-(4): Lead: Megan Raymond (Reg. No. 72,997), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 801 17th Street, NW, Suite 1050, Washington, DC 20006, P: (202)505-5878, megan.raymond@groombridgewu.com; Backup: J. Steven Baughman (Reg. No. 47,414), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 801 17th Street, NW, Suite 1050, Washington, DC 20006, P: (202)505-5832, steve.baughman@groombridgewu.com; Michael Milea

[11] Allotz.com Limited has claimed '598 ownership, and is also being served. Allotz.com Limited is in liquidation and is being served through the appointed liquidator and his counsel.

[12] PO also asserts claims 21-24 of '598 in the parallel district court litigation. Those claims are indefinite under §112 and thus not challenged here.

(Reg. No. 71,863), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 565 Fifth Avenue, Suite 2900, New York, NY 10017, P: (332)269-0029, mike.milea@groombridgewu.com. Service by email is accepted if sent to the above-identified addresses *and* uber-surgetech@groombridgewu.com. Mailing address for all PTAB correspondence: Megan Raymond (Reg. No. 72,997), GROOMBRIDGE, WU, BAUGHMAN & STONE LLP, 801 17th Street, NW, Suite 1050, Washington, DC 20006.

IV. STANDING (§42.104(a))

Petitioner certifies '598 is eligible for, and neither Petitioner nor any RPI is barred or estopped from requesting, IPR. Petitioner was served a Complaint asserting infringement of '598 on July 1, 2022.

V. GROUNDS (§§42.22 and 42.104(b))

The Claims are unpatentable under §103 as follows: **6-7, 14-15, and 19-20** are obvious over Jacob in view of Phillips (**Ground 1**), over Jacob in view of Phillips and Evangelist (**Ground 2**), over Jacob in view of Phillips and Franklin (**Ground 3**), over Jacob in view of Phillips, Evangelist, and Franklin (**Ground 4**), over Jacob in view of Phillips and Tamura (**Ground 5**), over Jacob in view of Phillips, Evangelist, and Tamura (**Ground 6**), over Jacob in view of Phillips, Franklin, and Tamura (**Ground 7**), over Jacob in view of Phillips, Evangelist, Franklin, and Tamura (**Ground 8**), over Jacob in view of Phillips and Kono

(**Ground 9**), over Jacob in view of Phillips, Evangelist, and Kono (**Ground 10**), over Jacob in view of Phillips, Franklin, and Kono (**Ground 11**), and over Jacob in view Phillips, Evangelist, Franklin, and Kono (**Ground 12**), over Jacob in view of Phillips, Tamura, and Kono (**Ground 13**), over Jacob in view of Phillips, Evangelist, Tamura, and Kono (**Ground 14**), over Jacob in view of Phillips, Franklin, Tamura, and Kono (**Ground 15**), over Jacob in view of Phillips, Evangelist, Franklin, Tamura, and Kono (**Ground 16)**. EX1003, ¶¶80, 98, 714-715.

VI. DETAILED REASONS FOR RELIEF

There is a reasonable likelihood Petitioner will prevail with respect to at least one Claim (§314(a)), as all are obvious.

A. Claim Construction[13]

Petitioner construes Claims herein per *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*); §42.100(b), presuming terms have their ordinary and customary meaning as understood by POSITA. Petitioner additionally applies the constructions below:

[13] Terms need only be construed "to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

"receiving… in real time" (all): receiving most recent data by "push" method. The specification repeatedly contrasts "real time" with "request-based" or "poll[ing]," and the opposite of request-based or polling is push. EX1001, 7:20-38 ("Two methods… for receiving… 'real-time' and 'request-based' methods…. Channels that report values in real-time back to the computer… On the other hand, request-based channels are polled…"), 33:34-37, Fig.4 (84 to 82 arrow).

"carrying out at least one of the following steps: adjusting…; and re-allocating…" (all): consistent with PO's litigation interpretation (EX1023, 2) and interpretation during prosecution of a related application of "at least one of" (EX1002, 712, 722), this requires *either* adjusting *or* re-allocating. EX1001, Figs.2-3 (esp. step 52), 4:32-36, 6:9-11, 7:1-12; *Dealertrack, Inc. v. Huber*, No. 06-cv-2335, 2008 WL 5792509, at *7 (C.D. Cal. Sept. 27, 2008) (construing as disjunctive because "'at least one of' is followed by a colon, and then a list separated by semicolons" and the "grammatical structure"); *Power-One, Inc. v. Artesyn Techs., Inc.*, No. 2:05-cv-463, 2007 WL 896093, at *14 (E.D. Tex. Mar. 22, 2007) (construing as disjunctive because "specification teaches embodiments that do not require each category of the enumerated set").

B. Level Of Ordinary Skill

POSITA would at minimum have a bachelor's degree in software/computer/electrical engineering, computer science, or industrial engineering and management with at least two years' experience in inventory and pricing management, including with respect to systems for dynamically managing inventory and pricing of transportation services or other types of inventory, or the equivalent. Additional graduate education could substitute for professional experience, or significant inventory and pricing management experience could substitute for formal education. EX1003, ¶¶17-18. POSITA are presumed knowledgeable of all relevant art, and would thus have been familiar with each reference cited herein and its full teachings.

C. Obviousness Grounds

1. Jacob (EX1004)

Jacob, "Hotel Inventory Management System and Method" (U.S. Pub. 2007/0075136, filed 9/26/2005; published 4/5/2007), is prior art under at least pre-AIA §102(e). Jacob discloses "computer program systems," including "code segments," "to manage the sales, pricing, and inventory information related to time-dependent items" "such as hotel rooms, rental automobiles, and airline seats as well as associated items." EX1004, Abstract, ¶¶[0006], [0082].

The system further comprises a "computerized database… configured to manage hotel data comprising," *e.g.*, "room type data, rate type data," "inventory

data," "sales channel data," "communications data, and other data." EX1004, ¶[0084]. Jacob's system (running, *e.g.*, the "RezTrip Application") communicates with "the hotel staff, the hotel property management database, and a plurality of selling channels" such as "a hotel web site, consolidator web sites such as Expedia™ or Travelocity™, [and] computerized reservation systems…." EX1004, ¶¶[0007], [0077]-[0078], [0085], Fig. 7:

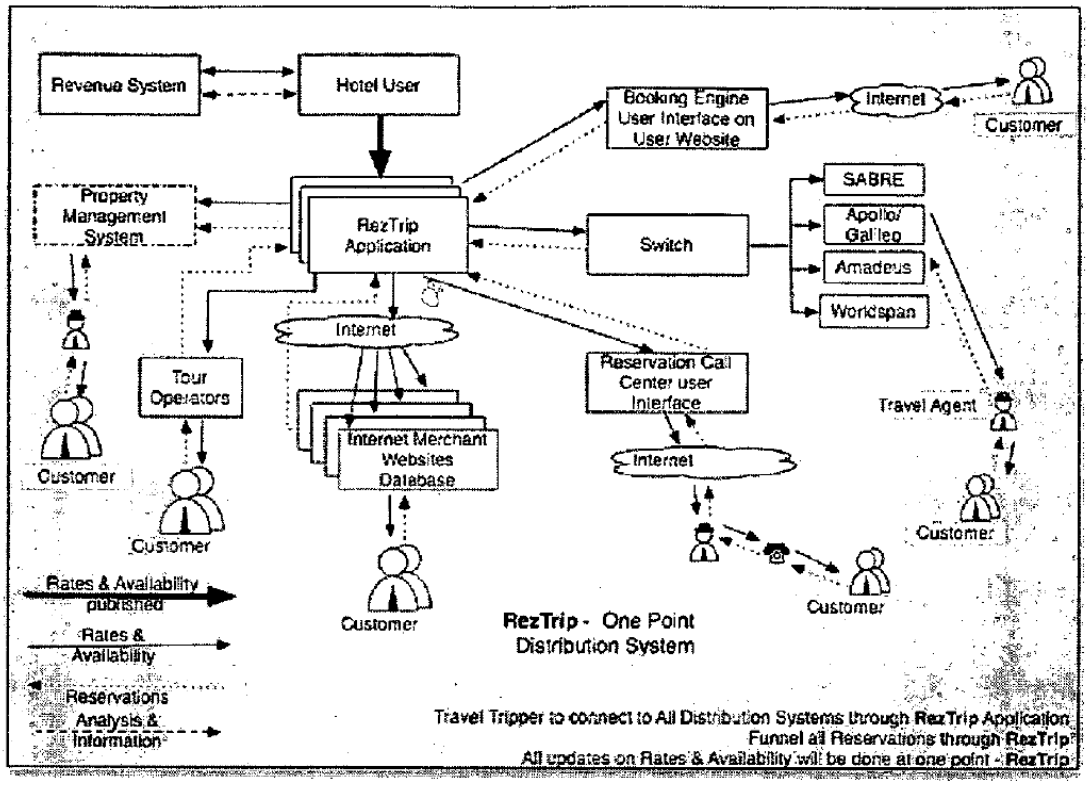


Figure 7

EX1003, ¶¶99-104.

The system allows administration of time-dependent inventory by configuring pricing and inventory information. EX1004, ¶¶[0007], [0066], [0191]. "[P]ricing [and] inventory information… is communicated to the selling channels" and a "revenue management code segment" is "used to analyze the information received from sales channels" to "maximize hotel revenue." For example, "[i]f a sales channel's Room Type inventory is selling better than other channels," inventory can be ***"reallocate[d]… to the better selling channel,"*** or, *e.g.*, "the ***Rate Type/Room Type***, for a given date or a series of dates, for certain channels" ***can be "closed."*** *E.g.*, EX1004, ¶[0009], ¶[0180], ¶[0191]; *see also id*. ¶[0176]; EX1003, ¶¶105-109.

Jacob discloses the option of configuring the system "to perform calculations automatically" (*e.g*., EX1004, ¶[0132]; *see infra,* p.30), and that "in response to a triggering event" "updated pricing and availability inf[o]rmation may be sent to selling channels electronically over wired or wireless networks…." EX1004, ¶[0191]; *see also id.*, cl.6; EX1003, ¶106.

2. Phillips (EX1029)

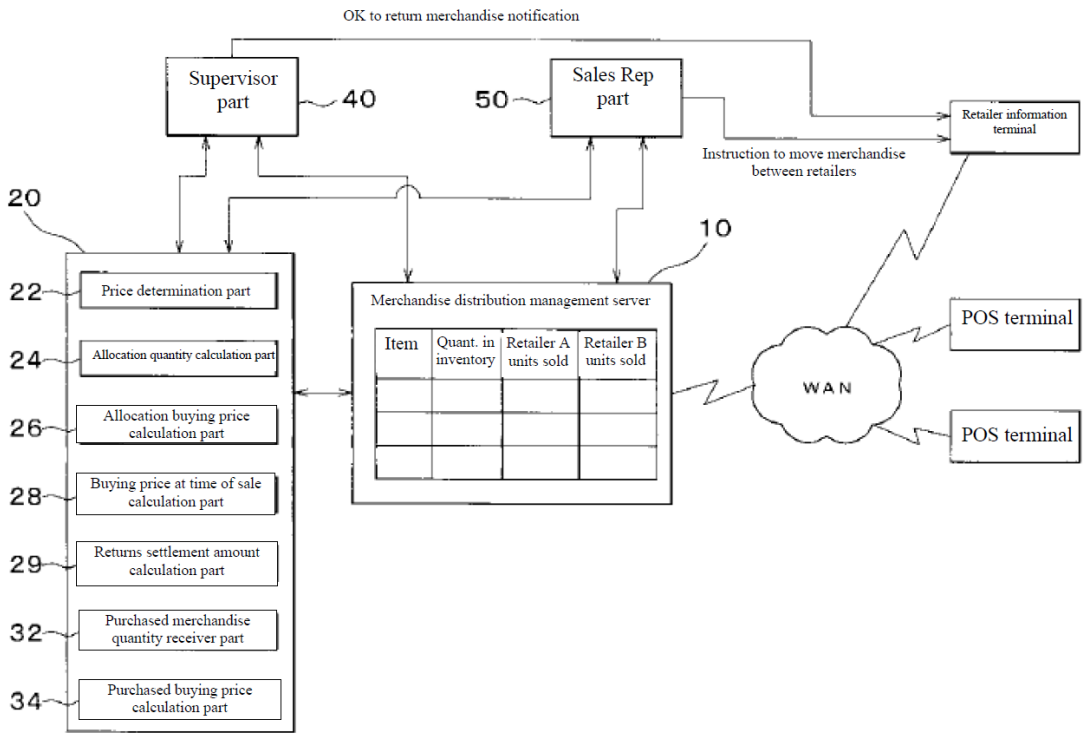
Phillips ("Pricing and Revenue Optimization") is prior art under at least pre-AIA §102(a). Phillips was published in 2005 by Stanford Business Books. EX1029, p.5 (2005 copyright, ISBN0804746982), p.98 (9/2005 and 3/2006 due date stamps); EX1031, 9 (2005 copyright, 10/17/05 copyright office stamp,

ISBN0804746982); EX1032, 5 (Stanford University Press indicating "available online" 9/11/05); EX1033, 7; EX1034; EX1003, ¶110. Phillips discloses the basic economics underlying pricing decisions, and explains "[c]omputerized reservation systems… play major roles in the way that revenue management is actually implemented" and "solve the underlying optimization problem." EX1029, 1, 15, 121-23, 125-126, 30, 33, 134-135. Phillips further states that "[e]very major… hotel… has a revenue management department [that] rel[ies] on computerized systems to recommend actions based on sophisticated mathematical algorithms." EX1029, 121, 33; EX1003, ¶110.

3. Tamura (EX1005)

Tamura, "Sales Management System and Method" (published 12/2/2005), is prior art under at least pre-AIA §102(a). Tamura discloses "a sales management system" that "reduces the risk of bad inventory… while reducing lost sales opportunities." EX1005, ¶[0009]. To do so, Tamura "determines the reference retail price for items sold based on the amount of inventory and the number of [each] part[] sold," which Tamura receives from "point-of-sale (POS) terminals… in each retail store" and stores in a "merchandise distribution management server 10." EX1005, ¶¶[0010], [0014], [0017]; Fig.3:

Fig. 3



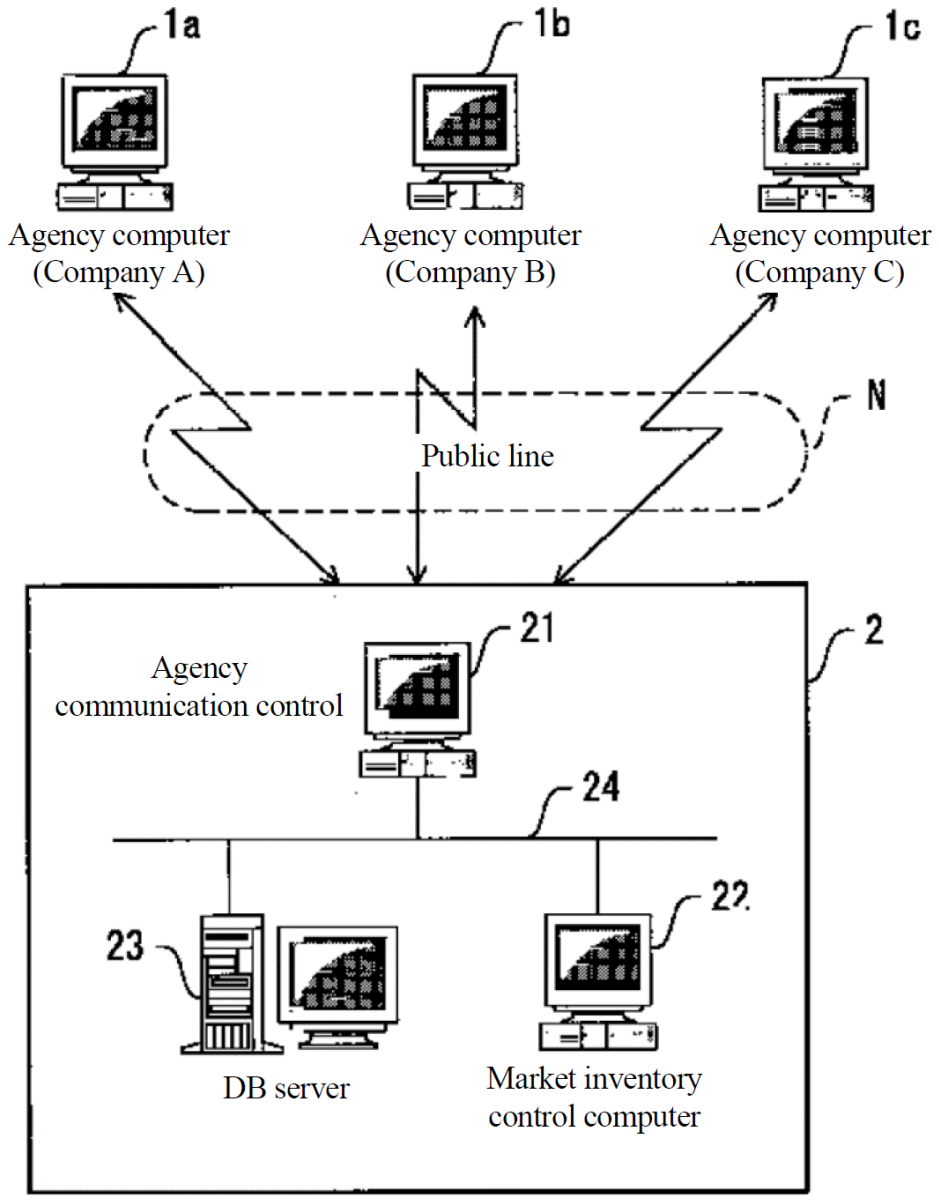
For example, "if the number of units sold during the… period is favorable to the sales volume target, the price determination part 22 takes a strong attitude toward the reference retail price, and if… unfavorable, it takes a weak attitude… or plans a sales promotion strategy." EX1005, ¶[0019].

Tamura's system determines "sales progress rate" for multiple channels (*e.g.*, "retailers"), and "transfer[s] the items from retailers having a low sales progress rate relative to the allocated quantity to retailers having a high sales progress rate." EX1005, cl.4; *see also id.* ¶¶[0013], [0035], Fig.3; EX1003, ¶¶111-114.

4. Kono (EX1007)

Kono, "Market Inventory Control System and Market Inventory Control Method" (published 4/10/2002), is prior art under at least pre-AIA §102(a), (b). Kono discloses a "market inventory control system" with "an agency terminal installed at each agency and a manufacturer server device"—connected by a network—such that "product inventory information of each agency is controlled by a manufacturer server device." EX1007, ¶¶[0009], [0024]; Fig.1:

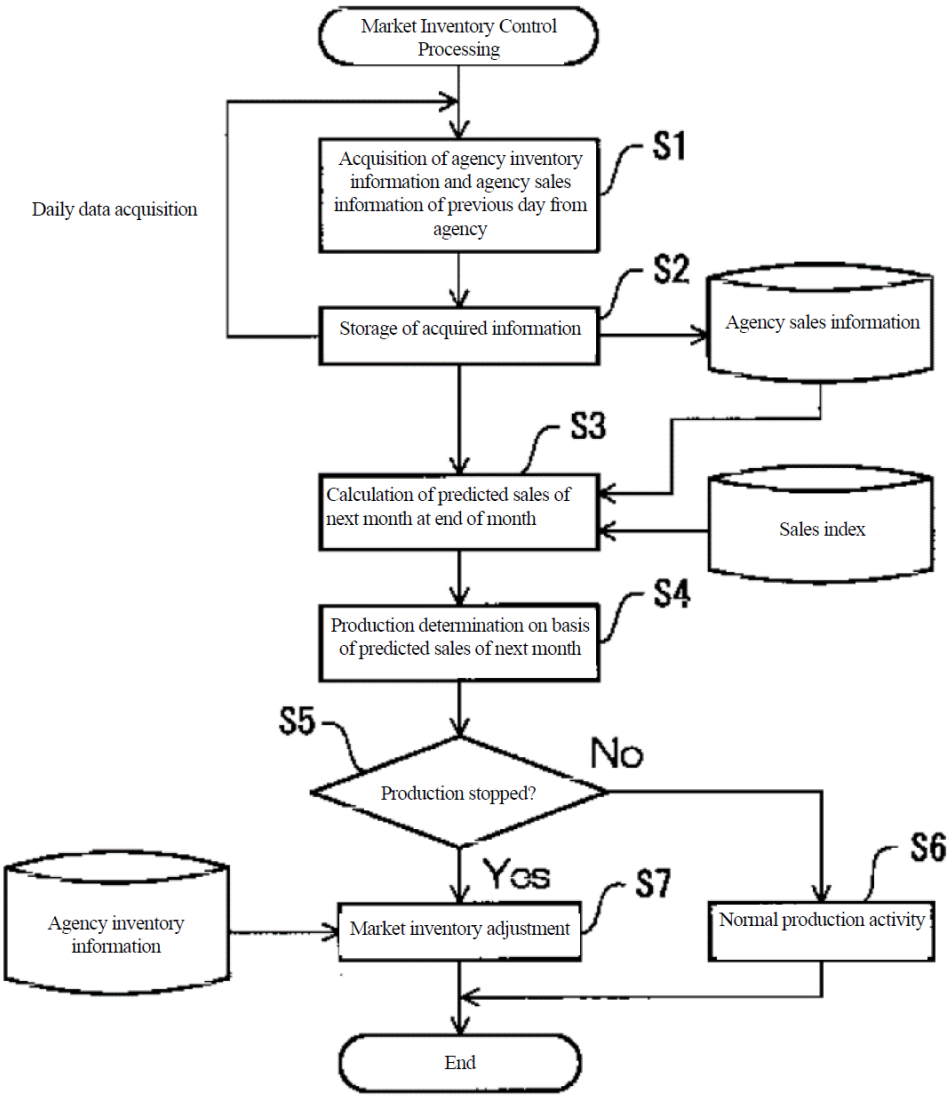
[FIG. 1]



Its system "acquire[s] product shipment information from the agency to a retail store and product inventory information of the agency," "performs a sales analysis at each agency," and, "as a result," "instruct[s] transfer of inventory product from

the agency where sales have fallen to an agency that still sells." EX1007, ¶¶[0009], [0045]; Fig.3:

[FIG. 3]

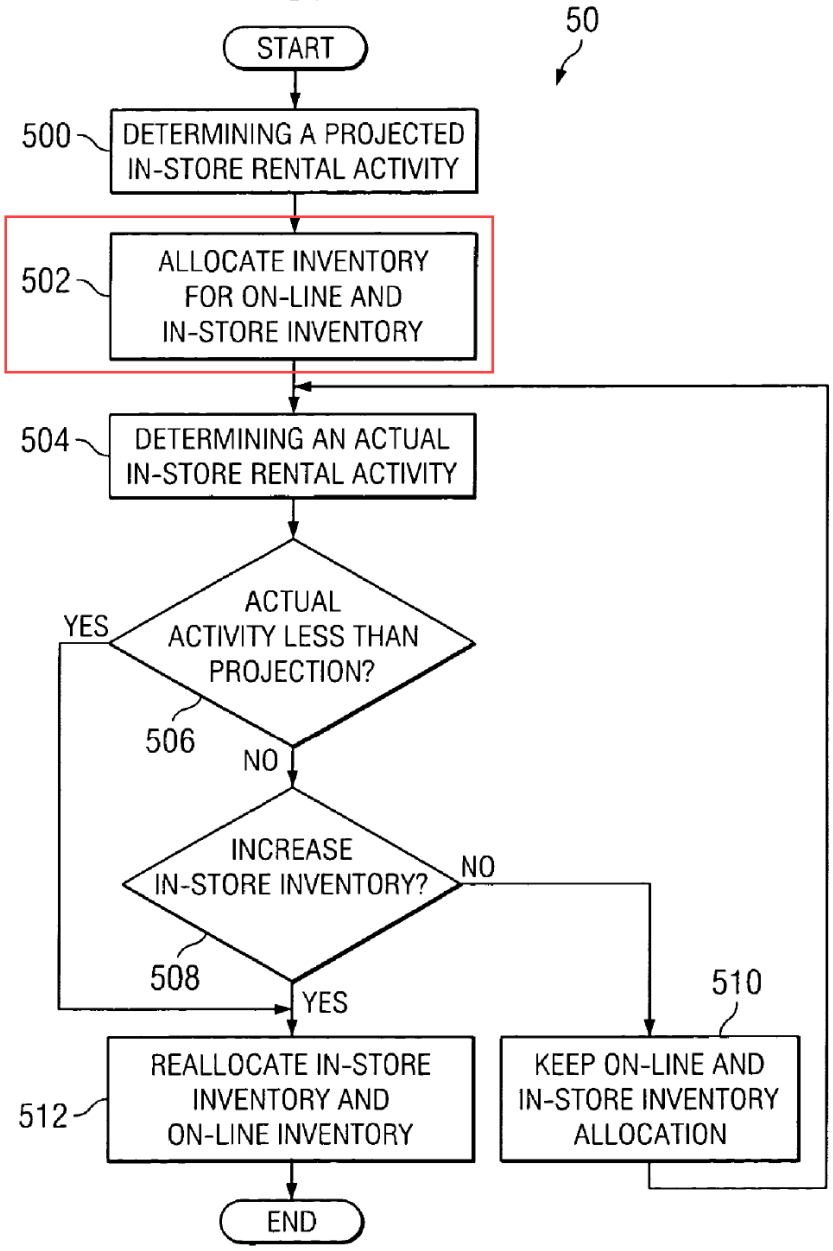


Kono explains, *e.g.*, that "unnecessary inventory… can be effectively and successfully reduced by flexible responses such as… resale of inventory products between agencies." EX1007, ¶[0017]; EX1003, ¶¶115-117.

5. Evangelist (EX1010)

Evangelist, "System and Method for Fulfilling a Media Request" (U.S. Pat. 7,996,265, filed 5/19/2005, issued 8/9/11) is prior art under at least pre-AIA §102(e). Evangelist discloses a system and method for receiving and fulfilling requests for "on-line inventory" that has been "allocate[d]" to, *e.g.*, "on-line… channels." EX1010, 6:58-63, Fig.5:

FIG. 5



Evangelist further discloses receiving and analyzing sale data, "determining performance data associated with inventory locations," and automatically performing "reallocations based on projections made…." EX1010, 7:29-36, 8:16-23, 9:48-51, Figs.1,5; EX1003, ¶¶118-119.

6. Franklin (EX1009)

Franklin is prior art under at least pre-AIA §102(a), (b). Franklin published in 1996 in Volume 19, No.3 of IEEE's regularly published periodical "*Bulletin of the Technical Committee on Data Engineering*," copyrighted 1996. EX1009; EX1024 (including parallel disclosures), 4 (URL showing March, 2005 ("20050307") availability); EX1025, 5. Franklin discloses "distributed information systems that incorporate the ability to push data out to clients (i.e., dissemination) in addition to having clients pull data from servers." EX1009, ¶[0001]; *see* ¶¶[0002], [0029]; EX1003, ¶¶120-122.

7. The Prior Art Is Analogous

'598 relates to managing inventory sold by multiple channels by collecting and analyzing sales data to adjust prices and reallocate inventory among channels, using a computer. EX1001, Abstract, 1:25-26 ("field of computing systems"), cl.1; *see* EX1001, 3:58-66; EX1003, ¶123. '598 is directed to determining "an optimum price for, and supply of the inventory in each Channel…." EX1001, 3:57-62.

Jacob, Tamura, Kono, Evangelist, and Phillips are (like '598) directed to systems and methods for management and distribution of inventory, including inventory sold by multiple channels, and are thus in the same field of art as, and analogous to, '598 and one another. *E.g.*, EX1004, ¶¶[0001]-[0003]; EX1005, ¶[0009]; EX1007, ¶¶[0009], [0017]; EX1010, Abstract, 1:24-47, 6:53-57, cls.1, 8,

19; EX1029, 1, 79-80, 101, 121, 141. They all also allocate inventory among multiple sales channels and collect and analyze sales data to adjust prices and/or reallocate inventory among the channels. *E.g.*, EX1004, ¶¶[0176], [0180]; EX1005, ¶¶[0013], [0019]; EX1007, ¶¶[0009], [0045]; EX1010, 6:53-57, 7:53-61, cls.6-7, 15-16, 23; EX1003, ¶¶124-126; EX1029, 15, 26, 74, 79-80, 134, 136-138. Additionally, like '598, Jacob and Phillips disclose management and distribution of, *e.g.*, "time-dependent [hotel] inventory…." (*e.g.*, EX1004, ¶[0001]), EX1029, 6 9, 15-16, 101, 122-123, 125-126, 134-138. Additionally, both '598 and Franklin disclose data communications networks and distributed information systems exchanging data (*e.g.*, by pushing) between producers and consumers. EX1009, ¶¶[0001]-[0002]; EX1001, Abstract, 1:25-26, 1:56-61, Fig.1; EX1003, ¶¶124-126.

Jacob, Phillips, Tamura, Kono, Evangelist, and Franklin are also analogous because each is reasonably pertinent to '598's problem—that inventory allocation to numerous resellers "can be ***ad hoc and thus inefficient***." EX1001, 3:67-4:6, 1:30-38. **Jacob** similarly explains the "wide variety of sales channels… has created a sales and inventory ***management problem***" and a ***systematic approach*** is needed "to ***respond quickly*** to the dynamic nature of the marketplace, pricing and repricing inventory as necessary…." EX1004, ¶[0005], ¶[0002]- ¶ [0003]. **Phillips**, too, presents a solution to *ad hoc* allocation and pricing: "ensure… right

prices… for all their products… through all their channels." EX1029, 1. Likewise, **Tamura** discloses a ***systematic approach*** for managing inventory sold by multiple channels (*e.g.*, "retailers"), describing a system "***based on scientific, rational, and empirical marketing***," that is "is especially suitable for industries with… complex distribution mechanisms," and "***reduc[es] lost sales opportunities***." EX1005, ¶¶[0015], [0009]. Additionally, **Kono** similarly discloses a "market inventory ***control system***" for managing inventory sold by multiple channels (*e.g.*, "agencies") such that "***unnecessary inventory on the market can be effectively and successfully reduced***…." EX1007, ¶[0009]. And **Evangelist** similarly discloses systematically managing "on-line inventory" sold through multiple online channels (*e.g.*, "stores") and "provid[ing] more efficient operations" by "[a]djusting the inventory to meet customer demand." EX1010, 1:34-46, 5:20-26, Figs.1-2. **Franklin** is similarly pertinent to '598's identified problems (EX1001, 1:25-26, 1:36-46, 1:56-61, 3:67-4:6, Fig.1), disclosing ***efficient*** transmission (*e.g.*, push) and use of real-time information in distributed information systems exchanging data between clients and servers and from producers to consumers, EX1009, ¶¶[0001]-[0002]. *See* EX1003, ¶¶127-135.

None of these references was before the Examiner during prosecution. *See* EX1003, ¶135.

8. Claim Chart: Grounds 1-16

Beauregard claims 14-15 are discussed first, followed by server claims 19-20, and method claims 6-7.

(a) Dependent Claims 14-15 (Including Independent Claim 9)

9[pre][14, 15]	**Jacob discloses a non-transitory computer-readable storage medium** (*e.g.*, a "computer readable medium such as hard disk storage, compact disk storage, digital video disk storage, random access memory, dynamic random access memory, read-only memory, static random access memory, and magnetic tape"; "hard disk storage")**, the non-transitory computer-readable storage medium storing computer instructions** (*e.g.*, "computer program systems comprised of a series of code segments"; "Function or Functions" such as "computer algorithms or algorithmic routines which manipulate or process or store or operate upon data and/or interact with users") **to be implemented on at least one computing device** (*e.g.*, "general purpose computer[]"; "computer"; "plurality of computers") **including at least one processor** (*e.g.*, "central processing unit")**, the computer instructions when executed by the at least one processor cause the at least one computing device** (*e.g.*, "computer program systems [comprised of code segments are] configured to manage the data and perform the methods/functions of the invention"; "code segments comprise a system to manage the sales, pricing, and inventory information related to time-dependent items, such as hotel rooms, rental automobiles, airline seats [etc.]")**.** EX1003, ¶¶137-151.

[14] Claim elements correspond to the listing in the Claim Appendix.

[15] Though not limiting, 9[pre] is nonetheless disclosed, and thus the Board need not reach this issue. *Vivid*, 200 F.3d at 803.

	Phillips discloses a computer-implemented method (*e.g.*, "computerized reservation systems"; "computerized revenue management systems", "computerized pricing support system," "software systems," "computerized systems," "revenue management systems," "Pricing and revenue optimization systems")**, including in the context of managing online bookings** (*e.g.*, "on a hotel's own Web site," "Expedia/Travelocity," airline's "Web site," etc.) **for transportation services** (*e.g.*, "hotels," "ticket for… airline," etc.)**, using software to optimize and automate functions so they can be performed without human intervention** (*e.g.*, "software systems that solve the underlying optimization problem," "recommend actions based on sophisticated mathematical algorithms," "prices…updated automatically" including "moment to moment")**.** EX1003, ¶¶152-160. EX1004, ¶[0005], [0006] ("***code segments…to manage the sales…***"), ¶[0078] ("computer algorithms…"), ¶[0082]. ("***… systems… to manage the data….***"), ¶[0083], ¶[0084], cls.8-12. EX1029, 9 ("software… solve the underlying optimization problem"), 30 ("prices… updated automatically"), 30, 33 ("computerized pricing support system"), 121 ("Computerized reservation systems"), 122 ("computerized revenue management systems"), 126 ("***booking control mechanisms***") 134-135 ("Revenue management systems…calculate and update…. *forecasting module*"), 141 ("hotel… computerized systems… sophisticated mathematical algorithms"), 1, 137-138, Fig.6.4.

Jacob expressly discloses performing its various functions (*see, e.g.*, cl.9[c], [e]-[g]) automatically (without needing human intervention), including, *e.g.*, "perform[ing]" price "calculations automatically," code segments "to analyze the information received from the sales channels," and/or receiving sale data about each item. *E.g.*, EX1004, ¶¶[0006], [0010], [0131]-[0133]; cl.4. To the extent further

disclosure of automating Jacob's functions is required (*see, e.g.*, n.27), **POSITA would at minimum have found it obvious based on Jacob in view of Phillips.**[16, 17] **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Jacob's disclosed computer-implemented method of managing online bookings of inventory using Phillip's beneficial teachings of automating sales processes (including the analysis and "moment to moment" updating of inventory prices and allocations; *see also* cl.9[c], [e]-[g]).** The combination would have advantageously increased the system's ability to monitor and track accurately each channel's revenue and inventory status and al-

[16] While it might also be argued that Jacob's disclosures anticipate or render obvious the claim alone, they clearly render the claim obvious under §103 in combination with Phillips, and the grounds urged here by Petitioner.

[17] Both Jacob and Phillips (and, in later claims, Evangelist) describe inventory management systems that allocate inventory to online distribution channels and that use sale data received from those channels to more efficiently manage inventory and better adapt to market demand. *E.g.*, EX1004, ¶¶[0001]-[0002] ("maximize use of time-dependent inventory"), ¶[0005], ¶[0176], ¶[0180]; EX1029, 9, 30, 33, 121-122, 134-135, 141; EX1010, 1:34-46, 8:16-19; EX1003, ¶¶161, 200.

lowed it to run automatically/without requiring human intervention, thereby permitting the system to better and more quickly adapt as described below—including, *e.g.*, to analyze whether and how prices/allocations should be adjusted to "maximize revenue," whether/if a particular sales channel is in danger of running out of inventory or is out of inventory, and whether a particular channel is selling inventory better than other channels without having to wait for a human to perform calculations or otherwise provide input, and without introducing unnecessary human error. This would have furthered Jacob's express goal of "maximiz[ing] revenue" of Jacob's "time-dependent inventory" by, *e.g.*, increasing the efficiency of the system in responding to changing market conditions by adjusting prices and/or reallocating inventory from sales channel(s) with excess inventory to channels that are selling better or are in danger of running out of inventory. EX1004, ¶[0002]. This also would have reduced the response time/increased the speed of the system (by reducing the need to wait for and address user intervention), thereby allowing the system to more quickly address changing market conditions by increasing or decreasing the price of Jacob's transportation services inventory thus better "insur[ing] maximum use of time-dependent inventory." EX1004, ¶[0002]; *see also id* ¶[0005] ("minimum of data entry"). And it would have furthered Phillips' express goal of "pricing revenue and optimization" and to "ensure [companies] have the right prices in place for all their products, to all their customers, through all

their channels, all the time." EX1029, 1, 5, 7, 33. This would also minimize the need for costly human labor. For POSITA it would have been routine to make such an implementation choice, and (particularly given these disclosures) clear it would work and provide the expected functionality to yield predictable results with REOS. EX1003, ¶162.

9[a]	**Jacob discloses linking… by allocating the item to the respective online distribution channel**[18] (*e.g.*, "[]allocat[ing]… to the… channel"—including, *e.g.*, to each of a "plurality of sales channels"/"selling channels" such as, *e.g.*, "consolidator"/"Internet Merchant Website[s]" (*e.g.*, "web sites," etc.), "global distribution systems such as Apollo™ or Sabre™," "computerized reservation [providers/systems]," "Booking Engine[s]," "application used by EU's to make reservations," "major travel reservation systems," "hotel's own website," etc.)**, via a computerized network** (*e.g.* "Internet," "wired or wireless networks"; network by which system "configured to communicate with"/"connected to a plurality of selling channels"; *see* cl.9[pre])**, each item in the transportation services inventory** (*e.g.*, "time-dependent inventory such as hotel rooms, rental automobiles, and airline seats as well as associated items")**.** EX1003, ¶¶163-183.

[18] While "channel's" construction is disputed in litigation (EX1021-EX1022), that dispute need not be resolved here, as Petitioner's mapping is consistent with both constructions, and '598, describing "re-sellers stored on servers that are referred to as distribution channels or channels, indicated schematically at 18." EX1001, 4:26-28.

Evangelist discloses linking… by allocating an item to an online distribution channel (*e.g.*, "allocating a first portion of inventory for on-line fulfillment to a particular inventory location"; "allocate inventory for… on-line… fulfillment" to, *e.g.*, "Web site that accepts requests for delivery of movies to customers," "store" or "on-line… channels"; "initially designate[]" as "on-line inventory" of "store" or "on-line… channel"; "initially allocate[] inventory… to… stores"; "allocates inventory"). EX1003, ¶¶192-199.

EX1004, Abstract ("***method for managing time-dependent inventory…***"), ¶[0003], ¶[0007] ("The system may be configured to communicate with… a ***plurality of selling channels, for example global distribution systems…, consolidator web sites… computerized reservation…***"), ¶[0008]-¶[0009], ¶[0063], ¶[0071] ("***application used by EU's…***"), ¶[0077], ¶[0082] ("***computer program systems***…"),¶[0085] (" ***FIG. 7, the RezTrip™ system communicates with… internet web merchants… hotel's own website***...."), ¶[0086], ¶[0132], ¶[0154], ¶[0180] ("***PA might choose to reallocate inventory***…."), ¶[0181], ¶[0185], ¶[0189], ¶[0190],[19] ¶[0191] ("***connected to a plurality of selling… over wired or wireless networks***…."), ¶[0084], cls.5-6, 11-13, 19, 24-25, Figs.5-7:

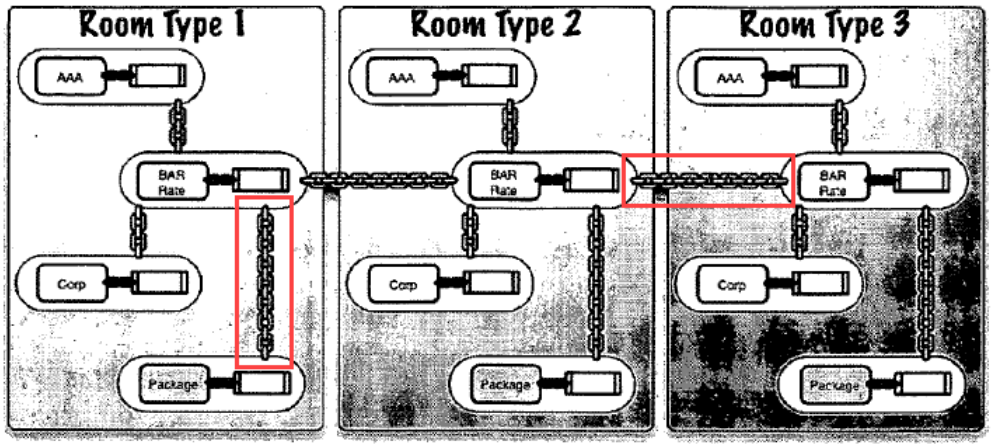


Figure 5

[19] This disclosure is cited for obviousness.

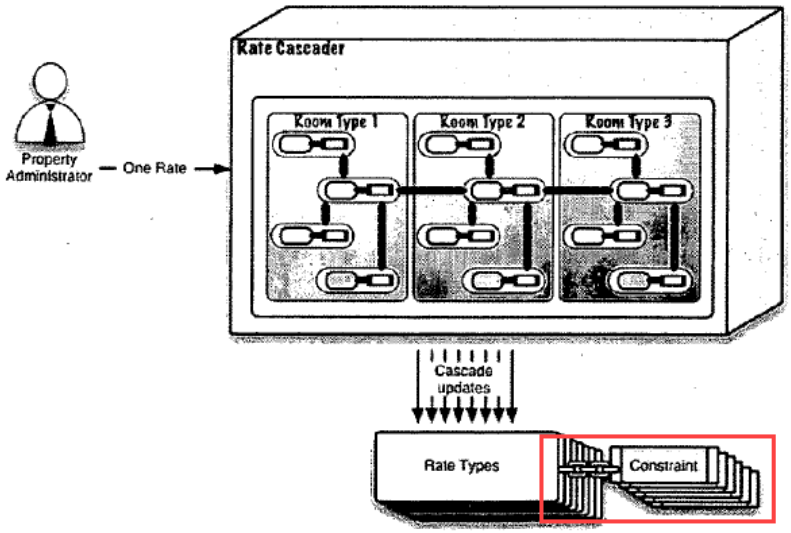


Figure 6

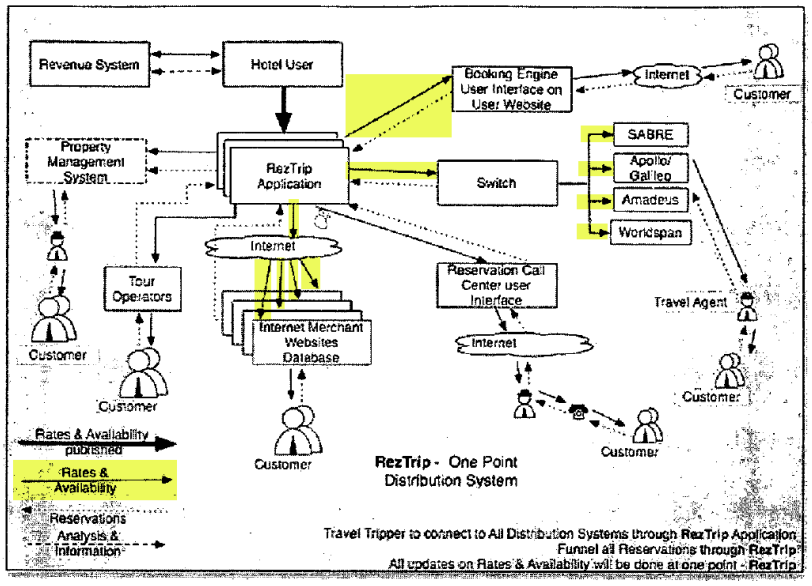


Figure 7

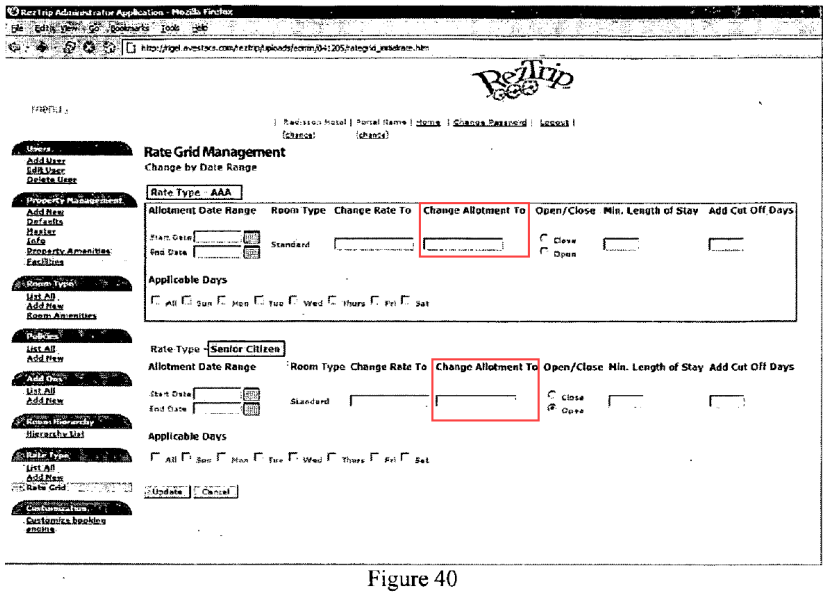


Figure 40

EX1004, Fig.40; *see also* EX1004, Figs.41-43.[20]

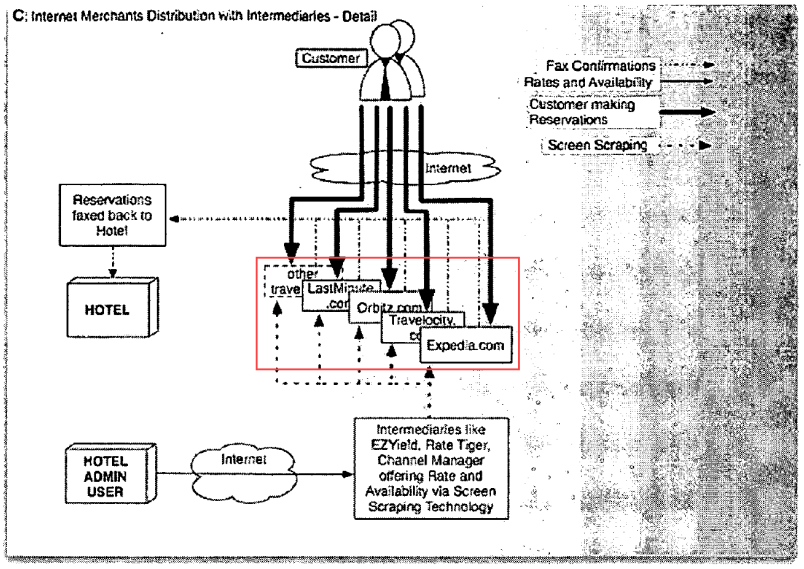
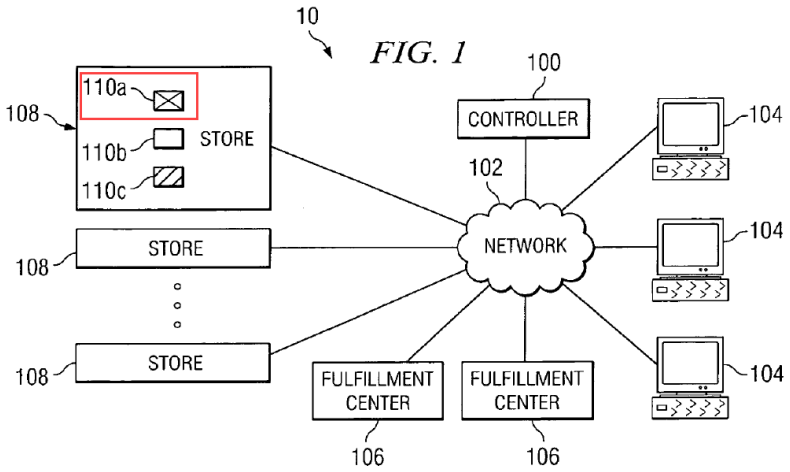


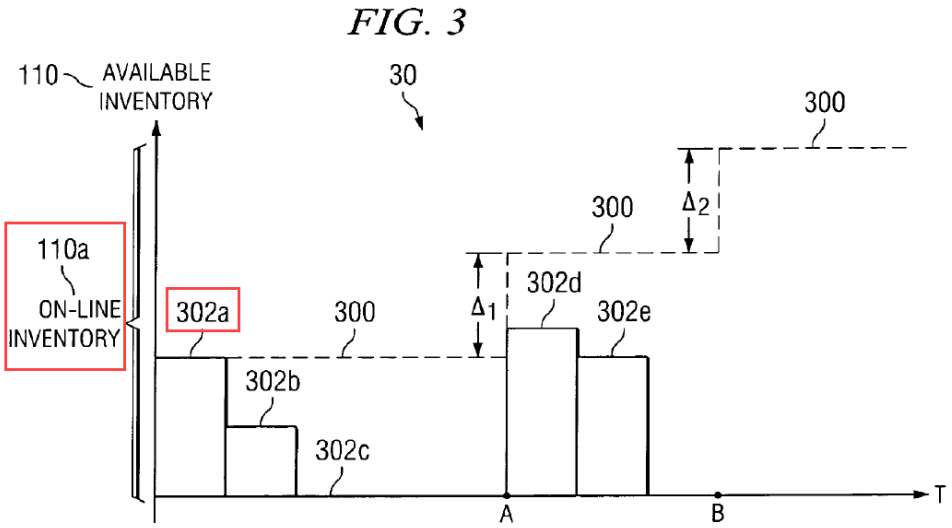
Figure 3

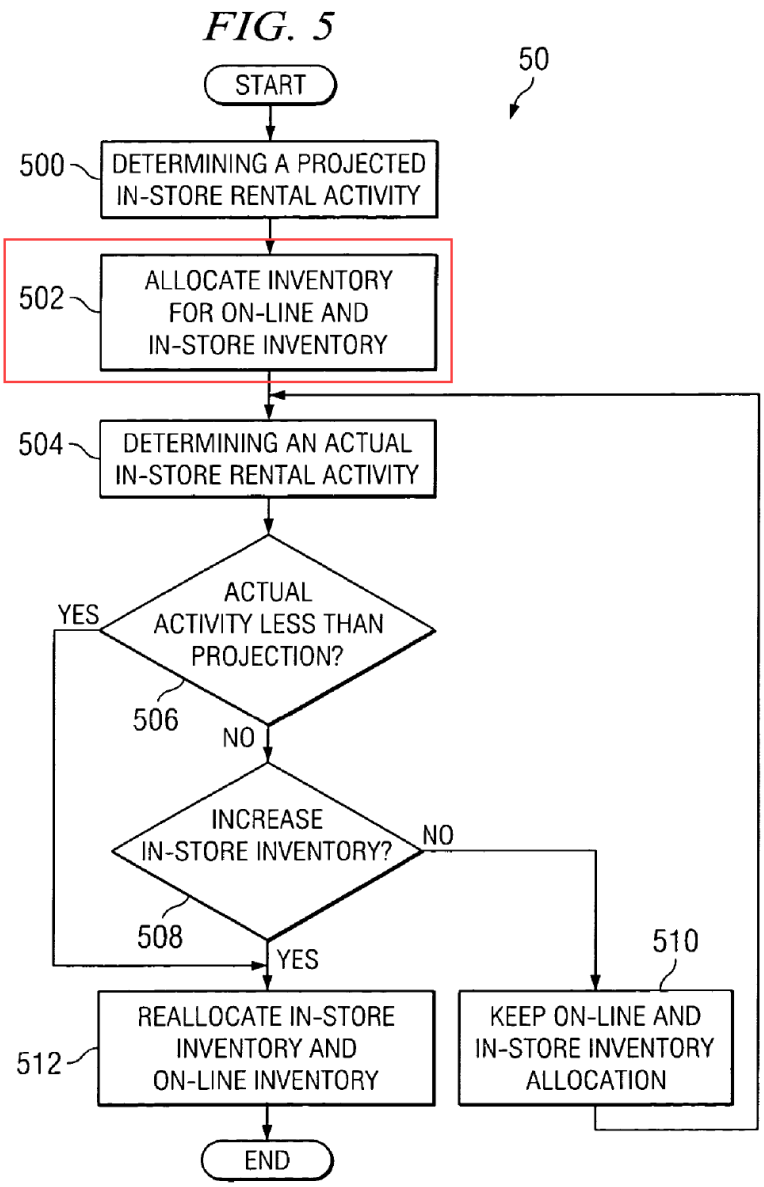
EX1004, Fig.3 (showing ***prior art*** systems with internet sales channels).

[20] Figs.5-6, 40-43 cited for obviousness.

EX1010, 1:34-46 ("***allocate inventory for*** both ***on-line*** and in-store ***fulfillment***…."), 2:18-32, 2:49-60, 3:35-52, 5:20-38, 6:59-7:17, 7:18-38, 7:39-60, 8:10-29 ("initially allocates… stores…."), 9:17-29, cl.1("… allocating a first portion…."); *see also* EX1010, cls.9-10, 18-19, 22-23, Figs.1-3, 5:







Jacob expressly discloses "reallocat[ing] inventory to the better-selling channel," EX1004, ¶[0180], and allocating/"allott[ing]" inventory (*e.g.*, EX1004, ¶[0189] (specific "Rate Types," "Date Range[s]"), Fig.40), including to different

channels (*e.g.*, EX1004, ¶[0180]). EX1003, ¶174. **POSITA would have understood this as an express disclosure of *allocation* prior to "*re*allocat[ing]."**[21] EX1003, ¶¶184-186. This is further confirmed by Jacob's disclosure of *communicating*—to each channel—inventory allocation *information*. *See, e.g.*, EX1004, ¶¶[0154], [0180]-[0181], [0185], [0191], cls.5&6, Fig.7; EX1003, ¶¶185-186. Alternatively, POSITA would at minimum have recognized Jacob necessarily, and thus inherently, allocates such inventory prior to "*re*allocat[ing]." This must be the case, as without an initial "allocation" there could be no "reallocat[ing]." EX1003, ¶187. To the extent, *arguendo*, further disclosure is required, **POSITA would at minimum have found it obvious, straightforward, and advantageous to initially allocate Jacob's "inventory" across Jacob's "plurality of… channels" using Jacob's beneficial teachings of "reallocat[ing] inventory" to perform an initial allocation of Jacob's inventory to channels**. EX1003, ¶187. This would have, *e.g.*, beneficially provided control in making initial allocations of inventory to certain (*e.g.*, better/preferred) channels. EX1004, ¶¶[0002], [0010], [0154].

[21] Jacob similarly teaches defining "room constraints," including specific "Rate Types" and "room types." *E.g.*, EX1004, ¶¶[0008], [0162], Figs.5-6; EX1003, ¶190.

And it would have "[m]aximiz[ed] rental revenues" and "use of time-dependent inventory" by "tak[ing] advantage of many different sales channels." EX1004, ¶¶[0002], [0010], [0154]; EX1003, ¶188. It would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶188, 190.

If argued further disclosure of allocating is required, **POSITA would have found it obvious from Jacob (in the recited combinations) in view of Evangelist.** EX1003, ¶191.[22] **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Jacob's computer-implemented inventory management (in the recited combinations) using Evangelist's beneficial teachings of initially allocating inventory to online channels.** EX1003, ¶201. This would have beneficially increased the likelihood the proper quantities and most relevant inventory types are allocated to each channel. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶202-203.

9[b]	**Jacob discloses receiving** (*e.g.*, "receiv[ing]")**, from each of the plurality of online distribution channels** (*e.g.*, "information received from the sales channels"; "incoming information") **in real time via the computerized network** (*e.g.*, "communication code segment" receives, *e.g.*,

[22] *See* n.17 (regarding Jacob and Evangelist), EX1003, ¶200.

	"information" pushed from sales channels; "confirmation information is sent to… the property"; *see also* "application sends… notifications to the PA via communications over wired or wireless networks"; receiving information in "real time" over "Internet," "wired or wireless networks," etc. (*see* cl.9[a])**, sale data**[23] (*e.g.*, "information received from the sales channels" including, *e.g.*, "reservations," "reservation engine data," "sales channel data," reservation "confirmation information" including "Rate Type," "selling rate," "rooms sold" on "day," "number of rooms in the reservation") **pertaining to the online bookings** (*e.g.*, "reservations") **for the items in the transportation services inventory allocated to the respective online distribution channel** (*see* cl.9[a])**.** EX1003, ¶¶204-217. **Tamura discloses receiving** (*e.g.*, "merchandise distribution management server" "receives sales information from POS terminals at each retail store") **sale data** (*e.g.*, data reflecting "number of units sold")**.** EX1003, ¶¶230-235. **Kono discloses receiving** (*e.g.*, "acquir[ing]") **sale data** (*e.g.*, "product shipment information and product inventory information of each agency"; "agency sales information")**.** EX1003, ¶¶243-246. **Franklin discloses receiving** (*e.g.*, "data is sent… to one other machine," "data delivery") **data** (*e.g.*, "data") **in real time** (*e.g.,* "push") **from another computer** (*e.g.*, "data is sent from a data source")**.** EX1003, ¶¶220-224. EX1004, ¶[0005]-¶[0006], ¶[0009] ("***incoming information…***"), ¶[0010] ("***information received****….*"), ¶[0082], ¶[0084], ¶[0086] ("***confirmation information is sent….***"), ¶[0123], ¶[0125], ¶[0176], ¶[0192] ("***application sends…notifications to the PA… over… networks****….*"); *see also* EX1004, ¶[0124].

[23] "Sale data" includes, *e.g.*, data "relat[ing] to sale price" or to "a number of the items… sold within a predetermined period…." *E.g.*, EX1001, cls.4-5.

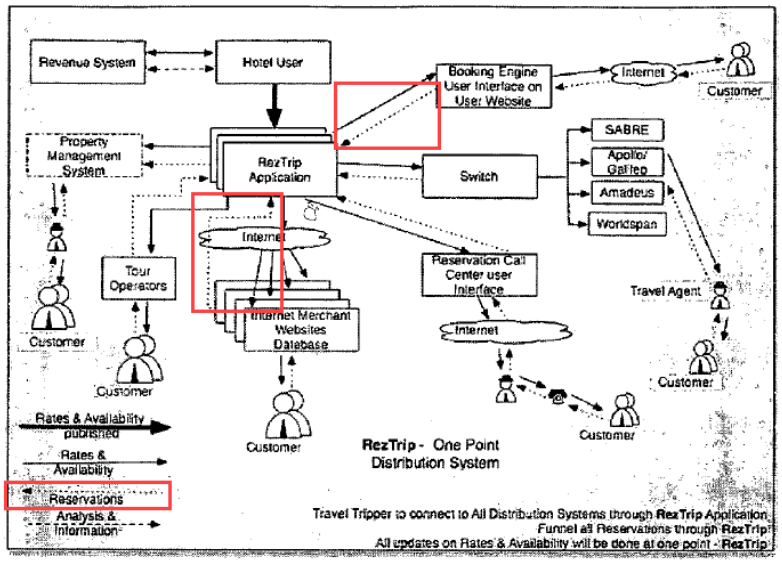


Figure 7

EX1004, Fig.7.

EX1005, Means of Solving the Problems ("***merchandise distribution management server 10***…."), ¶[0013]-¶[0014], ¶[0017] ("***sales information from POS…*** units sold…."), ¶[0019], ¶[0024]-¶[0026], cl.4-5, Figs.1-3:

Fig. 2

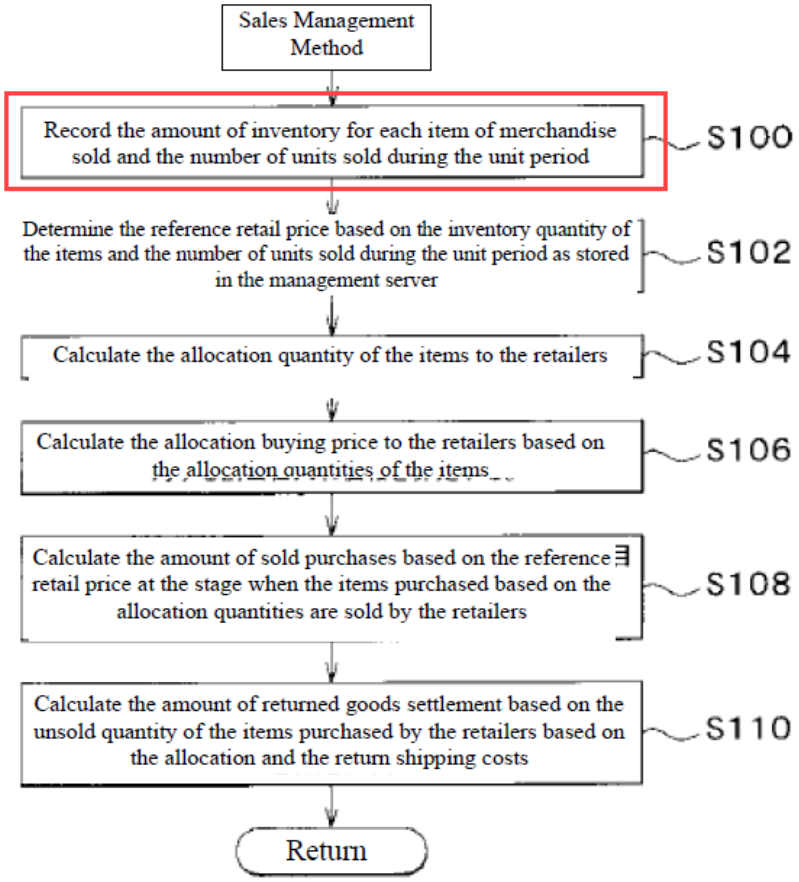
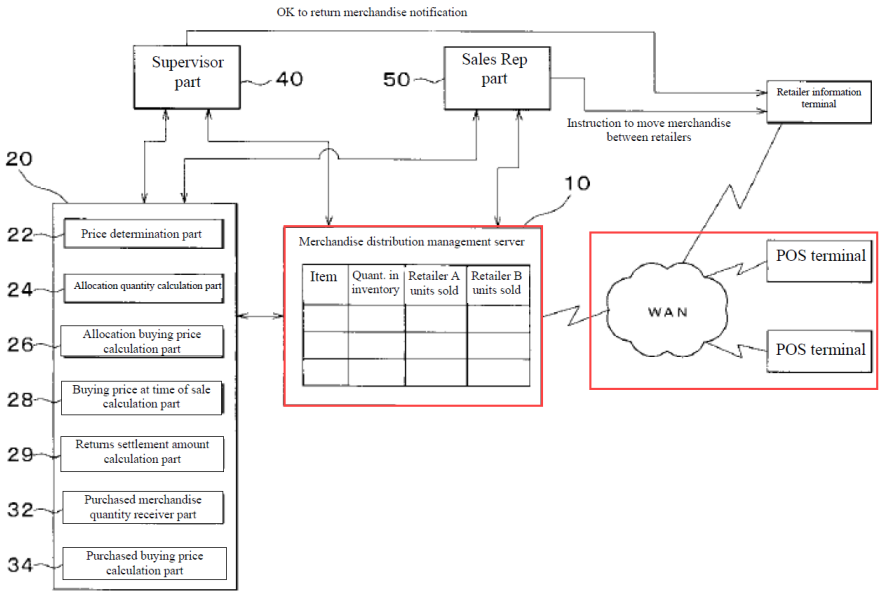

Sales Management Method
Record the amount of inventory for each item of merchandise sold and the number of units sold during the unit period
S100
Determine the reference retail price based on the inventory quantity of the items and the number of units sold during the unit period as stored in the management server
S102
Calculate the allocation quantity of the items to the retailers
S104
Calculate the allocation buying price to the retailers based on the allocation quantities of the items
S106
Calculate the amount of sold purchases based on the reference retail price at the stage when the items purchased based on the allocation quantities are sold by the retailers
S108
Calculate the amount of returned goods settlement based on the unsold quantity of the items purchased by the retailers based on the allocation and the return shipping costs
S110
Return

Fig. 3


OK to return merchandise notification
Supervisor part
40
50
Sales Rep part
Retailer information terminal
Instruction to move merchandise between retailers
20
10
22
Price determination part
24
Allocation quantity calculation part
26
Allocation buying price calculation part
28
Buying price at time of sale calculation part
29
Returns settlement amount calculation part
32
Purchased merchandise quantity receiver part
34
Purchased buying price calculation part
Merchandise distribution management server
Item
Quant. in inventory
Retailer A units sold
Retailer B units sold
WAN
POS terminal
POS terminal

	EX1007, ¶[0010] ("***acquire product shipment information***…."), ¶[0014], ¶[0024]- ¶[0025]. EX1009, ¶¶[0015]-[0016] ("*push-based*…"), ¶[0018] ("aperiodic or periodic..."), ¶[0019], ¶[0021] ("*data is sent…*"), ¶[0041]; *see* EX1009, Fig.1.

Because Jacob's channels "push" data to the computer/server running, *e.g.*, the RezTrip application ("RezTrip computer/server"), without a request (*e.g.*, EX1004, ¶[0086]), **Jacob discloses "real time"** (push when "EU has made a reservation", *i.e.*, on an aperiodic basis). EX1003, ¶¶217-218; *see* §VI.A.

If argued further disclosure of "***real time***" as properly construed is required, this was obvious from Jacob (in the recited combinations) in view of **Franklin**. EX1003, ¶219. Jacob discloses that, *e.g.*, its RezTrip computer/server receives data from the channels (*see* cl.9[b] (narrative)), and updating pricing/availability in "real time" is preferable (EX1004, ¶[0005]), and "[f]requent updating and communication… keeps the information fresh at the sales channel." EX1004, ¶[0185], Fig.7; EX1003, ¶225. However, Jacob does not use the word "push," and Jacob's push is aperiodic. Franklin explicitly discloses ***push*** advantageously does not require a "backchannel" for each request, nor must the nodes (here, Jacob's channels) be continuously interrupted with push (meaning less strain on, *e.g.*, Jacob's servers/wireless networks (EX1004, ¶[0082]), which may reflect network and other asymmetries). EX1009, ¶¶[0005]-[0010], [0013], [0016], [0020]; EX1003, ¶225.

Franklin additionally explains ***periodic*** push (pushing on a "regular, repeating schedule") is particularly useful with high processing loads at the node receiving data (another asymmetry) (*e.g.*, Jacob's RezTrip computer/server, which performs multiple functions). EX1009, ¶[0018]; *see also id.* ¶¶[0014], [0019]-[0020], Fig. 1; EX1003, ¶225. **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement communications between Jacob's channels and Jacob's RezTrip computer/server (in the recited combinations) using Franklin's beneficial teachings of push, including periodic push**. EX1003, ¶226. Periodic push would have beneficially allowed the system to "obtain the maximal benefit from the available bandwidth" (EX1009, ¶[0042]), and does not "assume[] that clients are… always… able to respond… or that missing some information is not crucial…." (EX1009, ¶[0019]). Further, periodic push affords POSITA a design option as to scheduling frequency, providing increased flexibility, with different benefits to scheduling shorter or longer intervals, depending on the application. For example, Jacob acknowledges "[f]requent updating" benefits (EX1004, ¶[0185]) and it would have been beneficial to implement Jacob's updating using Franklin's periodic push teachings to schedule push at ***short intervals***, thus facilitating Jacob's RezTrip computer/server having more up-to-date information when processing the sale data. However, where individual sales and reallocations were expected to occur less frequently and where cost/efficiency

concerns were a higher priority than near-term data accuracy, POSITA would have recognized it was beneficial to schedule push in the combined Jacob-Franklin system at ***longer intervals***. EX1003, ¶¶226-228. Even if, *arguendo*, "real time" meant that data be sent quickly/frequently (EX1022, 2), Jacob teaches this, *i.e.*, sending sale data as soon as the reservation is made (*i.e.*, aperiodically). EX1022, 2; EX1004, ¶[0086]; EX1003, ¶218. Sending with periodic push over vanishingly short intervals, to ensure "fresh[er]" data (EX1004, ¶[0185]) would also have been obvious for the reasons described above involving Jacob-Franklin. EX1003, ¶227. Further, Franklin teaches aperiodic push. EX1009, ¶[0026]. Though there are tradeoffs between periodic and aperiodic, aperiodic push (like Jacob's transmission when data changes) ensures bandwidth is only used when there's an update and ensures the server has the most up-to-date information (similar to the benefits of periodic push at short intervals), and it would also have been obvious and advantageous to implement Jacob (or the recited combinations) using Franklin's teachings of aperiodic push. *See* EX1009, ¶[0026]; EX1003, ¶226 n.12. For POSITA it would have been routine to choose such implementation, and clear they would

work and provide the expected functionality to yield predictable results with REOS. EX1003, ¶¶225-227.[24]

If argued further disclosure of receiving **sale data** is required, this was obvious from **Jacob** (in the recited combinations)[25] **in view of (1) Kono's or (2) Tamura's disclosures above** (cl.9[b] (Chart)). EX1003, ¶¶229,242.[26] Jacob further discloses "[f]requent ***updating and communication of pricing and inventory information*** to the sales channels." EX1004, ¶[0185]; EX1003, ¶¶237, 247. Jacob

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[24] If further disclosure of real time in the temporal sense is required, this would have been rendered obvious in view of the disclosures of Phillips (already part of the recited combinations) for the reasons set forth immediately above for Franklin. *See* EX1029 (discussing event triggered updates (*e.g.*, at 7, 30, 126, 135-136)); EX1003, ¶227 n.14.

[25] "In the recited combinations" does not refer to a combination of Tamura and Kono except for cl.9[f] and the dependent claims.

[26] Jacob, Tamura, and Kono describe inventory management systems using sale data received from channels to more efficiently manage inventory and better adapt to market demand. *E.g.*, EX1007, Summary, ¶¶[0005], [0009]-[0010], [0014]-[0017]; EX1004, ¶¶[0001]-[0002], [0005], [0010], [0154]; EX1005, ¶¶[0001], [0009], [0015], [0041]; EX1003, ¶¶236, 246.

further discloses "[a]fter an EU has made a reservation, ***confirmation information is sent to… the property***." *E.g.*, EX1004, ¶¶[0067], [0086]; EX1003, ¶237. **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Jacob's RezTrip computer/server (in the recited combinations) using sale data received from distribution channels as taught in either (1) Kono** (*E.g.*, EX1007, ¶[0010], *supra* (chart); EX1003, ¶¶244-245, 248-249) **or (2) Tamura** (*E.g.*, EX1005, ¶[0014], *supra* (chart); EX1003, ¶239.)**.** EX1003, ¶¶240, 250. As discussed, using such received sale data would advantageously increase the RezTrip computer/server's ability to fulfill Jacob's express goal of "maximiz[ing]… revenue" (and Evangelist's goal of "promot[ing] efficient operations") by more efficiently managing inventory and better adapting to market demand, and, for (2), Tamura's express goals of "reducing lost sales." *See also* EX1004, ¶[0005]; EX1003, ¶¶240, 250. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶240, 250.

9[c]	**Jacob discloses processing… by carrying out calculations** (*e.g.*, "analyz[ing] the information received from the sales channels"; combining (*e.g.*, adding, averaging, etc.) data across individual "reservations";

	"perform[ing] calculations automatically[27] and/or perform[ing] calculations in response to a user initiated triggering event") **the sale data** (*see* cl.9[b]) **to obtain a performance rating[28] for each of the respective online distribution channels** (*e.g.*, parameter showing "sales channel's Room Type inventory is sold out"; parameter such as speed of sales in channel for inventory item(s) (indicating, *e.g.*, "day within the Rate Type active period is selling more quickly than other days in the period" or "might be selling out," etc.))**.** EX1003, ¶¶252-261. **Phillips discloses an "automatic" revenue management process, including regarding calculations** (*e.g.*, "recommend actions based on sophisticated mathematical algorithms," "calculate[s]… booking limits," "software and analytical capabilities," "forecasts… based on current and recent bookings"), **including on sale data** (*e.g.*, "feed of bookings," "based on current and recent booking"), **to obtain a performance rating** (*e.g.*, calculation of, *e.g.*, "return"; "the price-response function associated with each combination of product, market-segment, and channel… function…"; demand/"anticipated changes in demand" for a "seller"; "revenue per available seat mile, or RASM"). *See also* cl.9[pre], [f], [g]; EX1003, ¶¶266-272. **Tamura discloses processing… by carrying out calculations** (*e.g.*, mathematically analyzing) **the sale data** (*see* cl.9[b]; *e.g.*, "number of units sold" and "allocated quantity") **to obtain a performance rating** (*e.g.*, parameter (*e.g.*, "sales progress rate for each retailer of the items") indicating, *e.g.*, retailer has "low sales progress rate," "high sales progress rate")**.** EX1003, ¶¶276-279.

[27] '598 does not require "automatic" performance of steps, but, as with cl.9[a]-[b] and cl.9[d]-[g], the automatic performance of cl.9[c] is disclosed/rendered obvious by Jacob in view of Phillips. *See* cl.9[pre]; n.32.

[28] A "performance rating can be in the form of a number of parameters." EX1001, 6:65-7:1, 4:63-67, 6:44-52.

Kono discloses processing… by carrying out calculations (*e.g.*, "perform[ing] a sales analysis at each agency") **the sale data** (*see* cl.9[b]) **to obtain a performance rating** (*e.g.*, "result" of "sales analysis at each agency")**.** EX1003, ¶¶285-289.

EX1004, ¶[0006], ¶[0010] ("***information received from… channels***…."), ¶[0131] ("***calculations automatically and/or…in response to… triggering event***…."), ¶[0180] ("***sold out or is selling better…***").

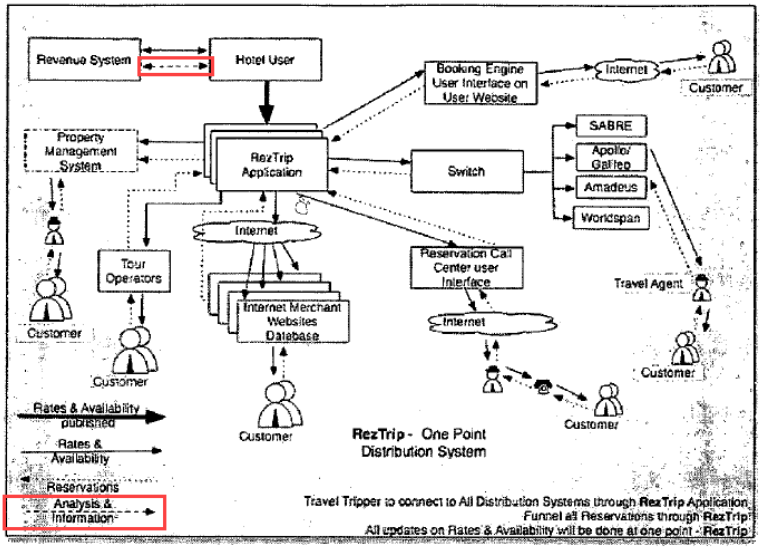


Figure 7

EX1004, Fig.7.

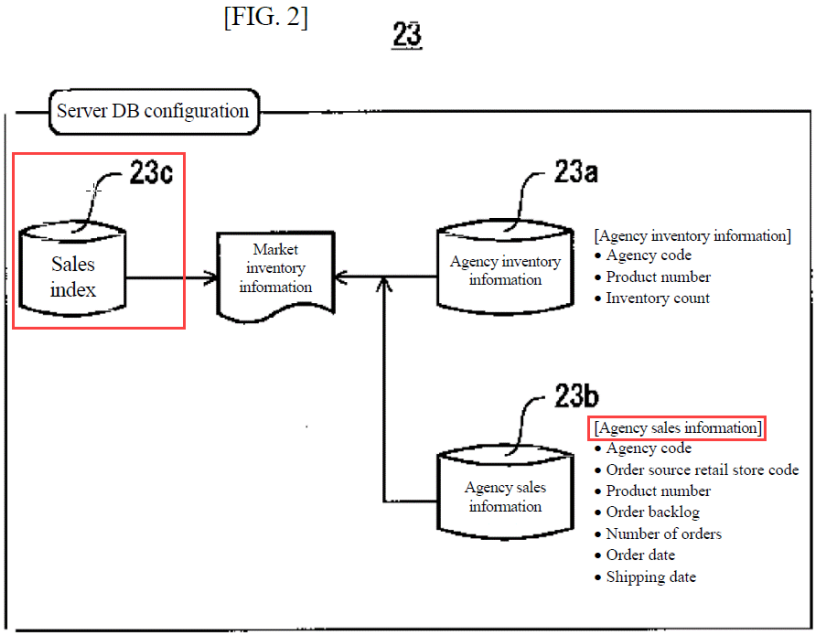
EX1029, 121 ("mathematical algorithms"), 136, 135 ("***forecasts*** [of demand] are ***based on current and recent bookings***"), 30 ("prices… ***updated automatically***"), 106-07 ("***adjusts prices in response to anticipated changes… maximize return***"), 29 ("analytical capabilities… mathematical analysis. Quantitative analysis… embedded in the right process"), 134-135 ("Revenue management systems"), 131 ("***calculate and periodically update booking limits***"), 29 ("***needs to apply pricing and revenue optimization across the entire range of its channels and pricing mechanisms in order to maximize total profitability***."), Fig. 2.4, 31 ("***software whose primary function is to ensure that complex pricing changes are correctly and efficiently transmitted through all channels***."; "***effects of the most recent actions should be monitored so that immediate action can be taken if necessary***."; "***Price-response***

curves will be updated much more frequently, typically weekly or monthly in the case of markdown management or customized pricing.”), 32 (“***determines the form of the objective function*** that will be ***used when optimizing*** that ‘cell’.”) 38-61 (“***one price-response function associated with each combination of…channel….*** The ***price-response function specifies demand….***”), 137-138 (“***steer demand as much as possible through lower-cost channels... Calculation of incremental costs***…”), 126 (“***booking control mechanisms that determine moment by moment which fare classes are available for sale and which are not***.”; “Within a ***very short time (typically less than 200 milliseconds), the reservation system needs to send a message whether or not that request can be accepted***”), 140-41.

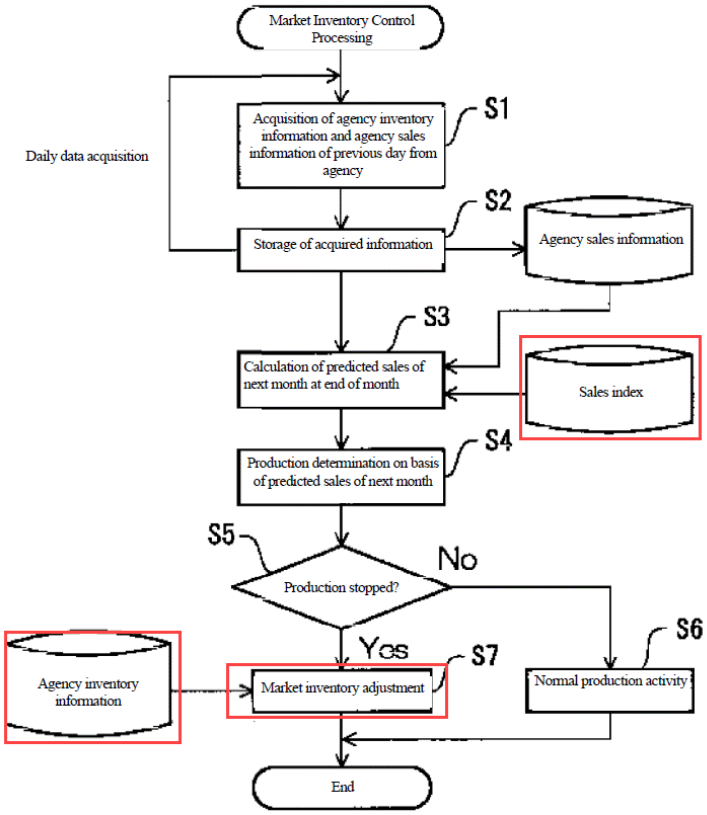
EX1005, ¶[0013], ¶[0035], cl.4, Figs.2-3.

EX1007, ¶[0009] (“***sales analysis at each agency***...”), ¶[0010], ¶[0014], ¶[0025]-¶[0026], ¶[0030], cl.1-2, Figs.2-3.

[FIG. 2]



[FIG. 3]



Jacob disclosed "perform[ing]" price calculations (including "automatically") using, *e.g.*, code segments "to analyze the information received from the sales channels," and receiving sale data relating to a sale price of each item (*e.g.*, EX1004, ¶¶[0006], [0010], [0131]-[0133], cl.4 (*e.g.*, "reservation," reservation "confirmation information" including "Rate Type," "selling rate"); EX1003, ¶261). POSITA would have understood these disclosures to apply to performing calculations as to both ***prices*** (as discussed above) to determine, *e.g.*, "a day… is selling more quickly than other[s]" such that "date['s]" "price" should be "adjust[ed]"

(EX1004, ¶[0176]) or a "Rate Type" "closed" (EX1004, ¶[0180]) —and ***"inventory"*** [29]—to determine, *e.g.*, remaining "Rooms Available," whether "a sales channel's" "inventory" is "selling out"/"sold out" (or—*see* cl.9[d]—"selling better than other channels") —and as requiring calculations of speed/current inventory. *E.g.*, EX1004, ¶[0180], Fig.41; EX1003, ¶261. Thus, **POSITA would have understood Jacob (in the recited combinations) discloses performing calculations as to both prices and inventory to obtain a performance rating**. EX1003, ¶262. Alternatively,**—to make these disclosed determinations—Jacob necessarily, and thus inherently, performs calculations as to both prices and inventory to obtain a performance rating (*e.g.*, speed of inventory item sales in a channel)**. EX1003, ¶262.

As in 9[pre], Jacob-Phillips (in the recited combinations) renders obvious carrying out Jacob's functions[30] (including to obtain a performance rating) ***automatically*** (as Phillips describes). Further, making these determinations/compari-

[29] Jacob thus discloses or at minimum renders obvious the additional limitation added by claim 10. EX1003, ¶261 n.18.

[30] This applies as well to the additional steps claimed in, *e.g.*, 9[a]-[b] and 9[d]-[g]. *See* 9[pre]. Further, this applies to claims 10 and 11.

sons ***by performing calculations*** (rather than, *e.g.*, relying on estimates/approximations) as to both prices and inventory would have advantageously increased the system's ability to monitor and track accurately each channel's revenue and inventory status, thereby permitting the system to better and more quickly analyze whether prices/allocations should be adjusted to "maximize revenue," whether/if a particular sales channel is in danger of running out/out of inventory, and whether a particular channel is selling inventory better than others. This would have furthered Jacob's express goal of "maximiz[ing] revenue" of Jacob's "time-dependent inventory." *See supra*, p.32. For POSITA it would have been routine to make such an implementation choice, and clear it would work and provide the expected functionality to yield predictable results with REOS. EX1003, ¶264.

If argued further disclosure of ***a performance rating*** is required, **this would have been obvious based on Jacob in light of Phillips (in the recited combinations) (*see* cl.9[pre]-[b])**. For the reasons discussed in, *e.g.*, cl.9[pre], POSITA would have found it obvious to implement Jacob using Phillips' teachings of performing calculations (including, *e.g.*, price adjustments) automatically, and Phillips additionally discloses performing calculations on sale data (such as information from current and recent bookings) to obtain performance ratings for each channel, such as current price-response functions, demand/changes in demand, and revenue

measures like RASM. **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Jacob's or Jacob-Phillip's combined inventory management and distribution system (in the recited combinations, and including Jacob's disclosures of "performing calculations automatically" as to "inventory") using Phillips's beneficial teachings of processing sales data by automatically carrying out calculations to obtain a performance rating** to the extent it is argued Jacob or Jacob in light of the other aspects of Phillips does not already disclose or render obvious doing so. Performing calculations automatically to obtain a performance rating would have advantageously increased the ability and speed of the resulting system to monitor and track accurately—without user intervention—inventory status and availability at each sales channel, thereby permitting the system to more rapidly determine/analyze how quickly a particular sales channel is selling inventory and whether it is running out of inventory, and more quickly compare/determine whether a particular channel is selling inventory better than other channels or at a higher price than other sales channels. This would have furthered both Jacob's and Phillips's express goals (*see* cl.9[pre] (narrative)), and for POSITA (particularly in light of these disclosures and other known, similar systems automatically performing calculations of performance predictions) it would have been routine to make such an

implementation choice, and clear it would work and provide the expected functionality to yield predictable results with REOS. *See, e.g.*, EX1029, 30, 126, 134-35; EX1026, 4; EX1003, ¶¶265, 273-274.

If argued still further disclosure of a **performance rating** is required (including ***automatically***), **this would have been obvious from Jacob/Jacob-Phillips (in the recited combinations) (*see* cl.9[pre]-[b]) in view of (1) Kono's, or (2) Tamura's express disclosures** (see chart). EX1003, ¶¶275, 284.[31] As discussed above, POSITA would have understood Jacob discloses performing calculations as to both prices and inventory, and in any case, Jacob in view of Phillips (in the recited combinations) renders it obvious (*see supra* & cl.9[pre]); EX1003, ¶¶281, 291. **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Jacob's or Jacob-Phillips's combined inventory management and distribution system (in the recited combinations) using *either* (1) Tamura's beneficial teachings of automatically processing sale data by carrying out calculations to obtain a performance rating or (2) Kono's beneficial teachings** (*see* cl.9[e] (chart)) **of automatically processing sale data by carrying out calculations to obtain a performance rating** to the extent it is argued Jacob or Jacob-Phillips does not already disclose or render

[31] *See* supra n.26; EX1003, ¶¶280-281, 290-291; *see also* cl.9[pre] (Phillips).

obvious doing so**.** EX1003, ¶¶282, 292. This would have advantageously yielded a persistent indicator and increased the ability and speed of the resulting system to monitor and track accurately—without user intervention—inventory status/availability at each channel, thereby permitting the system to more quickly determine/analyze how rapidly a particular channel is selling and whether its inventory is running out, and more quickly compare/determine whether a particular channel is selling better or at a higher price than others. EX1003, ¶¶282, 292; *see also* cl.9[pre] (discussing Phillips' goals). This would have furthered **Jacob's** express goal of "maximiz[ing] revenue," **Tamura's** of "reducing lost sales opportunities," and **Kono's** of "effectively utiliz[ing] market inventory by collectively controlling the inventory control of each agency" and reducing "unnecessary inventory on the market." EX1003, ¶¶282, 292. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶282-283, 292-293.

9[d]	**Jacob discloses querying whether the performance rating of each of the respective online distribution channels is greater than a performance rating of other online distribution channels** (*e.g.*, querying whether/"[i]f a sales channel's" "inventory" "is selling better than other channels")**.** EX1003, ¶¶294-301. **Tamura discloses querying whether the performance rating of each of the respective distribution channels is greater than a performance rating of other distribution channels** (*e.g.*, querying whether

"retailer" is one with "low sales progress rate" rather than one of "retailers with a high sales progress rate"). EX1003, ¶¶305-308.

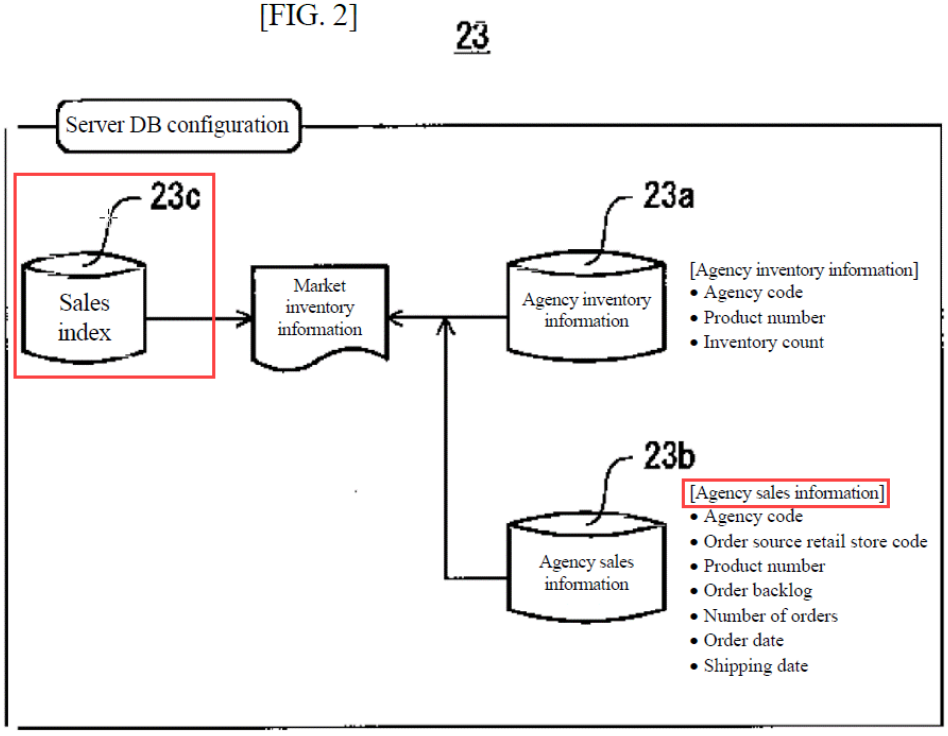
Kono discloses querying whether the performance rating of each of the respective distribution channels is greater than a performance rating of other distribution channels (*e.g.*, querying whether an agency is "agency where sales have fallen," rather than "agency that still sells," based on, *e.g.*, "result" of "sales analysis at each agency"). EX1003, ¶¶312-317.

EX1004, ¶[0006], ¶[0010], ¶[0013]-¶[0014], ¶[0082]-¶[0083], ¶[0131]-¶[0133], ¶[0180].

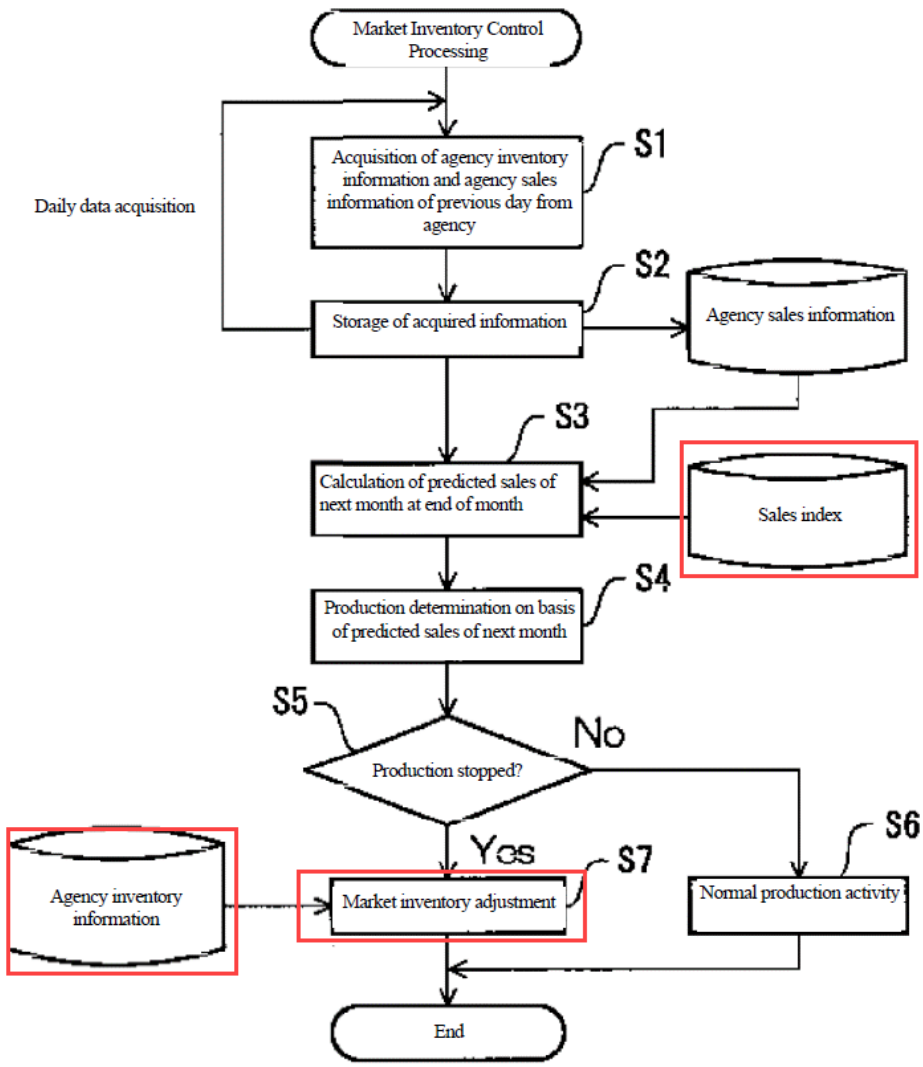
EX1005, ¶[0035] ("***low sales progress rate… high sales progress rate***…."), Figs.2-3, cl.4.

EX1007, Summary ("***resale… from the agency where sales have fallen…***"), ¶[0009]-¶[0010], ¶[0014], ¶[0025]-¶[0026], ¶[0030], cl.1., Figs.2-3:

[FIG. 2]



[FIG. 3]



Jacob expressly discloses "reallocat[ing]" "[i]f a sales channel's" "inventory" "is selling better than other channels," and "computer program segments configured to manage the data and perform the [invention's] methods/functions." *E.g.*, EX1004, ¶¶[0006], [0010], [0082], [0180]; EX1003, ¶¶294-295, 301. POSITA

would have understood from these disclosures that **Jacob (in the recited combinations) expressly discloses that its system queries whether/"[i]f a sales channel's" "inventory" "is selling better than other channels**" (including automatically). *See also* cl.9[f], 9[g]; EX1003, ¶301. If argued further disclosure is required, for the reasons in cl.9[c], **POSITA would have found it obvious, straightforward, and advantageous to implement Jacob's teachings of the above-discussed express disclosures (in the recited combinations, including Jacob-Phillips (cl.9[pre], 9[c])) such that its resulting system queries (*e.g.*, by comparing with other channels' performance ratings), *e.g.*, whether/"[i]f a sales channel's" "inventory" "is selling better than other channels."** EX1003, ¶302. For POSITA, it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶302-303.

For the same reasons cl.9[c] would have been obvious based on the addition of Tamura. **POSITA would have found it obvious, straightforward, and advantageous to implement Jacob (in the recited combinations) including the above-discussed express disclosures using Tamura's disclosure** (*see* cl.9[d] (chart)) **of querying whether a particular "retailer" has a "high sales progress rate" (and thus has a greater sales progress rating than retailers with a "low sales progress rate").** EX1003, ¶¶304, 309. For POSITA, it would have been

routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶309-310.

As also discussed, if argued further disclosure of querying whether the performance rating of each channel is greater than a performance rating of others, POSITA would have found it obvious to implement Jacob's inventory management and distribution system from cl.9[c] (including the recited combinations) using Kono's beneficial teachings of processing sales data. EX1003, ¶¶311, 318. For the same reasons in cl.9[c], **POSITA would have found it obvious, straightforward, and advantageous to implement Jacob (in the recited combinations) including the above-discussed express disclosures (cl.9[d] (chart)) using Kono's disclosure of querying whether an agency is one "where sales have fallen" or, instead, one with a greater sales rating (*i.e.*, "that still sells") based on "result" of "sales analysis at each agency."** *See* cl.9[c] (narrative); EX1003, ¶318. For POSITA, it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶318-319.

9[e]	**Jacob discloses the query being answered in the affirmative** (*e.g.*, query confirms when "sales channel's inventory is… selling better than other channels"). EX1003, ¶¶320-325.

Tamura discloses the query being answered in the affirmative (*e.g.*, query identifies "retailer" with "high sales progress rate")**.** EX1003, ¶¶328-321.

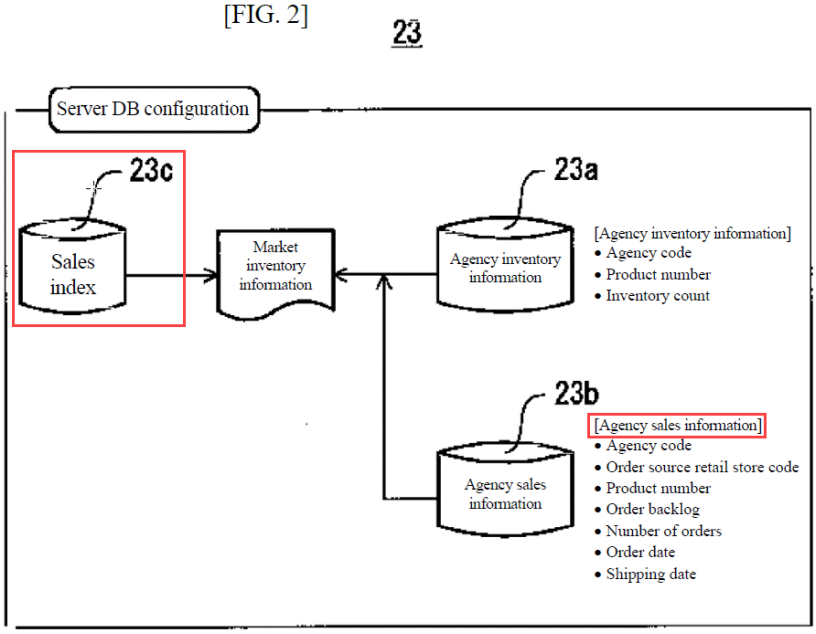
Kono discloses the query being answered in the affirmative (*e.g.*, query identifies "agency that still sells")**.** EX1003, ¶¶335-340.

EX1004, ¶[0074], ¶[0082]-¶[0083], ¶[0131]-¶[0133], ¶[0180] ("***sales channel's… inventory… is selling better***...").

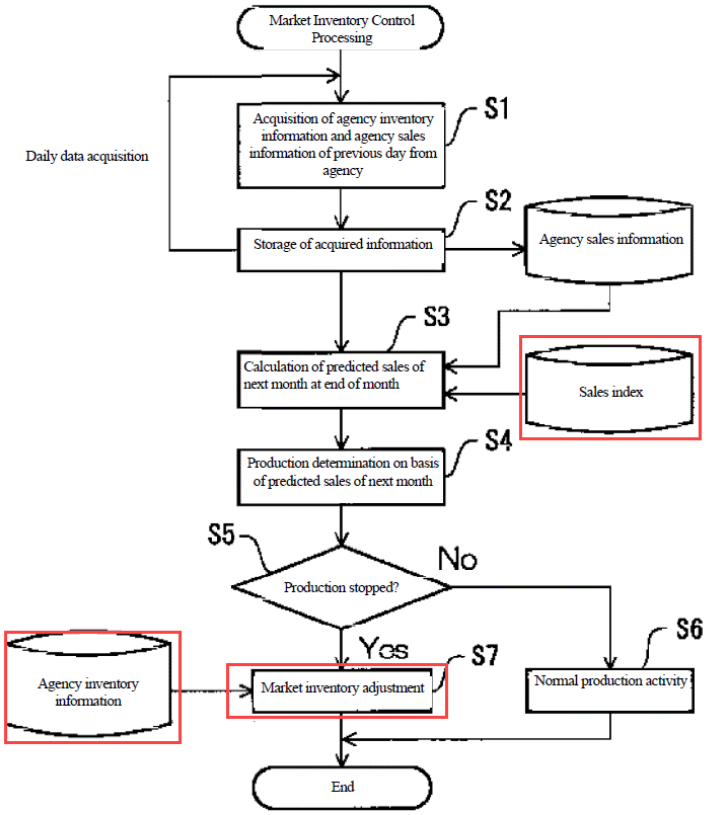
EX1005, ¶[0013] ("***high sales progress rate***"), ¶[0014], ¶[0035]; Figs.2-3, cl.4.

EX1007, Summary ("***agency that still sells…***") ¶[0009]-¶[0010], ¶[0014], ¶[0025]¶[0026], cl.1, Figs.2-3

[FIG. 2]



[FIG. 3]



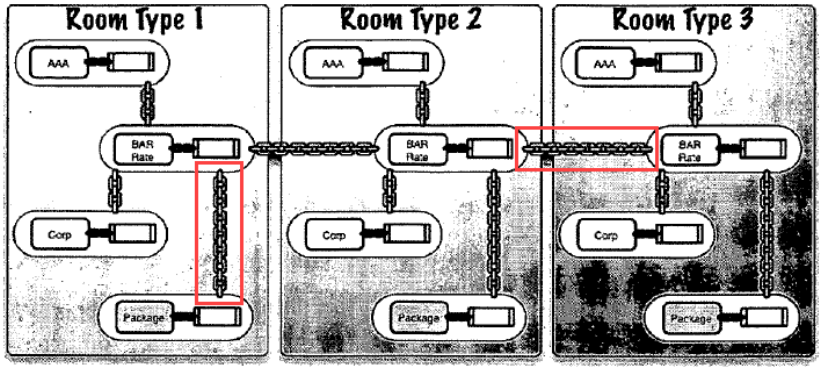
For the same reasons Jacob discloses, or at minimum renders obvious, "querying" (*see* cl.9[d] (narrative)), Jacob (in the recited combinations) renders obvious the query being answered in the affirmative. *E.g.*, EX1004, ¶[0180]; EX1003, ¶326.

Alternatively, Jacob (in the recited combinations) in view of (1) Tamura or (2) Kono, render cl.9[e] obvious. *See* cl.9[d]; EX1003, ¶¶327, 334. For the same reasons, Jacob in view of (1) Tamura's or (2) Kono's express disclosures (*see* cl.9[e] (chart)), render obvious the query being answered in the affirmative.

EX1003, ¶¶332, 341. POSITA would have found it routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶332-333, 341-342.

9[f]	**Jacob discloses adjusting,**[32] **via the computerized network** ("updating and communicat[ing] [] pricing and… information to the sales channels"; *see* cls.9[a],9[pre])**, a price of the items in the transportation services inventory allocated to each of the linked online distribution channels based on the query being answered in the affirmative** (*e.g.*, "close the Rate Type… for a given date or a series of dates, for certain channels" when, *e.g.*, "sales channel's inventory is… selling better than other channels"; "adjusting prices in response to changes in room inventory"; *see* cl.9[a])**.** EX1003, ¶¶343-358. **Phillips discloses automatically/without the need for human intervention (***see* cl.9[pre]) **adjusting the price of an inventory item up or down** (*e.g.*, "*forecasting module* generates and updates for all products/fare class combinations", "prices will be updated automatically," "revenue management [system]…to calculate and… update the booking limits")**.** EX1003, ¶¶367-374. **Tamura discloses adjusting, via a computerized network** (*e.g.*, "announce to retailers… the current market

[32] '598 does not require that its steps such as "adjust[ing]" be performed "automatically" without human intervention. *See, e.g.*, EX1001, cl.22; *see also* EX1001, 5:32-35, 32:9-20, 33:5-11.

	value of the item for sale" using "computer or information processing terminal connected to a communication line network")**, a price of inventory items based on the query being answered in the affirmative** (*e.g.*, "determines the reference retail price for items sold based on the amount of inventory and the number of parts sold during the part period for each item sold" "with reference to the merchandise's distribution market" (*e.g.*, channel has a "high[er]" "sales progress relative to the allocated quantity"))**.** EX1003, ¶¶376-380. EX1004, ¶[0005]-¶[0006], ¶[0078], ¶[0082]-¶[0083], ¶[0131]-¶[0133], ¶[0176], ¶[0180] ("***If… channel's Room Type… selling better*… *close the Rate Type*… *for certain channels***."), ¶[0185] ("***updating… pricing…***"), ¶[0191], cls.5-6, cl.13.  Figure 5 EX1004, Fig.5.

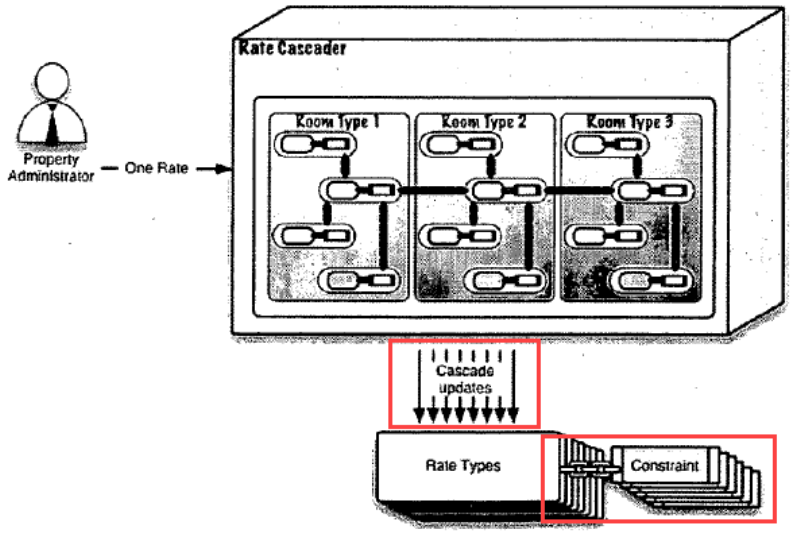


Figure 6

EX1004, Fig.6.[33]

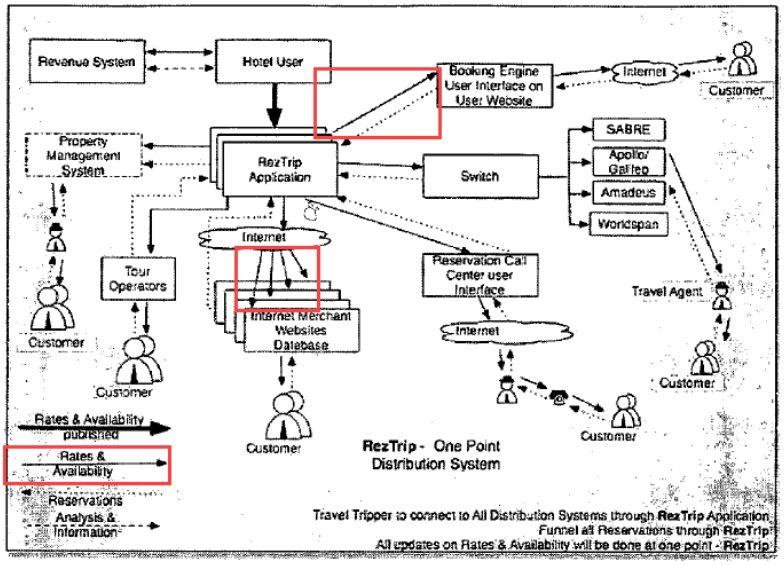


Figure 7

EX1004, Fig.7.

EX1029, 30 ("***prices… updated automatically***"), 133-135, 126, 123 ("***algorithms run… limits set and updated***"), 131, 99 ("***change prices… balance supply***

[33] Figs. 5-6 are cited for obviousness.

	and demand"), 106-107, 120, 79-80 ("***Channel pricing… different prices through different distribution channels*"**), 124, 101 ("***allocations and price rises to manage the shortage***"), 31 ("complex pricing change… transmitted"), 26. *See* cl.9[pre]. EX1005, ¶[0014], ¶[0019] ("***announce to retailers***… ***current market value***…."), ¶[0025], Fig.3, cl.1 ("***determines the reference retail…***"), Fig.2 (S102).

Jacob discloses "computer program systems" to "perform the ["invention's"] methods/functions" including "a code segment to ***automatically*** communicate pricing information and inventory information to a plurality of selling channels in response to a triggering event." EX1004, ¶[0082]-¶[0083], ¶[0180], cl.6, 31; EX1003, ¶¶351-358. *see also supra* cl.9[f](chart), ¶[0010]. **POSITA would have understood these to expressly disclose—as an alternative to human-triggered actions—automatically "adjusting…" based on the query being answered in the affirmative**. EX1003, ¶359.

If further disclosure is required, as in cl.9[pre], Jacob-Phillips (in the recited combinations) renders obvious carrying out all of Jacob's functions[34] ***automatically***. EX1003, ¶364.

[34] *See* n.27, n.30, *supra.*

Cls.9[e]-[g] require "***either*** (1) adjusting… a price… ***or*** (2) modifying… the linkage of the items." *See* §VI.A; *see also* EX1023, 41; EX1002, 712, 722. If argued cls.9[e]-[g] require ***both***, Jacob discloses this. EX1003, ¶¶360-362. Alternatively, **POSITA would at minimum have found it obvious based on Jacob's disclosures to adjust/modify both price and the linkage of inventory items**. This would have beneficially increased the ability of Jacob's system to respond to changing market conditions by adjusting/modifying multiple parameters rather than only price or only inventory allocations, thereby furthering Jacob's express goal of "maximiz[ing] revenue." EX1003, ¶363. POSITA would have further understood that Jacob's disclosures applied to systems with two or more sales channels. It would have been obvious to upwardly "adjust" prices in one or more channels while downwardly "adjusting" prices in the other channel(s) and to also reallocate inventory between channels based on the query being answered in the affirmative. EX1029, 1 ("[p]rice differentiation"), 6 ("[c]hannel pricing"); EX1003, ¶¶363, 367. This would have beneficially increased the ability of the resulting system to respond more fulsomely to changing market conditions by adjusting/modifying multiple parameters impacting revenue. For POSITA it would have been

routine to make such an implementation choice, and clear it would work and provide the expected functionality to yield predictable results with REOS. EX1003, ¶363.[35]

If further disclosure of automatically "adjusting…" based on an affirmative query answer is required, **it would have been obvious from Jacob or Jacob-Phillips (in the otherwise-recited combinations)** (*see* cls.9[b]-[e]**) in further view of Tamura**. EX1003, ¶375.[36] As discussed, Jacob discloses "computer program systems [including "code segments"] configured to manage the data and perform the methods/functions of the invention." *See supra* cl.9[b]; EX1003, ¶382. Tamura expressly discloses "a merchandise distribution management server 10 that executes each step" (EX1005, ¶[0014]), "a price determination part that determines the reference retail price of an item for sale based on the inventory and the number of items sold during the unit period for each item for sale," and "announc[ing] to retailers… the current market value of the item for sale, considering the amount of

[35] REOS for all obviousness arguments herein is further confirmed by this technology's predictability and well-known use of the hardware and software (*see supra*, §II). *E.g.*, EX1011, 5:34-37; EX1015, 2:15-22; EX1029, 126; EX1026, 2; EX1003, ¶365.

[36] *See supra* n.26; EX1003, ¶381.

inventory and sales speed (number of units sold in a unit period) of the merchandise," which POSITA would have understood is the sales progress rate, and "with reference to the merchandise's distribution market," which POSITA would have understood discloses adjusting based on the query being answered in the affirmative (EX1005, cl.1; *see also* EX1005, ¶¶[0019], [0025], Fig.3); EX1003, ¶383. **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Jacob's or Jacob-Phillip's inventory management and distribution system (in the recited combinations)[37] using Tamura's beneficial teachings of automatically (*e.g.*, "sales rep part 50 that manages the**

[37] It would have been obvious to modify the disclosed combinations *including those with Kono* using Tamura's beneficial teachings of automatically adjusting a price, as discussed here. *Cf.* n.25. Implementing the combined system (including the recited Kono combinations) using Tamura's beneficial disclosure of automatically adjusting a price would have beneficially furthered Jacob's, Tamura's, and Kono's express goals discussed in this paragraph. For POSITA (as confirmed by these disclosures and known existing systems) it would have been routine to make such an implementation choice, and clear it would work and provide the expected functionality to yield predictable results with REOS. *See* n.38, *supra* ; EX1003, ¶387.

sales progress rate," EX1005, ¶[0013]) adjusting, via the computerized network, a price of inventory items based on the query being answered in the affirmative, such that in the resulting system the adjusting occurs automatically without the need for user instructions. EX1003, ¶384. If argued automatically adjusting is required and is not disclosed by Jacob or rendered obvious by Jacob-Phillips, this would have been obvious in view of Tamura and beneficially furthered both Jacob's express goal of "maximiz[ing] revenue," Kono's express goal (in pertinent combinations) of reducing "unnecessary inventory on the market" (EX1007, ¶[0017]), and Tamura's express goal of "reducing lost sales opportunities." *See* EX1004, ¶[0002]; EX1005, ¶[0001]; EX1003, ¶¶384-385, 387. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶384. *See*, *e.g.*, EX1029[38] (discussing existing systems automatic adjusting price and channel allocations for inventory including transportation services (*e.g.*, *id.*, 30-31, 80, 99, 101, 106-107, 112-113, 120, 123-124, 126, 131, 133-134)).

[38] If further disclosure of adjusting inventory item price based on the query being answered in the affirmative is required, this would be rendered obvious by the disclosures of Phillips (already part of the recited combinations) for the same reasons as those set forth above. EX1003, ¶384 incl. n.23.

In addition, Tamura expressly discloses two sales channels ("Retailer A" and "Retailer B"). As such, POSITA would have understood that although Jacob provides examples of multiple sales channels, the disclosures of the combined systems (including adjusting a price of inventory items) would have applied to a system with two (or more) sales channels. EX1003, ¶385.

9[g]	**Jacob discloses modifying, via the computerized network** (*e.g.* "updating and" "reallocat[ing]… pricing and inventory information to the sales channels"; *see* cl.9[a],9[pre])**, the linkage of items in the transportation services inventory to the respective online distribution channels** (*see* cl.9[a]) **by re-allocating items in the transportation services inventory to or from said each of the online respective distribution channels from or to the other online distribution channels based on the query being answered in the affirmative** (*e.g.* "reallocat[ing] inventory to the better-selling channel")**.** EX1003, ¶¶389-403. **Phillips discloses adjusting automatically/without the need for human intervention information related to inventory (***see* cl.9[pre], 9[f])**, including inventory allocation** (*e.g.*, "*forecasting module* generates and updates for all products/fare class combinations," "revenue management [system]… to calculate and… update the booking limits," "allocations… to manage the shortage")**.** EX1003, ¶¶406-408. **Tamura discloses, via a computerized network** (*e.g.*, sending "Instruction to move merchandise between retailers" using "computer or information processing terminal connected to a communication line network")**, re-allocating items to or from said each of the respective distribution channels from or to the other distribution channels based on the query being answered in the affirmative** (*e.g.*, "sales rep part… authori[zed] to transfer items from a retailer with a low sales progress rate in relation to the allocation quantity to retailers with a high sales progress rate")**.** EX1003, ¶¶410-413.

Kono discloses, via a computerized network (*e.g.*, "send instructions for product transfer from the maker-side server device… to the agency-side terminals")**, re-allocating items to or from said each of the respective distribution channels from or to the other distribution channels based on the query being answered in the affirmative** (*e.g.*, "maker-side server device… instructs… resale of… product from… agency 'ffff' to… agency 'bbbb'"; "instructing transfer of inventory product from the agency where sales have fallen to the agency that still sells")**.** EX1003, ¶¶418-424.

EX1004, ¶[0005]-¶[0006], ¶[0082]-¶[0083], ¶[0131], ¶[0133], ¶[0180] ("***reallocate inventory to the better-selling channel…***"), ¶[0185] ("***up-dating and communication… inventory information...***"), ¶[0191], cls.5-6, cl.13.

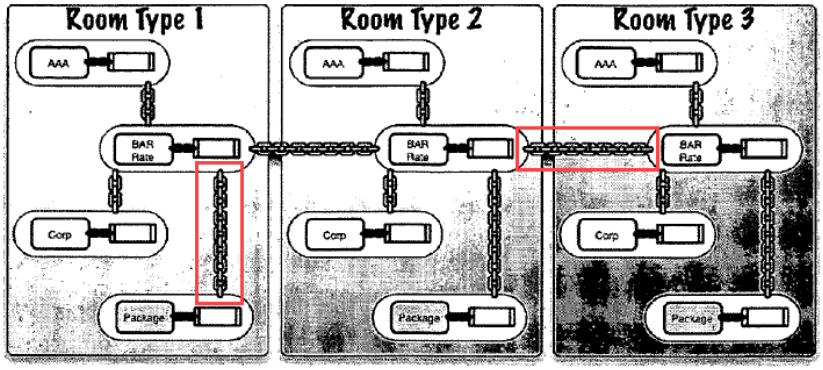


Figure 5

EX1004, Fig.5.[39]

[39] Figs.5-6 are for obviousness.

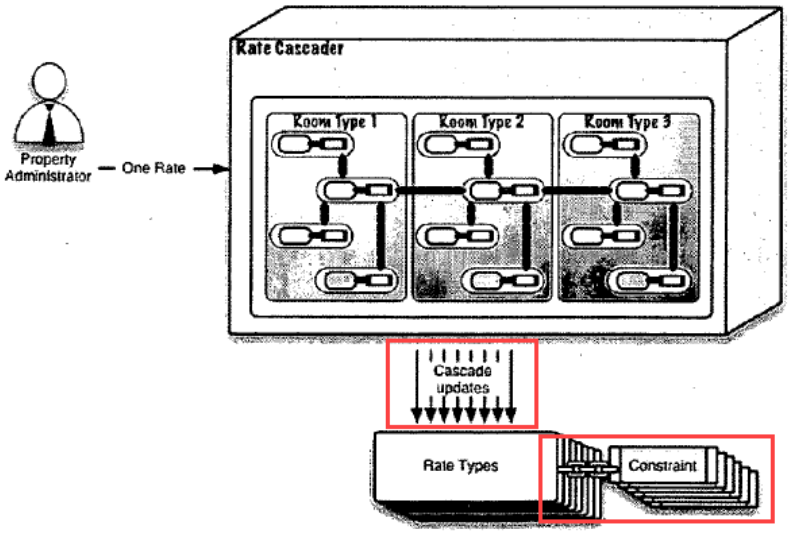


Figure 6

EX1004, Fig.6.

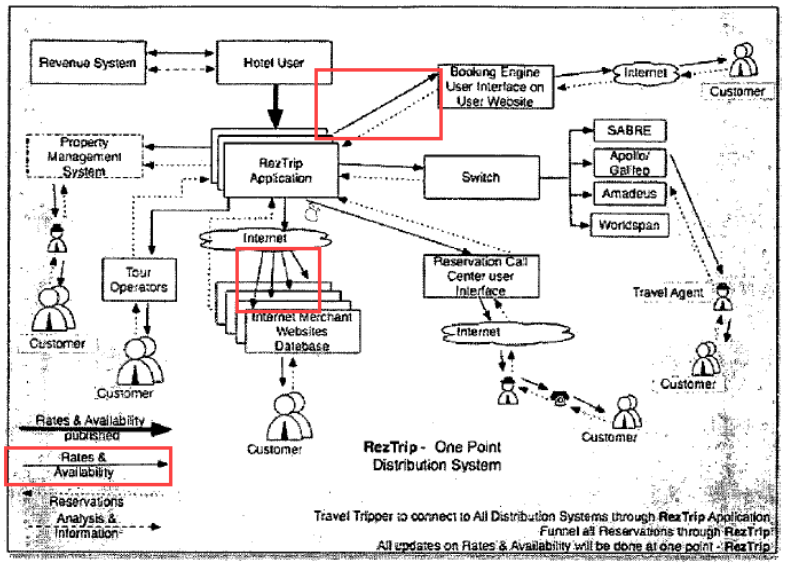


Figure 7

EX1004, Fig.7.

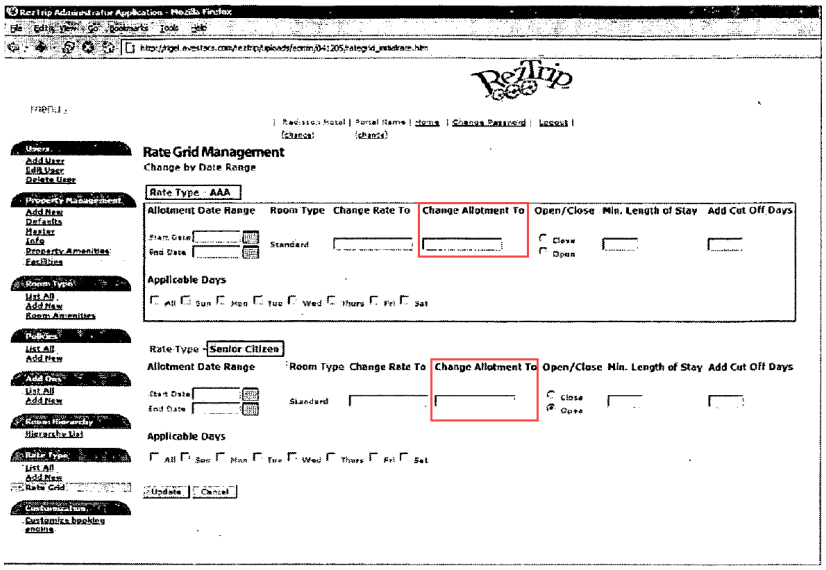


Figure 40

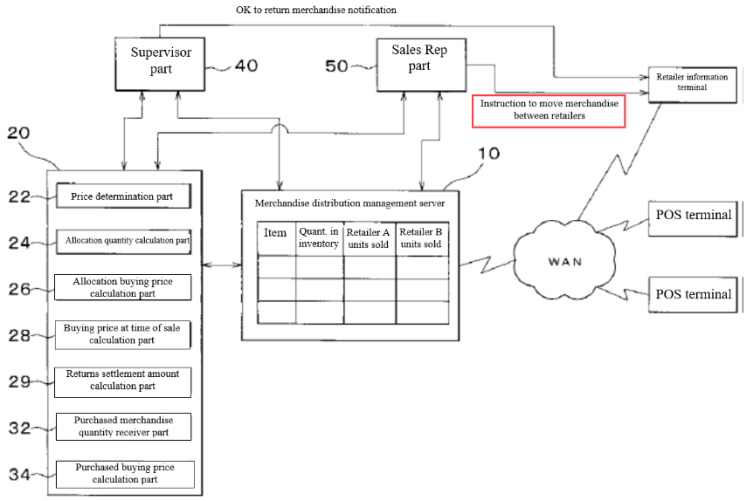
EX1004, Fig.40; *see also* EX1004, Figs.41-43.[40]

EX1029, 134-135 ("update the booking limits…*forecasting module* generates and updates for all products/fare class combinations"), 101 ("use a combination of allocations and price rises to manage the shortage."), 137-138 ("The range of costs…represents a channel-pricing opportunity…steer demand…").

EX1005, ¶[0013]-¶[0014], ¶[0034]-¶[0035] ("***transfer items*… *retailers with a high sales progress rate. A computer…*** maximize sales…."), cl.4.

[40] Figs.5-6 and 40-43 are for obviousness.

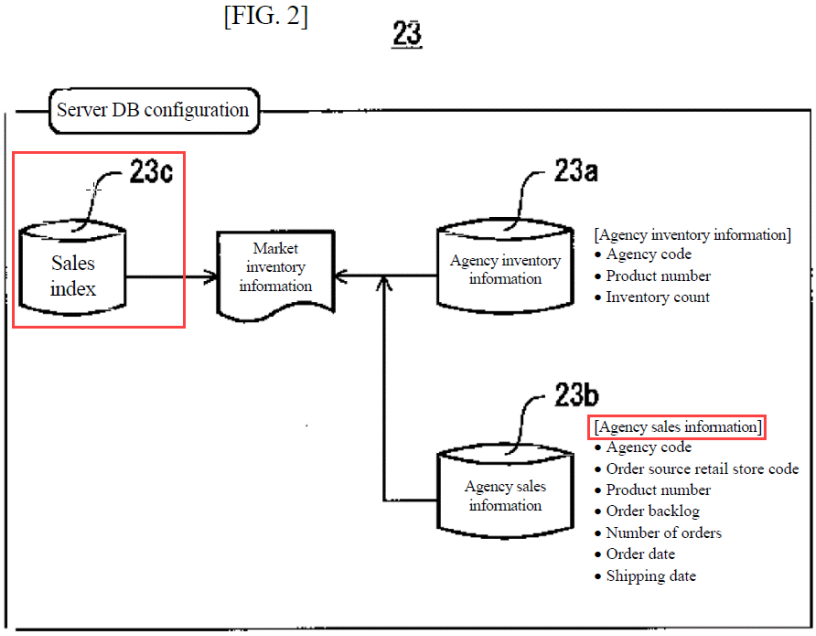
Fig. 3



EX1005, Fig.3.

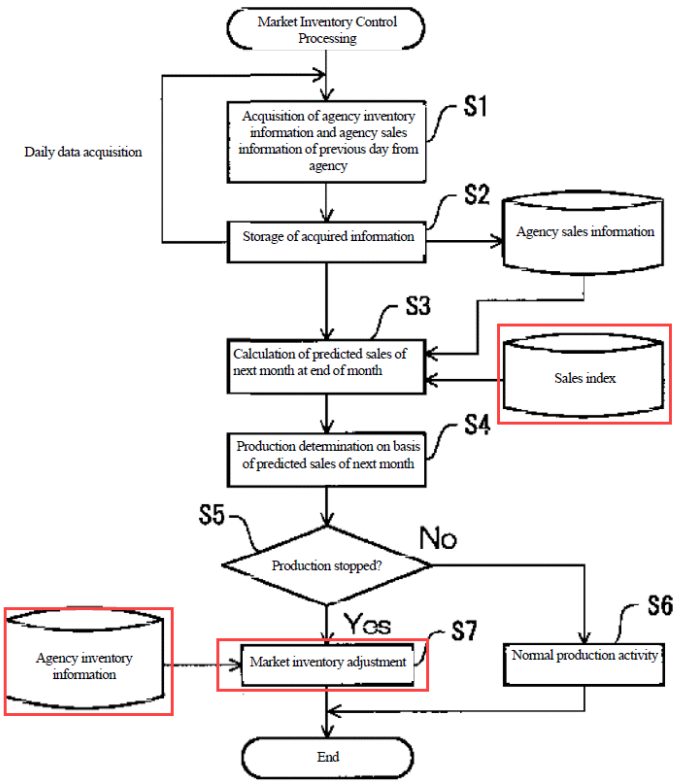
EX1007, Summary, ¶[0009]-¶[0010], ¶[0014], ¶[0025]-¶[0026], ¶[0045]-¶[0046] ("***send instructions for product transfer…***"), cl.1, Fig.1.

[FIG. 2]



EX1007, Fig.2.

[FIG. 3]



EX1007, Fig.3.

As discussed, POSITA would have understood that Jacob expressly discloses automatically adjusting as claimed. *See* cl.9[f]. For the same reasons, though both are not required, and based on the citations above, **POSITA would have understood Jacob expressly discloses, as an alternative to actions triggered by human input—automatically "modifying" as claimed, based on the query being answered in the affirmative.** EX1003, ¶¶389-390, 403-404.

If it is argued further disclosure is required, as discussed in cl.9[pre], Jacob in light of Phillips (in the recited combinations) renders obvious carrying out all of Jacob's functions (including "modifying…")[41] automatically. EX1003, ¶405.

Moreover, if argued further disclosure of automatically "modifying… by re-allocating…" as claimed is required (*see* n.27), **it would have been obvious based on Jacob or Jacob-Phillips in view of (1) Tamura or (2) Kono**. EX1003, ¶¶409, 418.[42] Jacob discloses "computer program systems [including "code segments"] configured to manage the [system's] data and perform the methods/functions," which "may be implemented in computer software [and/or] hardware" including "on general purpose computers." EX1004, ¶¶[0082]-[0083]; *see also* EX1004, ¶¶[0131]-[0133], [0191]; EX1003, ¶¶415, 426. **Tamura** expressly discloses "a merchandise distribution management server… that executes each step" (EX1005, ¶[0014]) and "a sales rep part… that manages the sales progress rate for each re-tailer… based on the allocation quantity; and… is authorized to transfer the items from retailers having a low sales progress relative to the allocation quantity to re-tailers having a high sales progress rate." EX1005, ¶¶[0013], [0034]-[0035], cl.4,

[41] *See* n.27*, supra.*

[42] *See* supra n.26; EX1003, ¶¶414, 424.

Fig.3; EX1003, ¶416. **Kono** expressly discloses ***automatically*** "instructing transfer of inventory product from the agency where sales have fallen to the agency that still sells." EX1007, ¶¶[0013], [0025], [0045]-[0046], cl.3, Fig.3; EX1003, ¶427. **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Jacob's or Jacob-Phillips's disclosed inventory management and distribution system (in the recited combinations) using (1) Tamura's or (2) Kono's beneficial teachings of *automatically* modifying, via a computerized network, a linkage of items to the respective distribution channels by re-allocating items to or from said each of the respective distribution channels from or to the other distribution channels based on the query being answered in the affirmative** such that in the resulting system modifying the linkage occurs automatically without the need for user instructions. EX1003, ¶¶416, 428. This would have beneficially furthered both Jacob's express goal of "maximiz[ing] revenue," and, for (1), Tamura's of "reducing lost sales opportunities," and, for (2) Kono's of "effectively utiliz[ing] market inventory by collectively controlling the inventory control of each agency" and reducing "unnecessary inventory on the market" by, *e.g.*, reducing the response time/increasing system speed, thus better "insur[ing] maximum use of time-dependent inventory" (EX1004, ¶[0002]) and "reducing lost sales opportunities" (EX1005, ¶[0001]).

EX1003, ¶¶416, 428. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS.[43] EX1003, ¶¶416, 428-439.

14	**Ground 1-16 render obvious cl.14.** *See* cl.9. **Jacob discloses rendering** (*e.g.*, "distribut[ing]… to the sales channels," "communicat[ing] to the selling channels," etc.; "display[ing]" to "end users" "Property rate information, availability information… and other information")**, via a channel connection interface corresponding to each online distribution channel** (*e.g.*, portion of the "computer program system[]"—"implemented in computer software,… hardware or combinations"—including "the communication code segment or… segments" "configured to manage communications between the system and a plurality of sales channels" and the "user interaction code segment configured to manage user interaction that delivers output to users"; *see also* cl.9[a] ("computerized network"))**, transportation services inventory data pertaining to the linked items in the transportation services inventory** (*e.g.*, "pricing and inventory information")**.** EX1003, ¶¶480-487. **Tamura discloses rendering** (*e.g.*, providing/making available for "view[ing]" (from, *e.g.*, WAN/parts 10, 20) upon request made "on… retailer's information terminal"; providing (*e.g.*, from part 50) via "Instruction to move merchandise between retailers"; providing (*e.g.*, from part 40) "OK to return merchandise notification" (*see* Fig.3))**, via a channel connection interface corresponding to each distribution**

[43] *See* n.35. Further, POSITA would have been well-aware of modifying the linkage of items in the inventory by re-allocating the items between online distribution channels. *E.g.*, EX1010, 6:53-57, 7:75-61; EX1012, ¶[0029]. EX1003, ¶416.

	channel (*e.g.*, portion of processing system (*e.g.*, "computers or information processing terminals," etc.) enabling communication via "communication line such as a wide area network (WAN) or Internet communication network" connecting parts 20 and 10 to/network such as "communication line network" connecting "Sales Rep part" 50 to/"communications network" connecting "Supervisor part" 40 to retailers' (distribution channel's) "Retailer information terminal" (*see* Fig.3); *see* cl.9[pre])**, inventory data pertaining to the items in the inventory** (*e.g.*, "reference retail price," quantity of inventory allocated to/being transferred from retailer (distribution channel))**.** EX1003, ¶¶489-493. **Kono discloses rendering** (*e.g.*, presenting/proffering/"send[ing]"/"propos[ing]")**, via a channel connection interface corresponding to each distribution channel** (*e.g.*, portion of "agency communication control computer 21" enabling communication via "communication network"/"network (public line)" to "terminals… installed at each agency"/"agency-side terminals 1a, 1b, 1c"; *see* cl.9[pre])**, inventory data pertaining to the items in the inventory** (*e.g.*, "inventory adjustment" instructions, such as directing "resale of the product from the agency 'ffff' to the agency 'bbbb'")**.** EX1003, ¶¶498-502. EX1004, ¶[0007] ("***distribute… to the sales channels***…."), ¶[0008], ¶[0063], ¶[0072], ¶[0082], ¶[0084], ¶[0125], ¶[0133], ¶[0185], ¶[0191] ("***communicated to the selling channels…***"), cls.5-6.

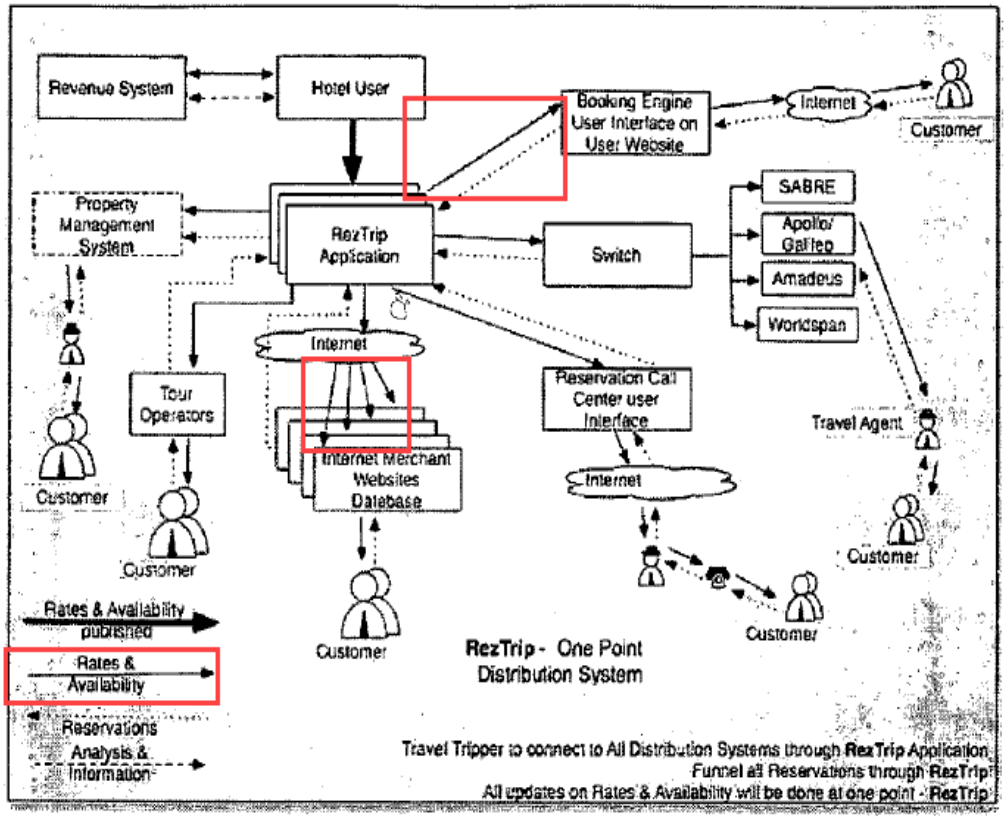
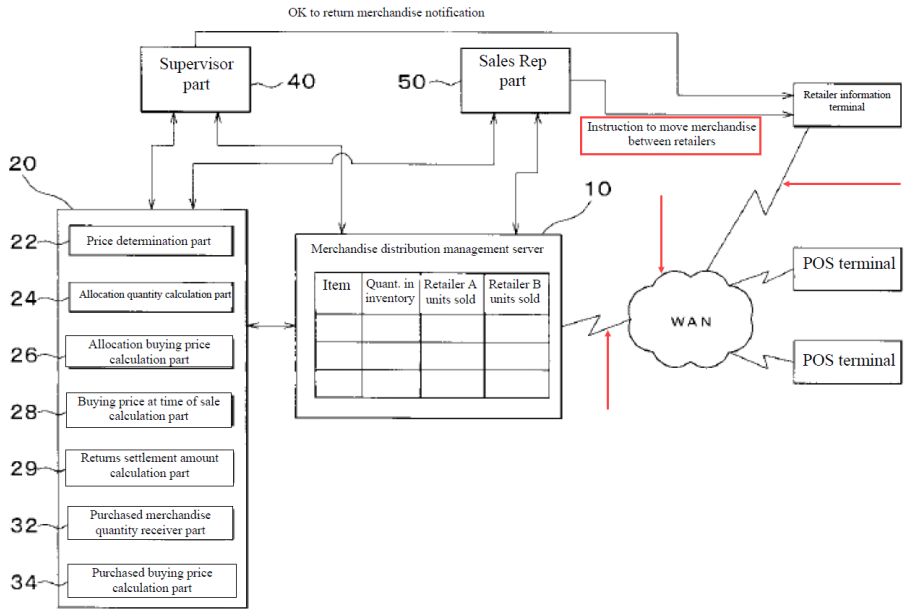


Figure 7

EX1004, Fig.7.

EX1005, ¶[0017] ("Fig. 1… ***(WAN)…*** server 10 records… inventory...") (discussing first embodiment), ¶[0031] ("Fig. 3… ***supervisor part 40 and to the sales rep part 50….***") (discussing second embodiment, building on discussion of first); ¶[0034] ("***computers… supervisor part… connected to… sales rep parts….***"), Fig.3 ("Sales Rep part" sending "Instructions to move merchandise…"), ¶[0035] ("view the reference retail price…on the retailer's information terminal."), cl.4.

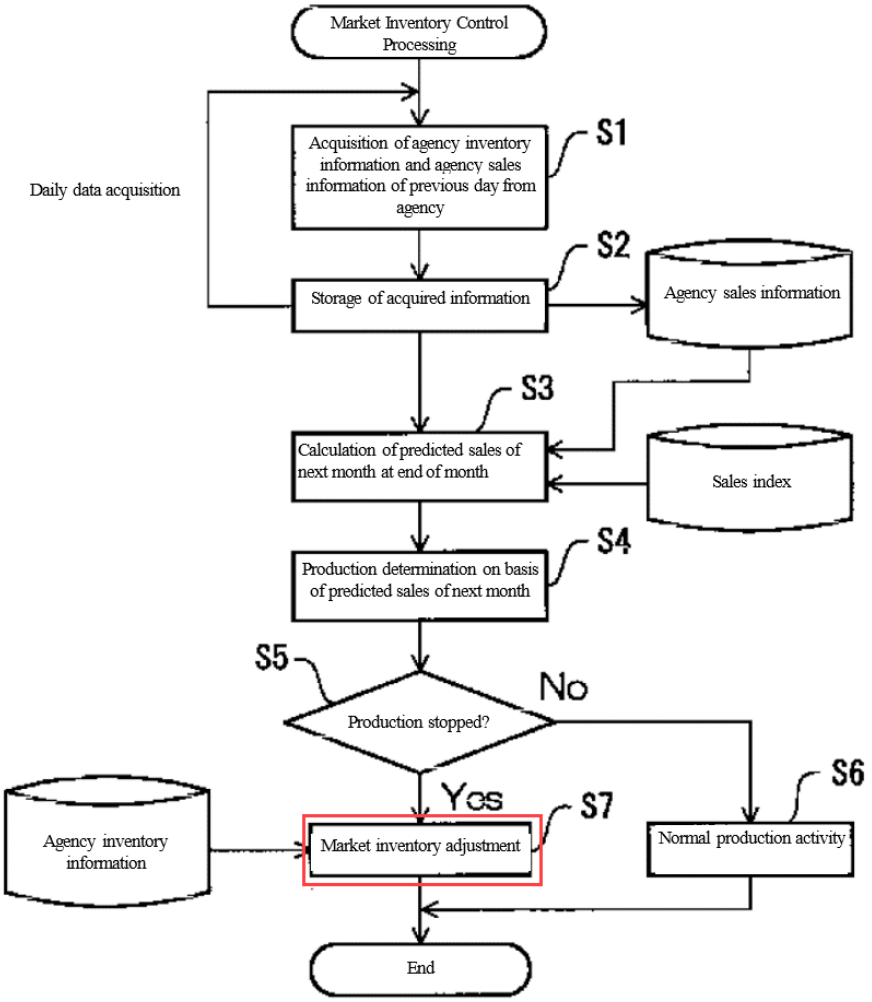
Fig. 3



EX1005, Fig.1.

EX1007, ¶[0009] ("***terminal installed at each agency…***"), ¶[0010], ¶[0014], ¶[0025] ("***agency communication control***..."), ¶[0040], ¶[0043], ¶[0045] ("***resale of the product from the agency 'ffff' to… 'bbbb'***"), ¶[0046] ("***agency-side terminals***...."), Figs.1, 3:

[FIG. 3]



See also EX1007, cls.1&3 ("instruct[ing] transfer").

Jacob expressly discloses this additional limitation. EX1003, ¶487. To the extent further disclosure is required, **this would have been obvious from Jacob (including the combined systems of cl.9) in view of (1) Tamura or (2) Kono**.

EX1003, ¶¶488, 497.[44] **POSITA would have found it obvious, straightforward, and advantageous to implement Jacob's above disclosures (in the recited combinations) using Tamura's or Kono's express disclosures** (cl.14 (chart)) **of the additional limitations of cl.14.** EX1003, ¶¶495, 504. This would have beneficially furthered Jacob's express goal of "maximiz[ing] revenue," and, for (1), Tamura's of "reducing lost sales opportunities," and, for (2) Kono's of "effectively utiliz[ing] market inventory…" and reducing "unnecessary inventory…" by, *e.g.*, allowing the resulting system to quickly and efficiently render transportation services inventory data to each sales channel, including in order to change inventory allocations and/or pricing, "take advantage of many different sales channels" (EX1004, ¶[0002]) and " respond quickly to the dynamic nature of the marketplace" (EX1004, ¶[0005]). EX1003, ¶¶495, 504. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶495-497, 504-506.

15	**Grounds 1-16 renders obvious cl.15.** *See* cls.9, 14. **Jacob discloses generating a data structure** ("data" stored in "database… configured to manage hotel data") **that is used by the channel**

[44] *See supra* n.26; EX1003, ¶¶494, 503.

connection interface (*see* cl.14) **to perform the linking** (*see* cl.9[a]). EX1003, ¶¶507-512.

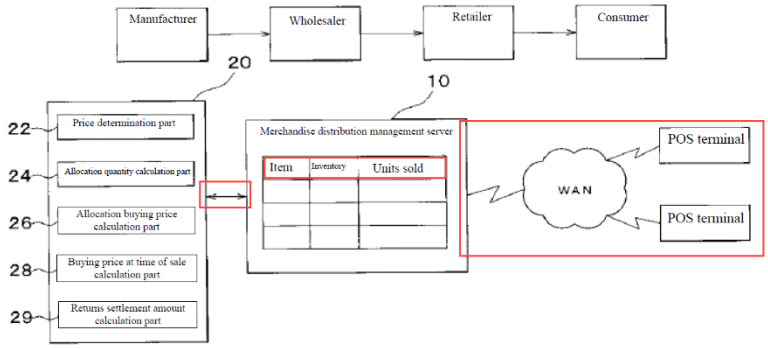
Tamura discloses generating a data structure that is used by the channel connection interface to perform the linking (*e.g.*, storing data structure reflecting "merchandise allocated [to retailers] by merchandise entities," "allotted quantity" in "merchandise distribution management server"). EX1003, ¶¶514-518, 520.

Kono discloses generating a data structure that is used by the channel connection interface to perform the linking (*e.g.*, "inventory count… saved in the agency inventory information database"[45]). EX1003, ¶¶524-532, 534.

EX1004, ¶[0082], ¶[0084], ¶[0191].

EX1005, ¶[0014], ¶[0017]-¶[0020], ¶[0024]-¶[0025], ¶[0030]-¶[0031]("merchandise allocated…"), ¶[0039], cl.1, cl.5.

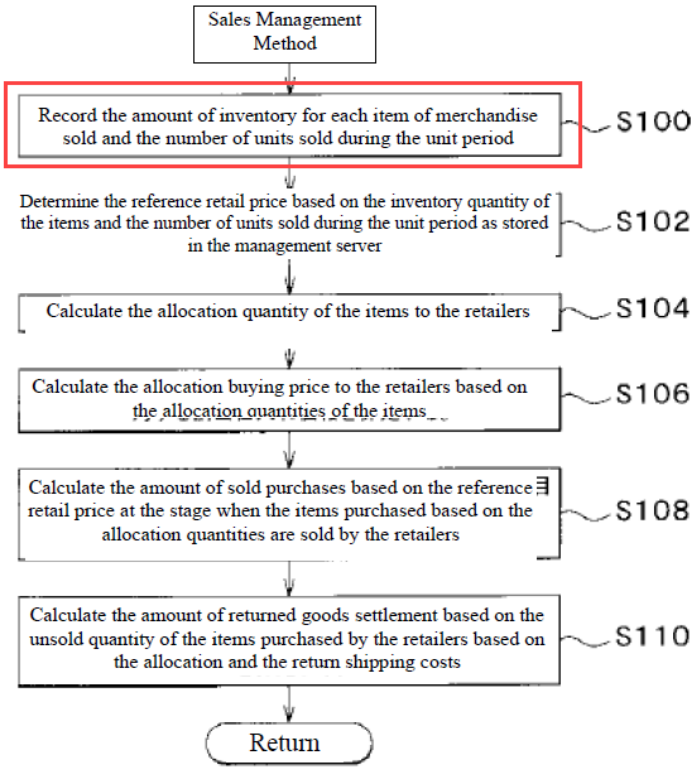
Fig. 1



EX1005, Fig.1.

[45] POSITA would have understood this uses a data structure to do so. EX1003, ¶533.

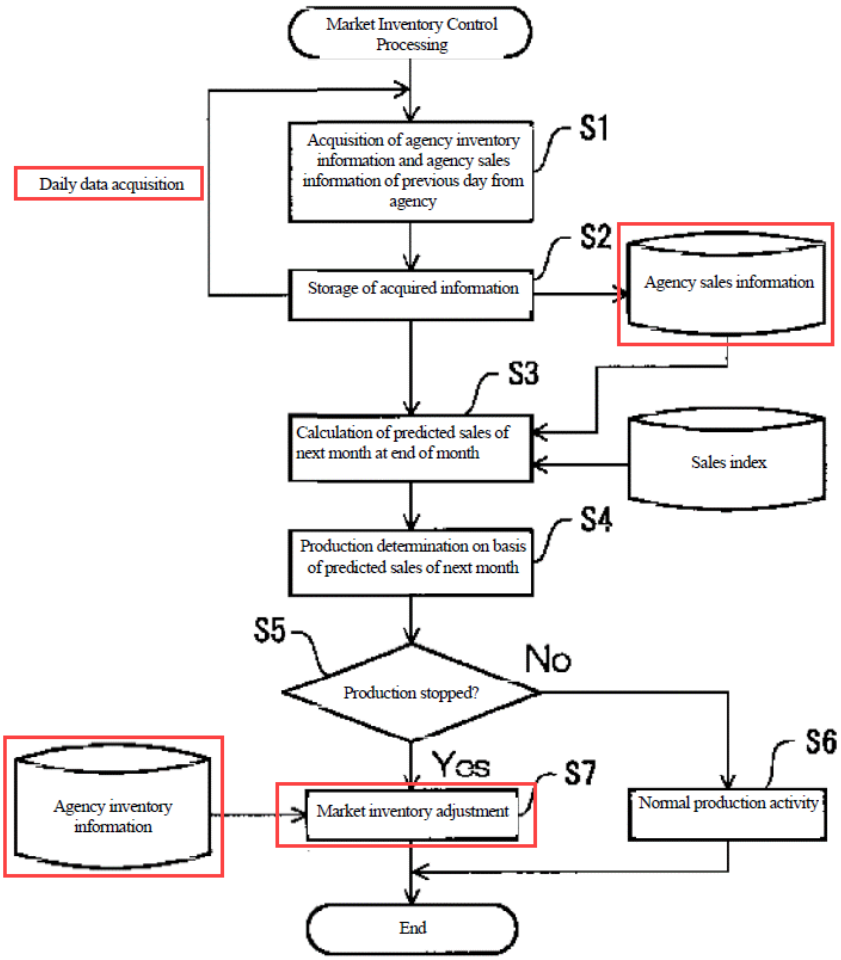
Fig. 2



EX1005, Fig.2; *see also* EX1005, Fig.3.

EX1007, ¶[0009], ¶[0010], ¶[0014], ¶[0025], ¶[0026] ("FIG. 2… ***inventory count are saved in the agency inventory information database…***"), ¶[0039], ¶[0041]-¶[0043], ¶¶[0045]-[0046], Figs.1-4:

[FIG. 3]



[FIG. 4]

Good Class.	Product No.	Product Name	Agency Name	Inventory Count	Order Backlog	Shipping Volume	Inventory Date
KC0742	AAAAAA	Sorting pedal bin #40	aaaa	100	0	3	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	bbbb	336	2390	2351	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	cccc	560	20	15	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	dddd	365	1200	1350	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	eeee	10	10	10	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	ffff	2500	250	250	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	gggg	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	hhhh	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	iiii	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	jjjj	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	kkkk	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	llll	9	5	10	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	mmmm	45	5	5	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	nnnn	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	oooo	9	3	20	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	pppp	5	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	qqqq	96	20	85	8/22/2000

POSITA would have understood that Jacob's disclosure of storing these data is an express disclosure of generating a data structure. EX1003, ¶512. At minimum, POSITA would have understood that Jacob necessarily, and thus inherently, generates a data structure to, *e.g.*, store, in its disclosed "database," data including "inventory data" and "sales channel data." EX1003, ¶511. Alternatively, if argued that further disclosure is required, **POSITA would have found it obvious, straightforward, and advantageous to implement Jacob's above-discussed express disclosures (in the recited combinations) of inventory associated with channels (including the RezTrip computer/server) by further generating a data structure that is used by the channel connection interface to perform the linking.** *See also* cl.9[f]; EX1003, ¶511. Using a data structure would have beneficially furthered both Jacob's express goal of "maximiz[ing] revenue" by, *e.g.*, facilitating the system's tracking of the initial allocation of such inventory, tracking of ongoing sales and inventory levels, and storing and modifying allocations in conjunction with the systems database. EX1003, ¶511. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality to yield predictable results with REOS. EX1003, ¶¶511-512.

To the extent further disclosure of cl.15's additional limitation is required, **this would have been obvious from Jacob (in the recited combinations) in view of (1) Tamura or (2) Kono**. EX1003, ¶¶513, 523.[46] Jacob discloses generating and storing "data" in a "database configured to manage hotel data comprising" many kinds of data (*e.g.,* inventory and availability data) associating inventory with individual sales channels. *E.g.*, EX1004, ¶¶[0082], [0084], [0191]; EX1003, ¶¶519, 533. POSITA would have understood from the above-discussed disclosures (cl.15 (Chart)) that Tamura and Kono expressly disclose generating data structures. EX1003, ¶¶520, 534. In addition, POSITA would have understood that Tamura and Kono necessarily, and thus inherently, generate a data structure by, *e.g.*, storing data in its "merchandise distribution management server" (Tamura) or "inventory information database" (Kono). EX1003, ¶¶520, 534. **POSITA would have found it obvious, straightforward, and advantageous to implement Jacob's above-discussed express disclosures (in the recited combinations) of inventory associated with channels using either (1) Tamura's or (2) Kono's express disclosures** (cl.15 (chart)) **of generating a data structure that is used by the channel connection interface to perform the linking.** *See also supra* cl.9[f]; EX1003, ¶¶521, 535. This use of Tamura's or Kono's data structure would have beneficially

[46] *See supra* n.26; EX1003, ¶¶519, 533.

facilitated the system's tracking the initial allocation of such inventory, tracking ongoing sales and inventory levels, and storing and modifying allocations in conjunction with the system's database, and furthered Jacob's express goal of "maximiz[ing] revenue" and, for (1), Tamura's of "reducing lost sales opportunities," and, for (2) Kono's of "effectively utiliz[ing] market inventory by collectively controlling the inventory control of each agency" and reducing "unnecessary inventory on the market." EX1003, ¶¶521, 535. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality, yielding predictable results with REOS. EX1003, ¶¶521-522, 535-537.

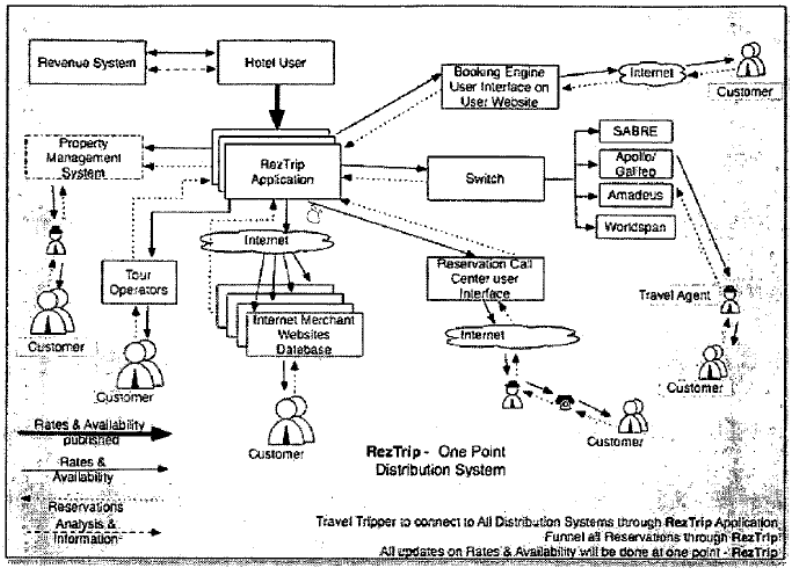
(b) Dependent Claims 19-20 (Including Independent Claim 17)

Claim 14 (which depends from claim 9) is the Beauregard claim analog of computing server claim 19 (which depends from claim 17). Thus, the arguments and evidence provided for claim 14 include the arguments and evidence establishing claim 19 is also unpatentable as obvious based on the same grounds, with certain additions for claim 17 (from which claim 19 depends) provided below. EX1003, ¶¶551-608. Claim 20 depends from 19 and is also discussed below.

17[pre][47]	**Jacob discloses a computing server**[48] (*e.g.*, "general purpose computer[]"/"computer" carrying out server-side functions (*e.g.*, operating "computerized database such as… SQL Server™"; "configured to perform certain methods and/or functions of the invention") accessible by other networked computers within, *e.g.*, "plurality of computers connected… through a… network" (*see* Fig.7)) **that manages** (*e.g.*, "invention may be implemented in computer software,… hardware or combinations"; "computer program systems configured to manage the data and perform the methods/functions of the invention"; "managing") **online bookings** (*e.g.*, "reservations" (*see* cl.9[b])) **for transportation services inventory** (*e.g.*, "time-dependent inventory such as hotel rooms, rental automobiles, and airline seats [etc.]")**.** EX1003, ¶¶553-564. ***See also*** **Phillips, cl.9[pre].** EX1004, Abstract, ¶[0001]-¶[0002], ¶[0006], ¶[0078], ¶[0082] ("***computer program systems configured to manage the data and perform the methods/functions … manage hotel data, and other time-dependent inventory data… plurality of computers….***"), ¶[0083].

[47] To the extent deemed limiting, the preamble is disclosed. *See* n.15.

[48] '598 states a "'[c]omputer' is any apparatus capable of carrying out data processing functions and includes a computer system, or a collection of one or more apparatus," EX1001, 39:12-16, and a "'[s]erver' is a computer or other data processing apparatus that is capable of carrying out server-side operations," EX1001, 39:25-26. As discussed below, Jacob's disclosed "computers," carry out server-side operations.

	 Figure 7 EX1004, Fig.7. *See* cl.9[b].

For explanation, *see* cl.9[pre] (including discussion of Jacob in view of Phillips).

EX1003, ¶¶551-564.

17[a]	**Jacob discloses the computing server comprises a memory device** (*e.g.*, "computer readable medium such as hard disk storage, compact disk storage, digital video disk storage, random access memory, dynamic random access memory, read-only memory, static random access memory, and magnetic tape"; "hard disk storage") **and at least one processor** (*e.g.*, "central processing unit") **configured to perform a method for managing the online bookings** ("method for managing time-dependent inventory such as hotel rooms, rental automobiles, and airline seats as well as associated items"; *see* cl.9[b]) **for the transportation services inventory** (*e.g.*, "code segments comprise a system to manage the sales, pricing, and inventory information related to time-dependent items, such as hotel rooms, rental automobiles, airline seats, [etc.]"; "computer program systems configured to manage the

	data and perform the methods/functions of the invention"; *see* cl.17[pre]). EX1003, ¶¶565-573. EX1004, Abstract ("***system and method for managing time-dependent inventory such as hotel rooms, rental automobiles****…*"), ¶[0001], ¶[0002], ¶[0006] ("***code segments comprise a system to manage the sales, pricing, and inventory information….***"), ¶[0078], ¶[0082] ("***computer program systems configured to manage the data and perform the methods/functions… code segments… stored on a computer readable medium such as hard disk storage…***"), ¶[0083] ("***central processing unit…***"), ¶[0084] ("***a computerized database****…* SQL Server™… ***database is configured to manage hotel data****….*"), cl.7; *see also* EX1004, cls.8-12, Fig.7. *See* cl.9[b].

For limitations 17[b]-17[h], see limitations 9[a]-[g], respectively. *See* EX1003, ¶¶574-604.

20[a]	**Grounds 1-16 render obvious cl.20.** *See* cls.9, 17, 14. For example and explanation, see cl.15 above. EX1003, ¶¶614-618.
20[b]	**Jacob discloses storing the data structure in the memory device** (*e.g.*, storing "data" in "database" that is stored in, *e.g.*, "computer readable medium"/"hard disk storage" (*see* cl.17[a]) and is "configured to manage hotel data comprising" "inventory data," "availability data," "audit trail data," "sales channel data," "communications data," and "other data"). EX1003, ¶¶619-624. **Tamura discloses storing the data structure in the memory device** (*e.g.*, storing structure holding data used to "calculate[] the allocation quantity of the item for each retailer" (and reflecting, *e.g.*, "merchandise allocated by merchandise entities," "allotted quantity," "item number, allocated buying price, reference retail price, sold purchase amount," etc.) in "stor[age]"/memory device of "merchandise distribu-

tion management server"; *e.g.*, Figs.1, 3 (illustrating data table (columns/rows) stored in merchandise distribution management server 10)). EX1003, ¶¶626-631.

Kono discloses storing the data structure in the memory device (*e.g.*, "data of… saved in the agency inventory information database" in "stor[age]"/memory device of, *e.g.*, "database server"; *e.g.*, Figs.2 (illustrating disk storage (*e.g.*, 23a/b/c) in database server), 3, 4 ("example of a form" with stored data)). EX1003, ¶¶635-639.

EX1004, ¶[0082] ("***configured to manage hotel data… inventory data…. embodiments… stored on a computer readable medium such as hard disk storage….***"), ¶[0083]-¶[0084] ("***… database is configured to manage hotel data*** … inventory data,… sales channel data… other data…."), cl.7 ("***computer readable medium comprising a hotel pricing and inventory management system….***"), Fig. 8; *see also* EX1004, cls.8-12.

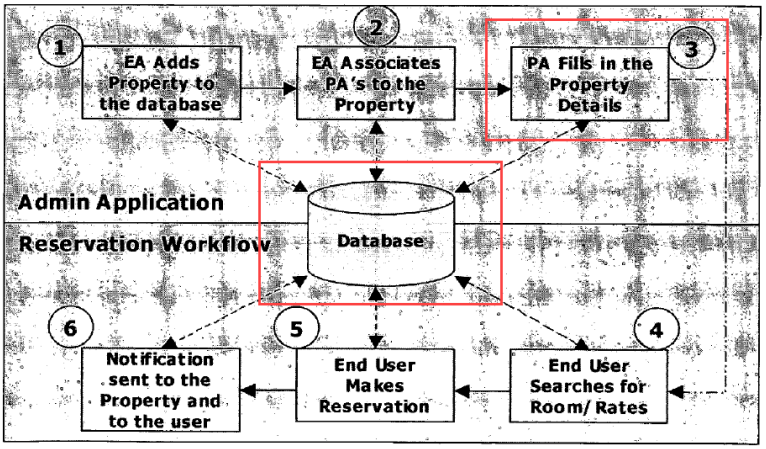
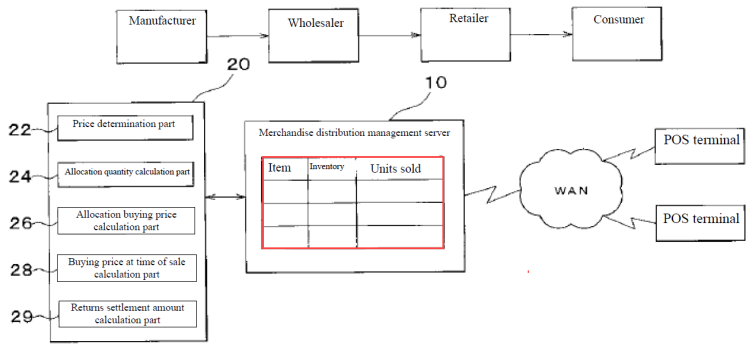


Figure 8

EX1005, ¶[0018], ¶[0020], ¶[0023]-¶[0024], ¶[0030]; *see also* EX1005, ¶[0041].

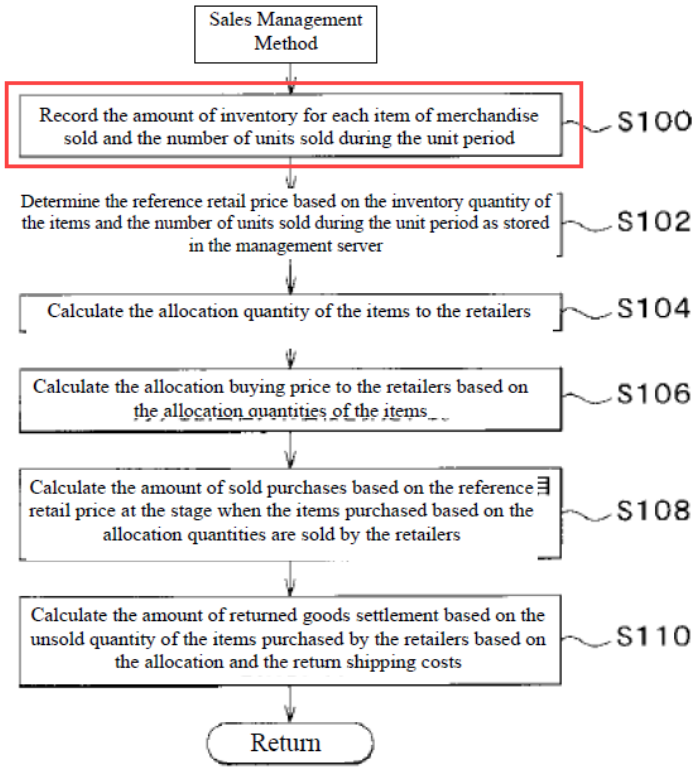
EX1005, cl.1, cl.5.

Fig. 1



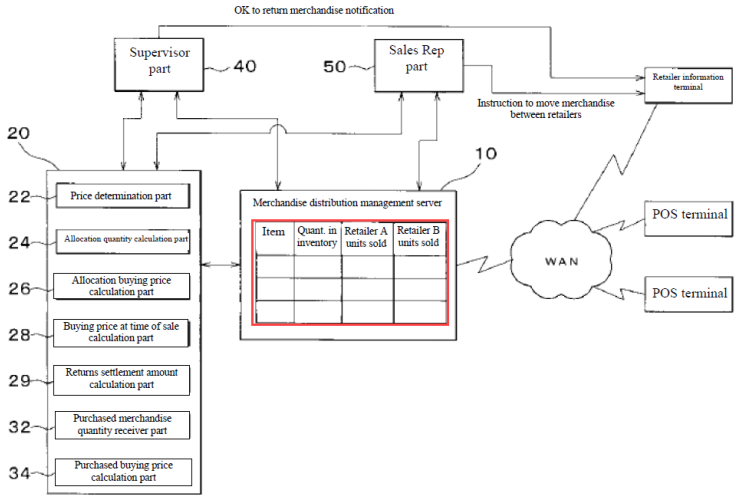
EX1005, Fig.1.

Fig. 2



EX1005, Fig.2.

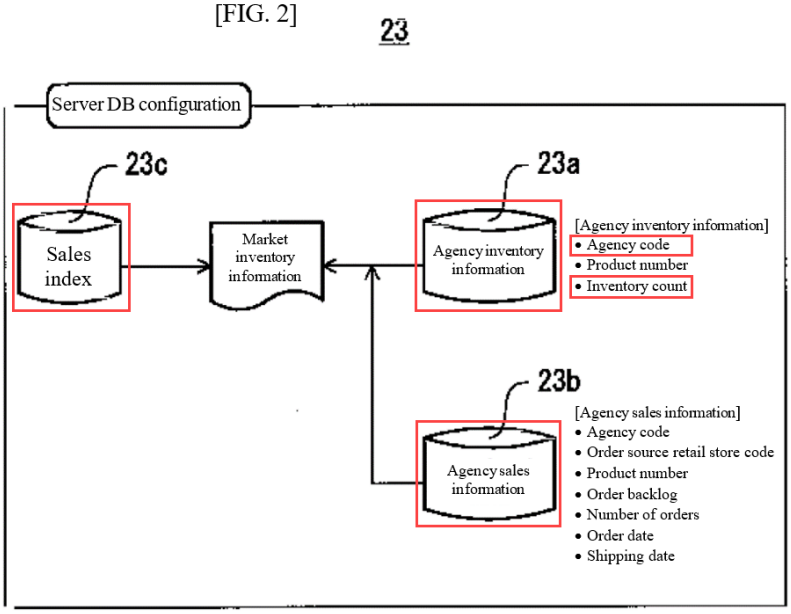
Fig. 3



EX1005, Fig.3.

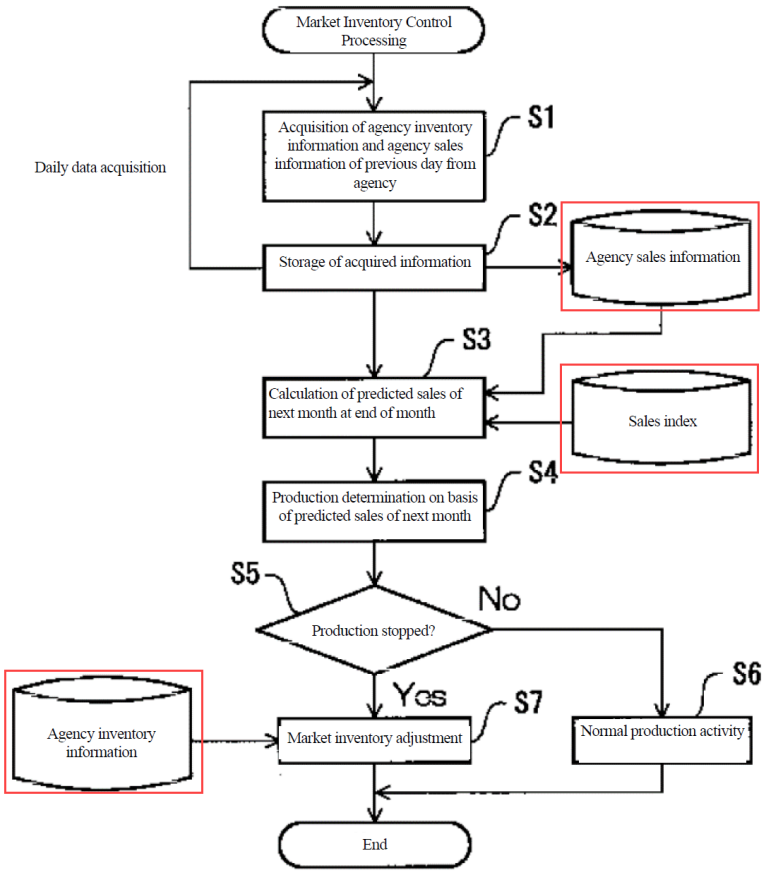
EX1007, ¶[0026] (" ***analysis means, based on the product shipment information and the sales index of each agency stored in the agency shipment information database and the sales index database… an inventory count are saved in the agency inventory information database 23a….***"), ¶[0039] ("***inventory information is stored… database 23a….***"), ¶[0046], cl.2.

[FIG. 2]



EX1007, Fig.2.

[FIG. 3]



EX1007, Fig.3.

[FIG. 4]

Good Class.	Product No.	Product Name	Agency Name	Inventory Count	Order Backlog	Shipping Volume	Inventory Date
KC0742	AAAAAA	Sorting pedal bin #40	aaaa	100	0	3	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	bbbb	336	2390	2351	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	cccc	560	20	15	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	dddd	365	1200	1350	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	eeee	10	10	10	8/21/2000
KC0742	AAAAAA	Sorting pedal bin #40	ffff	2500	250	250	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	gggg	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	hhhh	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	iiii	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	jjjj	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	kkkk	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	llll	9	5	10	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	mmmm	45	5	5	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	nnnn	0	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	oooo	9	3	20	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	pppp	5	0	0	8/22/2000
KC0742	AAAAAA	Sorting pedal bin #40	qqqq	96	20	85	8/22/2000

EX1007, Fig.4.

Jacob expressly discloses this limitation. EX1003, ¶¶620, 624. To the extent further disclosure of storing the data structure in the memory device is required, **this would have been obvious from Jacob (in the recited combinations of cls.9/17) in view of (1) Tamura or (2) Kono**. EX1003, ¶¶625, 634.[49] **POSITA would have found it obvious, straightforward, and advantageous to implement Jacob's system (or the recited combinations of cls.9/17)** (cls.15, 20 (chart)) **using Tamura's or Kono's express disclosures** (cls.15, 20 (chart)) **of storing a data structure in a memory device.** EX1003, ¶¶633, 641. The use of a data structure (as expressly disclosed in Tamura/Kono) would have beneficially furthered both Jacob's express goal of "maximiz[ing] revenue," and, for (1), Tamura's of "reducing lost sales opportunities," and, for (2) Kono's of "effectively utiliz[ing] market inventory by collectively controlling the inventory control of each agency" and reducing "unnecessary inventory on the market" by, *e.g.*, facilitating tracking of the initial inventory allocation and ongoing sales/inventory levels, and storing and modifying allocations in conjunction with the system's database. EX1003, ¶¶633, 641. For POSITA it would have been routine to choose such implementation, and clear it would work and provide the expected functionality to yield predictable results with REOS. EX1003, ¶¶633, 641-642.

[49] *See supra* n.26; EX1003, ¶¶632, 640.

(c) Dependent Claims 6-7 (Including Independent Claim 1)

Claims 14-15 (and claim 9) are the Beauregard claim analogs of method claims 6-7 (and claim 1), respectively. Thus, the arguments and evidence provided for claims 14-15 include the arguments and evidence establishing claims 6-7 are also unpatentable as obvious based on the same grounds. EX1003, ¶¶643-712 (paralleling previous analysis).

* * *

Petitioner is aware of no evidence from PO of secondary considerations with a nexus to '598, and reserves the right to address any PO may raise. *Petroleum Geo-Servs. Inc. v. WesternGeco LLC*, IPR2014-01475, Pap.18, 28 (Mar. 17, 2015) (secondary considerations evidence "must be *first developed… by Patent Owner*"). EX1003, ¶713.

VII. THE BOARD SHOULD NOT EXERCISE §314(a) DISCRETION

The *Fintiv* factors do not support denial.

A. Stay Is Likely Upon Institution

Uber intends to move for a stay after institution. The judge assigned in the parallel litigation has granted stays pending IPR where, as here, fact discovery was ongoing and expert discovery had not yet begun. *E.g.*, *Int'l Bus. Machs. Corp. v. Rakuten, Inc.*, No. 21-461-GBW, 2022 WL 17848779, at *12 (D. Del. Dec. 22,

2022); *Cisco Sys. v. Ramot at Tel Aviv University, Ltd*, No. 21-1365-GBW, 2023 WL 315615, at *2-3 (D. Del. Jan. 19, 2023). Thus, a stay is likely if IPR is instituted, and, at minimum, this factor does not support denial.

B. Median Time to Trial Is Nine Months After the Statutory Deadline

As the *Interim Procedure for Discretionary Denials* explains, "scheduled trial dates are unreliable" and "the PTAB will consider the [district's] ***median*** time from filing to disposition…." https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf (June 21, 2022) ("Guidance"), 3, 8. Even when, as here, a trial date is set, that ***median*** time-to-trial, when longer, is the governing metric. *See Apple Inc. v. Arigna Tech. Ltd.*, IPR2022-00651, Pap.12, 9-12 (Oct. 6, 2022) (factor weighed against denial where trial scheduled *before* FWD, but ***median*** time-to-trial about a month *after* deadline). In Delaware, this median was 34.9 months as of September 2022 (EX1017, 14), which ***would not yield a trial date*** for this June 29, 2022 litigation until approximately ***late May, 2025***—approximately ***seven months after the estimated October 2024 FWD deadline***. *Novartis Pharms. Corp. v. Shilpa Pharma, Inc.*, IPR2022-00886, Pap.13, 41 (Oct. 26, 2022) (factor weighed against denial where trial scheduled ten days before FWD, but me-

dian time-to-trial was "well past the statutory [FWD] date"); *Google LLC v. Jawbone Innovations, LLC*, IPR2022-01060, Pap.12, 12-13 (Jan. 3, 2023) ("*Jawbone*"). *Fintiv* factor two weighs strongly against denial.

C. There Has Not Been Significant Investment in the Parallel Proceeding Because It Is at an Early Stage

The parallel proceeding is at an early stage. The claim construction hearing is not until August, 2023. EX1018, 15. Fact discovery will not close until January, 2024; no expert reports or depositions have been completed; and, but for a Rule 12(c) motion, substantive motion-practice is yet to come. EX1018; *Jawbone*, 13-14. This factor thus weighs against denial. *Lite-On Tech. Corp. v. Sensor Elec. Tech., Inc*, IPR2022-00780, Pap.11, 11 (Oct. 28, 2022); *see also Extractiontek Sales LLC v. Gene Pool Techs., Inc.*, IPR2022-00832, Pap.15, 10-11 (Oct. 31, 2022).

D. No Substantial Overlap Between Issues Will Remain

The Grounds herein include references not asserted in litigation, including Franklin (EX1009) and Phillips (EX1029). Additionally, if instituted, Petitioner will not pursue invalidity against the Challenged Claims using any anticipation or obviousness ground that includes the primary reference, Jacob. EX1020; *Western Digital Techs., Inc. v. Viasat, Inc*., IPR2022-01171, Pap.13, 12 (Dec. 19, 2022) (addressing narrower *Sand Revolution* stipulation); *Ericsson Inc. v. Koninklijke KPN N.V.*, IPR2022-00079, Pap.9, 12-13 (May 25, 2022). And, estoppel will

broadly attach once the FWD issues, likely before trial. *Cf. Lite-On Tech.*, Pap.11, 12. This factor weighs against denial.

E. Same Petitioner and Defendant in Parallel Proceeding

Petitioner is the litigation Defendant, which favors institution. *Lite-On Tech.*, Pap.11, 12-13.

F. The Petition Presents a Compelling Case

As discussed, *Fintiv* factors 1-5 do not favor discretionary denial, and thus the Board need not reach this factor. *Commscope Techs LLC v. Dali Wireless, Inc.*, IPR2022-01242, Pap.23, 4-5 (Feb. 27, 2023). Nonetheless, the Petition raises a compelling case of unpatentability of the Challenged Claims. Thus, this factor weighs against discretionary denial.

VIII. CONCLUSION

Petitioner requests this Petition be instituted and the Claims found unpatentable/canceled. The Director is authorized to charge any fee deficiency (including for any paper hereafter filed in this proceeding by this firm) to Deposit Account DA604974.

Respectfully submitted:

/s/ *Megan Raymond* March 28, 2023
Megan F. Raymond

CLAIM APPENDIX

The claim listing below assigns element labels to the independent claim(s) corresponding to the mappings provided in the Petition.

Limitation	Text
1[pre]	A computer-implemented method of managing online bookings for transportation services inventory, the computer-implemented method comprising:
1[a]	linking, via a computerized network, each item in the transportation services inventory with one of a plurality of online distributions channels by allocating the item to the respective online distribution channel;
1[b]	receiving, from each of the plurality of online distribution channels in real time via the computerized network, sale data pertaining to the online bookings for the items in the transportation services inventory allocated to the respective online distribution channel;
1[c]	processing the sale data by carrying out calculations to obtain a performance rating for each of the respective online distribution channels;
1[d]	querying whether the performance rating of each of the respective online distribution channels is greater than a performance rating of other online distribution channels;
1[e]	and based on the query being answered in the affirmative, carrying out at least one of the following:
1[f]	adjusting, via the computerized network, a price of the items in the transportation services inventory allocated to each of the linked online distribution channels;
1[g]	and modifying, via the computerized network, the linkage of the items in the transportation services inventory to the respective online distribution channels by re-allocating the items in the transportation services inventory to or from said each of the online respective distribution channels from or to the other online distribution channels.
2	The computer-implemented method of claim 1, wherein the processing the sale data comprises determining whether or not a supply of transportation services inventory exceeds demand or vice versa per online distribution channel.

3	The computer-implemented method of claim 1, wherein the processing the sale data comprises calculating a sale rate index for each of online distribution channels in a form of a ratio of a number of items sold within a predetermined period of time via the respective online distribution channel to a number of items available for sale via the respective online distribution channel.
4	The computer-implemented method of claim 1, wherein the sale data is in a form of data relating to sale price of each item in the transportation services inventory.
5	The computer-implemented method of claim 1, wherein the sale data is in a form of data relating to a number of the items in the transportation services inventory sold within a predetermined period of time.
6	The computer-implemented method as claimed in claim 1, further comprising rendering, via a channel connection interface corresponding to each online distribution channel, transportation services inventory data pertaining to the linked items in the transportation services inventory.
7	The computer-implemented method as claimed in claim 6, further comprising generating a data structure that is used by the channel connection interface to perform the linking.
8	The computer-implemented method as claimed in claim 1, further comprising configuring a plurality of computing devices as the plurality of online distribution channels that distribute the transportation services inventory allocated to the respective online distribution channel.
9[pre]	A non-transitory computer-readable storage medium, the non-transitory computer-readable storage medium storing computer instructions to be implemented on at least one computing device including at least one processor, the computer instructions when executed by the at least one processor cause the at least one computing device to:
9[a]	link, via a computerized network, each item in transportation services inventory with one of a plurality of online distributions channels by allocating the item to the respective online distribution channel;

9[b]	receive, from each of the plurality of online distribution channels in real time via the computerized network, sale data pertaining to online bookings for the items in the transportation services inventory allocated to the respective online distribution channel;
9[c]	process the sale data by carrying out calculations to obtain a performance rating for each of the respective online distribution channels;
9[d]	query whether the performance rating of each of the respective online distribution channels is greater than a performance rating of other online distribution channels;
9[e]	and based on the query being answered in the affirmative, carrying out at least one of the following:
9[f]	adjust, via the computerized network, a price of the items in the transportation services inventory allocated to each of the linked online distribution channels;
9[g]	and modify, via the computerized network, the linkage of the items in the transportation services inventory to the respective online distribution channels by re-allocating the items in the transportation services inventory to or from said each of the online respective distribution channels from or to the other online distribution channels.
10	The non-transitory computer-readable storage medium of claim 9, wherein the at least one processor is further caused to determine whether or not a supply of transportation services inventory exceeds demand or vice versa per online distribution channel.
11	The non-transitory computer-readable storage medium of claim 9, wherein the processing the sale data comprises calculating a sale rate index for each of online distribution channels in a form of a ratio of a number of items sold within a predetermined period of time via the respective online distribution channel to a number of items available for sale via the respective online distribution channel.
12	The non-transitory computer-readable storage medium of claim 9, wherein the sale data is in a form of data relating to sale price of each item in the transportation services inventory.
13	The non-transitory computer-readable storage medium of claim 9, wherein the sale data is in a form of data relating to a number of the

	items in the transportation services inventory sold within a predetermined period of time.
14	The non-transitory computer-readable storage medium of claim 9, wherein the at least one processor is further caused to render, via a channel connection interface corresponding to each online distribution channel, transportation services inventory data pertaining to the linked items in the transportation services inventory.
15	The non-transitory computer-readable storage medium of claim 14, wherein the at least one processor is further caused to generate a data structure that is used by the channel connection interface to perform the linking.
16	The non-transitory computer-readable storage medium of claim 9, wherein the at least one processor is further caused to configure a plurality of computing devices as the plurality of online distribution channels that distribute the transportation services inventory allocated to the respective online distribution channel.
17[pre]	A computing server that manages online bookings for transportation services inventory, the computing server comprising:
17[a]	a memory device; and at least one processor configured to perform a method for managing the online bookings for the transportation services inventory, the method comprising:
17[b]	linking, via a computerized network, each item in the transportation services inventory with one of a plurality of online distributions channels by allocating the item to the respective online distribution channel;
17[c]	receiving, from each of the plurality of online distribution channels in real time via the computerized network, sale data pertaining to the online bookings for the items in the transportation services inventory allocated to the respective online distribution channel;
17[d]	processing the sale data by carrying out calculations to obtain a performance rating for each of the respective online distribution channels;
17[e]	querying whether the performance rating of each of the respective online distribution channels is greater than a performance rating of other online distribution channels;

17[f]	and based on the query being answered in the affirmative, carrying out at least one of the following:
17[g]	adjusting, via the computerized network, a price of the items in the transportation services inventory allocated to each of the linked online distribution channels;
17[h]	and modifying, via the computerized network, the linkage of the items in the transportation services inventory to the respective online distribution channels by re-allocating the items in the transportation services inventory to or from said each of the online respective distribution channels from or to the other online distribution channels.
18	The computing server of claim 17, wherein the processing the sale data comprises determining whether or not a supply of transportation services inventory exceeds demand or vice versa per online distribution channel.
19	The computer-implemented method as claimed in claim 17, wherein the method further comprises rendering, via a channel connection interface corresponding to each online distribution channel, transportation services inventory data pertaining to the linked items in the transportation services inventory.
20	The computer-implemented method as claimed in claim 19, further comprising (i) generating a data structure that is used by the channel connection interface to perform the linking and (ii) storing the data structure in the memory device.

CERTIFICATION UNDER 37 CFR §42.24(d)

Pursuant to 37 CFR §42.24(d), the undersigned certifies that this Petition complies with the type-volume limitation of 37 CFR §42.24(a). The word count application of the word processing program used to prepare this Petition indicates that the Petition contains 13,656 words, excluding the parts of the brief exempted by 37 C.F.R. §42.24(a).

Respectfully submitted:

/s/ *Megan Raymond* March 28, 2023
Megan F. Raymond

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the following documents has been served in its entirety on the patent owner as provided in 37 CFR §42.105 (*see also* §§1.33(c), 42.100):

Petition For *Inter Partes* Review of United States Patent No. 11,334,598 and accompanying exhibits:

Exhibit	Description
EX1001	U.S. Patent No. 11,334,598
EX1002	U.S. Patent No. 11,334,598 File History
EX1003	Declaration of Dr. Amelia Regan
EX1004	U.S. Patent Pub. No. 2007/0075136 ("Jacob")
EX1005	Certified Translation of Japanese Patent Application Publication JP 2005-332346 ("Tamura")
EX1006	Japanese Patent Application Publication JP 2005-332346
EX1007	Certified Translation of Japanese Patent Application Publication JP 2002-104622 ("Kono")
EX1008	Japanese Patent Application Publication JP 2002-104622
EX1009	Franklin & Zdonik, "Dissemination-Based Information Systems," "*Bulletin of the Technical Committee on Data Engineering*," Vol. 19, No. 3 (September 1996) ("Franklin")
EX1010	U.S. Patent No. 7,996,265 ("Evangelist")
EX1011	U.S Patent No. 7,894,936 ("Walker")
EX1012	U.S. Patent Pub. No. 2006/0085296 ("Strickland")
EX1013	U.S. Patent Pub. No. 2002/0186144 ("Meunier")
EX1014	U.S. Patent No. 8,050,976 ("Staib")
EX1015	U.S. Patent No. 8,051,015 ("Veit")

EX1016	U.S. Provisional Patent App. No. 60/737,071 ("Staib Provisional Application")
EX1017	*U.S. District Courts—National Judicial Caseload Profile*, *available at* https://www.uscourts.gov/sites/default/files/data_tables/fcms_na_distprofile0930.2022.pdf (September 30, 2022)
EX1018	Dkt. 34 (Scheduling Order), Dkt. 49 (Stipulation to Extend Time), Dkt. 55 (Stipulation to Extend Time), *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1019	Declaration of Sayem Osman on March 27, 2023
EX1020	March 27, 2023 Email re: SurgeTech, LLC v. Uber Technologies, Inc. (Fintiv Stipulation)
EX1021	Defendant Uber Technologies, Inc's Identification of Claim Constructions, *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1022	Plaintiff SurgeTech LLC's Responses and Proposed Constructions to Defendant Uber Technologies, Inc.'s Identification of Claim Constructions, *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1023	Plaintiff's Disclosure of Asserted Claims and Infringement Contentions, Exhibit A, Uber Technologies, Inc's Identification of Claim Constructions, *SurgeTech, LLC v. Uber Technologies, Inc. d/b/a Uber*, No. 1:22-cv-00882-GBW
EX1024	March 22, 2023 Affidavit of Nathaniel E. Frank-White (regarding Franklin)
EX1025	IEEE Technical Committee on Data Engineering, Data Engineering Bulletin Issues, available at http://sites.computer.org/debull/bull_issues.html
EX1026	Choi, S. and Kimes, S., "Electronic Distribution Channels' Effect on Hotel Revenue Management," Cornell Hotel and Restaurant Administration Quarterly, Vol.43, Issue 2, June 2002.
EX1027	Listing of Issues of Cornell Hotel and Restaurant Administration Quarterly, *available at* https://www.sciencedirect.com/journal/the-cornell-hotel-and-restaurant-administration-quarterly/issues.
EX1028	Screenshot of https://journals.sagepub.com/doi/abs/10.1177/0010880402433002 showing Electronic Distribution Channels' effect on Hotel Revenue Management

EX1029	Excerpts of Phillips, R., "Pricing and Revenue Optimization" (2005) ("Phillips")
EX1030	OMITTED
EX1031	Excerpts of Phillips, R., "Pricing and Revenue Optimization" (2005) from Library of Congress from Copies 1 and 2 (including March 27 and 28, 2023 Declarations of Kyle Noreiga)
EX1032	March 22, 2023 Affidavit of Nathaniel E. Frank-White (regarding Phillips)
EX1033	Excerpts of Phillips, R., "Pricing and Revenue Optimization" (2005) from George Washington University Library
EX1034	Gelman Library at George Washington University MARC Record for EX1033
EX1035	Library of Congress Catalog Record for EX1031
EX1036	University of Washington Catalog Record for EX1029

The copy has been served on March 28, 2023 by causing the aforementioned document to be mailed by Priority Mail Express to the following attorneys of record for patent owner listed below:

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