

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UBER TECHNOLOGIES, INC.,
Petitioner,

v.

SURGETECH LLC,
Patent Owner.

Case No. IPR2023-00737
U.S. Patent No. 10,360,999

**DECLARATION OF DR. VIJAY MADISETTI IN SUPPORT OF
PATENT OWNER'S PRELIMINARY RESPONSE**

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	2
II. QUALIFICATIONS.....	2
III. OVERVIEW OF THE '999 PATENT	11
IV. LEGAL PRINCIPLES.....	16
A. Legal Principles.....	16
1. Obviousness	16
2. My Understanding of Claim Construction Law ..	17
V. LEVEL OF ORDINARY SKILL IN THE ART.....	18
VI. UBER’S PETITION FAILS TO SHOW THAT ANY ASSERTED REFERENCE DISCLOSES THE “BASED ON THE QUERY” LIMITATION	19
VII. THE PETITION FAILS TO SHOW THAT ANY ASSERTED REFERENCE DISCLOSES “RECEIVING SALE DATA ... FROM RESPECTIVE DISTRIBUTION CHANNELS” “IN REAL TIME” OR “IN NEAR REAL TIME.”	24
A. Jacob.....	25
B. Franklin	28
C. The Jacob-Franklin Combination.....	29
VIII. UBER’S MOTIVATIONS TO COMBINE ARE DEFICIENT	31
IX. UBER’S CLAIM CHART COVERS THOUSANDS OF POSSIBLE PRIOR ART COMBINATIONS	36
X. CONCLUSION	37

I. INTRODUCTION

1. I have been retained by SurgeTech, LLC (“SurgeTech”) to provide my opinions on certain issues related to U.S. Patent No. 10,360,999 (the “’999 patent,” which I understand has been designated as Exhibit 1001) in connection with the above-captioned *inter partes* review (IPR) proceeding. In particular, I have been asked to provide my insights, analysis, and opinions regarding whether the challenged claims are disclosed by and/or obvious in view of the prior art references identified below. For the reasons discussed below, in my opinion the prior art neither discloses nor renders obvious the challenged claims.

II. QUALIFICATIONS

2. I received my Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering at the Indian Institute of Technology (IIT) in Kharagpur, India in 1984. I obtained my Ph.D. in Electrical Engineering and Computer Science at the University of California, Berkeley, in 1989. I received the Demetri Angelakos Outstanding Graduate Student Award from the University of California, Berkeley and the IEEE/ACM Ira M. Kay Memorial Paper Prize in 1989. I am a tenured Full Professor in the Colleges of Computing and Engineering at Georgia Tech.

3. I am knowledgeable and familiar with software engineering, web applications, cloud computing, data analytics, wireless communications, microprocessor architecture, hardware, RF, cellular networks, ASIC design, computer engineering, embedded systems, digital signal processing, and associated software and firmware design. I have created and taught undergraduate and graduate courses in hardware and software design for computer science and engineering applications at Georgia Tech for the past thirty years. Additionally, I have been active in the areas of wireless communications, digital signal processing, integrated circuit design (analog & digital), software engineering, system-level design methodologies and tools, and software systems.

4. I have been the principal investigator (“PI”) or co-PI in several active research programs in these areas, including DARPA’s Rapid Prototyping of Application Specific Signal Processors, the State of Georgia’s Yamacraw Initiative, the United States Army’s Federated Sensors Laboratory Program, and the United States Air Force Electronics Parts Obsolescence Initiative. I have received an IBM Faculty Award and NSF’s Research Initiation Award. I have designed several specialized computer and communication systems over the past two decades at Georgia Tech for tasks such as wireless audio and video processing and protocol processing for

portable platforms, such as cell phones and PDAs. I have worked on designing systems that are efficient from performance, size, weight, area, and thermal considerations. I have developed courses and classes for the industry on these topics, and many of my lectures in advanced computer system design, developed under the sponsorship of the United States Department of Defense in the late 1990s, are available for educational use at “<http://www.eda.org/rassp>” and have been used by several U.S. and international universities as part of their course work. Some of my recent publications in the area of design of wireless communications systems and associated protocols are listed in Exhibit 2002. I graduated more than 20 Ph.D. students that now work as professors or in technical positions around the world.

5. I have been active in research in the area of the World Wide Web and some of my peer-reviewed publications in this area include (i) Arshdeep Bahga and Vijay K. Madiseti, Performance Evaluation Approach for Multi-Tier Cloud Applications, Journal of Software Engineering and Applications 74-83 (2013); (ii) Arshdeep Bahga and Vijay K. Madiseti, Synthetic Workload Generation for Cloud Computing Applications, Journal of Software Engineering and Applications 396- 410 (2011); (iii) Venu Dasigi and Vijay Madiseti, A Web-Based Interface for a Digital Broadband Home, Yamacraw

IAB Workshop (2000); and (iv) Arshdeep Bahga and Vijay K. Madiseti, Rapid Prototyping of Multitier Cloud-Based Services and Systems, Computer, vol. 46, no. 11, pp. 76-83 (Nov. 2013). I have been an active consultant to industry and various research laboratories (including Massachusetts Institute of Technology Lincoln Labs and Johns Hopkins University Applied Physics Laboratory). My consulting work for MIT Lincoln Labs involved high resolution imaging for defense applications, where I worked in the area of prototyping complex and specialized computing systems. My consulting work for the Johns Hopkins Applied Physics Lab (“APL”) mainly involved localization of objects in image fields, where I worked on identifying targets in video and other sensor fields and identifying computer architectures and circuits for power and space-efficient designs.

6. I have founded three companies in the areas of embedded software, military chipsets involving imaging technology, and wireless communications. I have supervised the Ph.D. dissertations of over twenty engineers in the areas of computer engineering, signal processing, communications, rapid prototyping, and system-level design methodology, of which five have resulted in thesis prizes or paper awards.

7. The first of the companies I founded, VP Technologies, offers products in the area of semiconductor integrated circuits, including building

computing systems for imaging systems for avionics electronics for the United States Air Force and the US Navy, since 1995. I remain a director of VP Technologies. The second of these companies, Soft Networks, LLC, offers software for multimedia and wireless computing platforms, including the development of a set-top box for Intel that decodes MPEG-2 video streams, wireless protocol stacks, and imaging codecs for multimedia phones. The technology involved with the design, development, and implementation of the Intel set-top box included parsing the bit streams, decoding communications protocols, extracting image and video data, and then processing for subsequent display or storage. The third of these companies, Elastic Video, uses region of interest based video encoding or decoding for capturing high quality video at very low bit rates, with primary application for wireless video systems.

8. I have authored more than sixty refereed journal publications and around forty peer reviewed conference publications. I have been active in research in the area of wireless and mobile communications and some of my recent peer- reviewed publications in this area include: (i) Mustafa Turkboylari & Vijay K. Madisetti, Effect of Handoff Delay on the System Performance of TDMA Cellular Systems, Proceedings of the Fourth IEEE Conference on Mobile and Wireless Communications Network 411-15 (Sept.

9-11, 2002); (ii) Loran A. Jatunov & Vijay K. Madisetti, Computationally-Efficient SNR Estimation for Bandlimited Wideband CDMA Systems, 5 IEEE Transactions on Wireless Communications, no. 12 (2006) at 3480-91; and (iii) Nimish Radio, Ying Zhang, Mallik Tatipamula & Vijay K. Madisetti, Next Generation Applications on Cellular Networks: Trends, Challenges, and Solutions, 100 Proceedings of the IEEE, no. 4 (April 2012) at 841-54. I have extensive experience analyzing, designing, and testing systems based on 3GPP Technical Specifications, including specifications describing WCDMA and HSDPA technologies.

9. I have been active in the area of location-based services and wireless localization techniques since the mid-1990s, and have authored several papers on location-based services, including, Vijay K. Madisetti et al., Mobile Fleet Application Using SOAP and System on Devices (SyD) Middleware Technologies, Communications, Internet, and Information Technology (2002) at 426-31. I have served as associate editor or on the editorial board for technical journals, including IEEE Transactions on Circuits & Systems II, International Journal in Computer Simulation, and International Journal in VLSI Signal Processing.

10. I have authored or co-authored several books, including VLSI Digital Signal Processors (IEEE Press 1995) and the Digital Signal Processing

Handbook (CRC Press, 1998, 2010). I co-authored Quick-Turnaround ASIC Design in VHDL (Kluwer Academic Press 1996) and Platform-Centric Approach to System-on-Chip (SoC) Design (Springer 2004). I am also the editor of several books, including the three-volume DSP Handbook set: Volume 1: Digital Signal Processing Fundamentals, Volume 2: Video, Speech, and Audio Signal Processing and Associated Standards, and Volume 3: Wireless, Networking, Radar, Sensory Array Processing, and Nonlinear Signal Processing, published in 2010 by CRC Press, Boca Raton, Florida. More recently I have authored Cloud Computing (2014, CreateSpace Press), and Internet of Things (2014, CreateSpace), and the book, Cloud Computing, was nominated as a Notable Book of 2014 by the Association of Computing Machinery (ACM) in July 2015.

11. My experience is directly relevant to this case, and I qualify as a POSITA. In addition to my Ph.D. in EECS from Berkely, I have many years of experience in inventory and pricing management, including systems for dynamically managing inventory and pricing of inventory. In the late 1990s and early 2000 timeframe I benchmarked design times, pricing models and delivery costs for embedded signal processing products for the US Department of Defense markets and developed a reference model, called “Madisetti E/F model” that has been used by leading companies, such as

Lockheed Martin and Hughes Corporation in benchmarking their design models and pricing and cost baselines. I published these finding as part of a paper in IEEE Design and Test of Computers. Ex. 2003. The paper describes my development of a “cost-driven system-level design” which converted hardware and software design efforts into a methodology that improved cost, cycle time, quality and enhanced design space exploration. Ex. 2003. This architecture seamlessly integrated a cost-driven architecture design engine (CADE) with library-based cosimulation and coverificatoin environment for rapid prototyping. *Id.* The CADE processed system-level cost parameters, application requirements (including real time) and performance statistics. *Id.*

12. As another example, I developed *Synethic Workload Generation for Cloud Computing Applications* (Ex. 2004). I applied this application to an auction site prototype modeled after eBay. Ex. 2004. The application included efficient storage, processing and analysis of real time location and sensor data collected from fresh food supply vehicles. Ex. 2004. The application tracked global information for an entire fleet of food supply vehicles in real time. Ex. 2004.

13. As another example, I have designed and benchmarked auction platforms (such as RUBiS) and stock/options exchange platforms based on cloud-platforms and published several papers and released software tools for

benchmarking these designs. Ex. 2005. The system would track orders and trace the performance of the order management and workload flows as shown below for hundreds of users utilizing the system concurrently. *Id.* This application focused on, *inter alia*, supply chain management, using an on-demand model that enabled access to manufacturing resources and exchange of data between industrial machines and applications. Ex. 2005.

14. As yet another example, I developed a *Blockchain Platform for Industrial Internet of Things* (Ex. 2006). That application enabled on-demand access to manufacturing resources, using a peer-to-peer network without the need for a trusted intermediary. Ex. 2006.

15. As another example, I invented and developed a software framework, called SyD, for use in distributed logistics and fleet management systems in the early 2000 time-frame (Published in IEEE COMPSAC 2003) (Ex. 2007) and have published extensively in this area. The SyD system developed includes a backend server architecture for truck, depot and driver and customer order management, and the middleware to facilitate transactions in such a system. *Id.*; see also <https://www.embedded.com/syd-a-middleware-infrastructure-for-mobile-iappliance-devices/>. SyD was extended further by me and my colleagues at Georgia Tech and Georgia State

University to implement automated trip reservation and travel management systems including flight and care rentals. Ex. 2008.

16. I also developed a cloud-based information technology framework for Data Driven Intelligent Transportation Systems that was published about ten years ago in the Journal of Transportation Technologies, April 2013. Ex. 2009. The system developed was called CloudTrack that was able to track orders and logistics of vehicles for real-time fresh food delivery and logistics. *Id.*

17. These are just a few examples. I have worked on numerous projects related to inventory and pricing management, including dynamically managing inventory and pricing of inventory. *See, e.g.,* Ex. 2002.

18. I have testified as an expert witness before. Over the past two years, I've testified as an expert in more than 20 proceedings, and several of these were in the area of enterprise, cloud and web-based software applications. *See id.*

III. OVERVIEW OF THE '999 PATENT

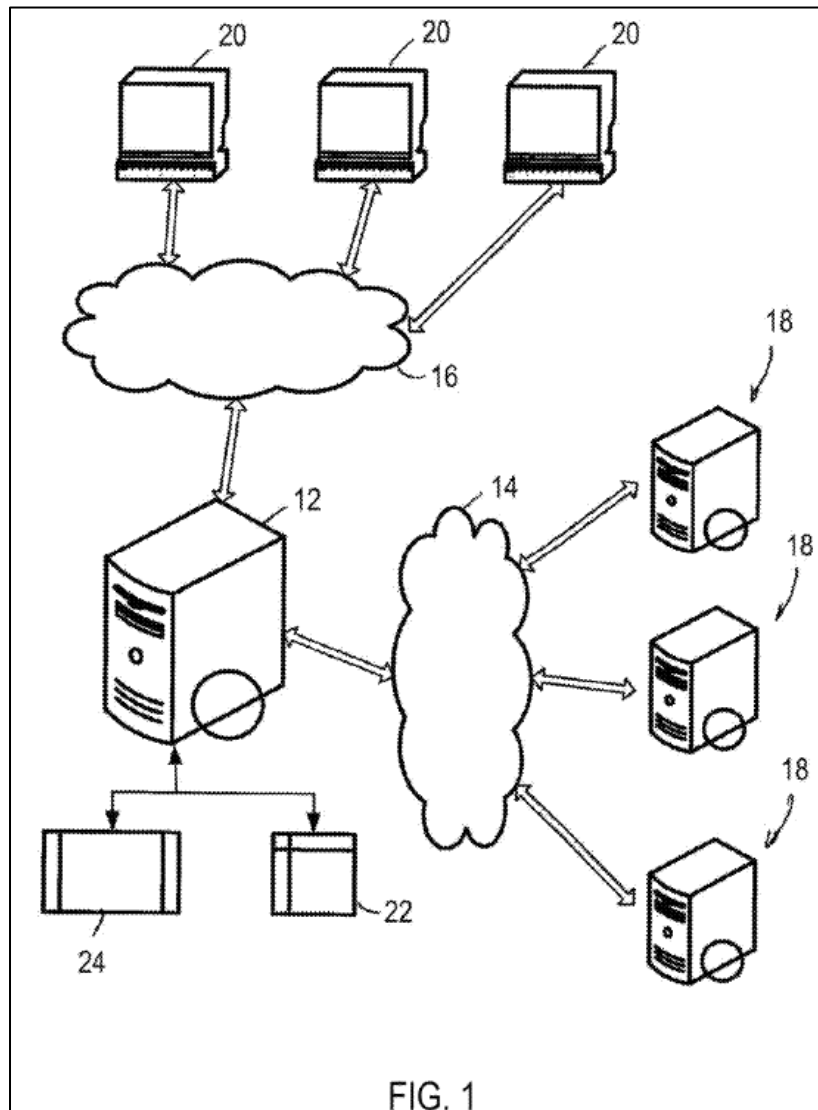
19. The '999 patent, entitled "Computer-Implemented Method for Managing Inventory Allocations" was filed on July 9, 2020. The '999 patent is a continuation application of U.S. Patent App. No. 16/150,799, filed Oct. 3, 2018, which is a continuation of U.S. patent application U.S. Patent App. No.

14/877,669, filed Oct. 7, 2015, which is continuation-in-part patent application of U.S. Patent App. No. 12/227,451, filed Dec. 18, 2009, which is a national stage of International Patent App. No. PCT/AU2007/000684, filed May 18, 2007, which claims the benefit of Australian provisional patent application 2006902685, filed May 18, 2006.

20. The '999 patent discloses a method of “controlling distributed databases,” and specifically for “managing inventory allocations.” *See* Ex. 1001, Abstract, 1:19-20. The '999 patent explains that prior approaches to selling inventory, such as travel services or accommodations, have resulted in inefficiencies in how such inventory is allocated to various distribution channels, or “channels.” *Id.*, 1:26-31. In particular, sellers are forced to allocate physical inventory to particular channels in an ad hoc manner. *Id.*, 1:49-51. When the inventory is accommodation, selecting the most efficient channels to sell the accommodation is “extremely difficult” because the inventory must be sold between particular dates. *Id.* 1:51-55. Furthermore, most independent accommodation properties lack the resources to effectively manage their inventory allocations in multiple channels. *Id.*, 1:55-61.

21. The '999 patent discloses a system, such as a “central computer system,” and method to more efficiently manage inventory allocations to re-sellers. *Id.*, 7:41-43. Specifically, the computer system uses a computer 12

that is connected to a network 14 or virtual private network VPN 16. *Id.*, 7:50-56; Fig. 1.



22. The computer 12 “recurrently” receives data from distributed channels or channels 18 over the network 14. *Id.*, 2:8-10 (“recurrently, at receiving times, receiving contingent values . . . from the distributed computer systems”), 7:57-61. The received data relates to accommodation allotments

that resellers and stored on the channels' servers 18. *Id.* The computer 12 can receive the data in "real-time," such as "when [a booking is] made via a channel" or close to when the booking is made. *Id.*, 10:54-56, 33:52-55; *see also id.* 11:1-5 (distinguishing "real-time" updates which are described as being continuously sent to database 22 with "request-based" updates which withholds updates from the database until a request is made."). The computer 12 further includes a database 22 to store the inventory data associated with channels 18 and inventory intended to be sold by third party online resellers, and uses a subroutine to process that inventory data. *Id.*, 8:4-14.

23. The computer 12 processes the data to obtain "performance data" relating to sales performance in each channel 18. *Id.*, 7:62-65. The performance data is indicative "of the performance in the sales channel." *Id.* The computer 12 also calculates a "performance rating" for each channel 18, which "reflect[s] a determination of whether or not supply of inventory to each channel 18 exceeds demand or vice versa per channel 18." *Id.*, 8:27-31. The processing of data, and calculating of the performance rating of a channel, can be performed on a recurrent basis. *Id.*, 8:64-9:3. The computer 12 can adjust parameters relating to inventory allotted to the respective channels 18, and/or re-allocate inventory from a particular channel 18 to another channel 18, dependent on the performance data. *Id.*, 7:65-8:3. For example, the

computer 12 can execute a subroutine 24 that queries “whether or not demand has exceeded supply in the channel” 18 (i.e., a performance rating). *Id.*, 8:27-31, 9:38-39. Based on the query, the computer 12 uses the performance rating to re-allocate items to a particular channel, and adjust the price of those items to maximize profit. *Id.*, 7:32-37, 9:45-60.

24. Claim 9 of the '999 patent is exemplary.¹ It claims a “computing device” having “a memory” and “at least one processor configured to perform a method for managing inventory allocations.” *Id.*, 46:1-5. The method includes cyclically receiving sale data in real time from distribution channels, and processing the sale data cyclically, wherein the processing includes calculating a performance rating for each of the distribution channels. *Id.*, 46:6-13. The method further includes querying the whether the performance rating of a particular channel is greater than a performance rating of other channels. *Id.*, 46:14-16. The method also includes, based on the query, at least one of: adjusting the price of inventory items allocated to each of the distribution channels, and re-allocating the inventory items from a distribution channel to another distribution channel. *Id.*, 46:17-23.

¹ The '999 Petition analyzes claim 9 of the '999 patent, and contends that claims 1 and 10 are analogs of claim 9. See Pet. 79-81.

IV. LEGAL PRINCIPLES

A. Legal Principles

25. I am not a lawyer and will not provide any legal opinions. Though I am not a lawyer, I have been advised that certain legal standards are to be applied by technical experts in forming opinions regarding the meaning and validity of patent claims.

1. Obviousness

26. I understand that to obtain a patent, a claimed invention must have, as of the priority date, been nonobvious in view of prior art in the field. I understand that an invention is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.

27. I understand that to prove that prior art, or a combination of prior art, renders a patent obvious, it is necessary to: (1) identify the particular references that singly, or in combination, make the patent obvious; (2) specifically identify which elements of the patent claim appear in each of the asserted references; and (3) explain how the prior art references could have been combined to create the inventions claimed in the asserted claim.

28. I understand that a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art, and that obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.

29. I also understand that a reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. Even if a reference is not found to teach away, I understand its statements regarding preferences are relevant to a finding regarding whether a skilled artisan would be motivated to combine that reference with another reference.

2. My Understanding of Claim Construction Law

30. I have been informed that patent claims are construed from the viewpoint of a person of a POSITA and that patent claims generally should be understood consistent with their ordinary and customary meaning at the time of the invention. A review of the patent claim language, the patent specification, and its prosecution history are also necessary to determine the proper meaning and scope of the term at issue.

31. I have further been informed that in the specification and prosecution history the patentee may define a claim term in a way that differs from the ordinary and customary meaning. I understand that during prosecution of the patent before the U.S. Patent and Trademark Office, the Applicant may make representations or provide definitions of terms that may affect the scope of the patent claims. In particular, the Applicant may, during the course of prosecution, limit the scope of the claims to overcome prior art and/or disavow claim coverage by making clear and unambiguous statements to that effect.

32. I have been informed that a POSITA may, among other things, consider dictionaries, publications, other patents, and treatises (*i.e.*, “extrinsic evidence”). I understand that extrinsic evidence may generally not be relied on if it contradicts the meaning of claim language provided by the intrinsic evidence, such as express definitions given for terms in the specification.

V. LEVEL OF ORDINARY SKILL IN THE ART

33. Petitioner proposes that a person of ordinary skill in the art (“POSITA”) relevant to the ’999 patent at the time of the invention “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 inventory, or the equivalent” and that “[a]dditional graduate education could substitute for professional experience, or significant inventory and pricing management experience could substitute for formal education.” Pet. 10. I have applied this definition of a POSITA in my declaration.

34. My extensive background experience qualifies me as a POSITA in this case. For example, my PhD in electrical engineering meets the requirement of “a bachelor’s degree in software/computer/electrical engineering, computer science, or industrial engineering and management.” Further, as I discussed above, my professional experience far exceeds the required “at least two years’ experience in inventory and pricing management, including with respect to systems for dynamically managing inventory and pricing of inventory, or the equivalent.” *See, supra*, ¶¶11-18.

35. Thus, I have many years of relevant experience far exceeding the required level of skill in this proceeding.

VI. UBER’S PETITION FAILS TO SHOW THAT ANY ASSERTED REFERENCE DISCLOSES THE “BASED ON THE QUERY” LIMITATION

36. Every challenged claim requires querying performance ratings of distribution channels, and thereafter taking certain steps (*e.g.*, adjusting price)

“based on the query.” Ex. 1001, Claims 1, 9, 10. In my opinion, Uber has provided no evidence showing that any prior art reference discloses taking the recited steps “based on the query” of performance rating as required by the claims.

37. In particular, Uber only analyzes challenged independent claim 9 in its petition. See Pet. 79-81 (cross-citing to claim 9 when addressing independent claims 1, 10). The “based on the query” limitation is recited in claim element 9[f]. Uber argues that Jacob, Tamura, and Kono each disclose the “based on the query” limitation recited in claim 9[f].

38. However, as shown in the excerpt below, Uber provides no substantive analysis for this limitation, instead only cross-citing Uber’s discussion of limitations 9[g] and 9[h]:

Jacob discloses based on the query (see cl.9[g], cl.9[h], below).
EX1003, ¶¶321-328.

Tamura discloses based on the query (see cl.9[g], cl.9[h], below).
EX1003, ¶¶329-335.

Kono discloses based on the query (see cl.9[h], below). EX1003,
¶¶336-344.

Pet. 60.

39. I note that Uber’s analysis of claim elements 9[g] and [h] also provides no substantive analysis for the term “based on the query.” Instead, at claims 9[g] and [h] Uber merely ***cites back to claim 9[f]***:

Jacob discloses, based on the query (see cl.9[f])[.]

Tamura discloses, based on the query (see cl.9[f])[.]

Jacob discloses, based on the query (see cl.9[f])[.]

Tamura discloses, based on the query (see cl.9[f])[.]

Kono discloses, based on the query (see cl.9[f])[.]

Id. 62-63 (analyzing claim 9[g]); 70-71 (analyzing claim 9[h]).

40. Thus, Uber provides no substantive analysis for the “based on the query” limitation.

41. Uber also cites to Dr. Regan’s expert declaration for support. However, in my opinion, these citations also do not show that any prior art reference discloses the “based on the query” limitation. *See* Pet. 60.

42. As an initial matter, as with the petition, when analyzing the “based on the query” limitation of claim 9[f], Dr. Regan cites to other portions of the declaration which also lack substantive analysis for this element:

Jacob discloses based on the query (see cl.9[g], cl.9[h], below).

Tamura discloses based on the query (see cl.9[g], cl.9[h], below).

Kono discloses based on the query (see cl.9[h], below).

Ex. 1003, ¶¶ 322, 330, 337 (addressing claim 9[f])

Jacob discloses, based on the query (cl.9[f])[.]

Tamura discloses, based on the query (cl.9[f])[.]

Id., ¶¶ 346, 378 (addressing claim 9[g])

Jacob discloses, based on the query (cl.9[f])[.]

Tamura discloses, based on the query (cl.9[f])[.]

Kono discloses, based on the query [cl.9[f])[.]

Id., ¶¶ 391, 412, 421 (addressing claims 9[h]).

43. These circular citations do not provide any analysis.

44. Further, while Dr. Regan’s declaration includes twenty-one paragraphs addressing the “based on the query” limitation, in my opinion these paragraphs also fail to explain how any of the prior art references disclose taking the claimed steps “based on the query.” Based on my review, Dr. Regan makes a series of statements that do not address “based on a query” followed by lengthy block quotations to Jacob, Tamura and Kono, and citations to other portions of the declaration that do not address this claim term. *See* Ex. 1003, ¶¶ 321-328, 329-335 and 336-344.

45. For example, when addressing Jacob with respect to claim 9[f], Dr. Regan states that “Jacob expressly discloses ‘a sales channel’s Room Type inventory’ is ‘selling better than other channels’” and follows this statement with a block quotation from Jacob. Ex. 1003 at ¶ 323. But Dr. Regan does not contend that this passage discloses “based on the query.”

46. Similarly, Dr. Regan then argues that “Jacob discloses that its code segments operate ‘automatically’” and follows this statement with

another block quotation from Jacob. *Id.* at ¶ 324. Here, again, Dr. Regan does not offer an opinion related to “based on the query.”

47. Dr. Regan continues that “Jacob discloses that the same room may be sold at different rates to different users ‘based upon a variety of conditions’” and block quotes Jacob. *Id.* at ¶ 325. Again, Dr. Regan does not explain how this relates to the “based on the query” limitation.

48. Dr. Regan next argues that “Jacob further discloses that is ‘comprise[s] computer program system configured to manage and perform the methods/functions of the invention’” and again block quotes Jacob. *Id.* at ¶ 326. As with the other cited passages, Dr. Regan does not include analysis describing how this citation relates to the “based on the query” limitation.

49. Finally, Dr. Regan concludes by arguing that Jacob “discloses or at minimum [sic] renders obvious” the “based on the query” limitation “for the same reasons” and “from the same disclosures” addressed with respect to claim 9[e]:

As discussed, “querying whether the performance rating of each of the respective distribution channels is greater than a performance rating of other distribution channels” is disclosed or rendered obvious by Jacob. See cl.9[e]. ***For the same reasons*** (e.g., because this would have beneficially increased the efficiency of the system in responding quickly to changing market conditions by providing a metric used to measure changing market conditions and based on which the system could quickly and efficiently reallocate inventory from sales channel(s)

with excess inventory to channels that are selling better or are in danger of running out of inventory and change prices), **Jacob** (in the recited combinations) ***discloses or at minimum renders obvious carrying out “at least one of the following steps” (see cl.9[g], cl.9[h], below) based on the query from these same disclosures to POSITA*** (e.g., because this would have beneficially allowed the resulting system to better determine, systematically, whether a particular sales channel is, e.g., selling better than other channels), who (particularly in light of these disclosures and other known, similar systems) would have found it routine to make such an implementation choice, and clear it would work and provide the expected functionality to yield predictable results with a reasonable expectation of success.

Id. at ¶ 327.

50. But here, again, Dr. Regan fails to provide any analysis or explanation regarding **how** Jacob renders obvious taking the claimed steps “based on the query” as recited in the claims. Claim 9[e] is a distinct limitation that does not require taking any action “based on the query.” Thus, Dr. Regan’s citation to Claim 9[e] is not useful for determining how the “based on the query” limitation is allegedly met by the prior art.

51. The remainder of Dr. Regan’s declaration addressing claim 9[f] (and, in fact, all other claim limitations) is consistent with the discussion above. Namely, Dr. Regan includes statements that do not sufficiently explain how the prior art citations allegedly relate to the challenged claims.

VII. THE PETITION FAILS TO SHOW THAT ANY ASSERTED REFERENCE DISCLOSES “RECEIVING SALE DATA ...

FROM RESPECTIVE DISTRIBUTION CHANNELS” “IN REAL TIME” OR “IN NEAR REAL TIME.”

52. Every challenged claim requires “receiving sale data ... from respective distribution channels” either “in real time” or “in near real time.” Ex. 1001 at Claims 1, 9, 10. In my opinion, Uber has failed to show that any prior art reference discloses either limitation.

53. In particular, I understand that Uber proposes that the claimed “receiving ... *in real time*” be construed as “receiving most recent data by ‘push’ method.” Pet. 9. Uber does not construe “receiving...in *near* real time” in its petition, but argues that any disclosure of “in real time” also meets “in near real time.” Pet. 8 n.11; Pet. 31 n.17 (“Because Franklin discloses ‘real time,’ its disclosures also satisfy the ‘near real time’ of cl.1.”); Pet. 82 (“For 1[a]-1[e], see cl.9[b-h], respectively.”).

54. Uber argues that the Jacob and Franklin references disclose the claimed receiving “in real time” and “in near real time.” I disagree. In my opinion neither reference or their combination teaches or renders obvious these limitations.

A. Jacob

55. Jacob fails to disclose “receiving sale data ... from respective distribution channels” “in real time” or “in near real time.” First, Jacob does

not disclose transmitting “**most recent** data” at all—a requirement of Uber’s construction of “in real time” and “in near real time.” Indeed, none of Uber’s citations to Jacob reference “most recent data” in any context.

56. Second, Uber’s citations to Jacob do not disclose receiving data from any alleged distribution channels as required by the claims. In particular, Uber argues that Jacob discloses a “‘communication code segment’ receives, *e.g.*, ‘information’ pushed from sales channels [*i.e.*, the alleged ‘distribution channels’].” Pet. 30. But Jacob’s discussion of a “communication code segment” actually teaches the opposite—that data is sent **to** Jacob’s sales channels (the alleged “distribution channels”), not received by them as required by the claims: “[o]nce pricing changes have been implemented the results may be distributed through the communication code segment or code segments **to the sales channels.**” Ex. 1004, [0008]. Further, this transmission is not done by “push” as is required by Uber’s construction of “in real time.”

57. Uber also argues that Jacob’s disclosure that “confirmation information is sent to... the Property” meets this limitation. Pet. 30. But this disclosure merely states that “[a]fter an EU [end user] has made a reservation, confirmation information is sent to both the EU as well as the Property.” Ex. 1004, [0086]. This does not disclose receiving data from Jacob’s alleged

distribution channels at all, let alone receiving them by “push” as required by Uber’s construction.

58. Uber also relies on Jacob’s disclosure that an “application sends... notifications to the PA... over... networks” to meet this limitation. Pet. 30. But Jacob expressly states that the **application** sends the notification. *Id.* Uber does not allege that an application is a “distribution channel” and, thus, this disclosure does not show “receiving” data from distribution channels as required by the claims. *See* Pet. 30 (limiting “distribution channels” to Jacob’s “information received from the sales channels” and “incoming information”). And, again, this disclosure in Jacob does not disclose transmission by “push” as required by Uber’s construction of “in real time.”

59. Finally, Uber argues that Jacob expressly teaches “receiving information in ‘real time.’” Pet. 30. But here, again, Jacob discloses sending data **to** the alleged distribution channels, not receiving data: “[t]he system should quickly distribute ... information **to the sales channels**, preferably in real time.” Ex. 1004, [0005]. Further, as with the other disclosures cited by Uber, this passage in Jacob also does not mention the required “push” method.

60. Accordingly, in my opinion none of the cited disclosures from Jacob teach receiving data “in real time” or “near real time” under Uber’s construction.

B. Franklin

61. In my opinion Franklin also fails to disclose this limitation. First, Franklin fails to disclose transmitting “**most recent** data” as required by Uber’s construction of “in real time.” Indeed, none of Uber’s citations to Franklin reference “most recent data.”

62. Second, Uber reliance on Franklin’s disclosure of “periodic push” also fails. Pet. 31. Franklin expressly discloses that its “periodic push” is **not** done in real time, noting that one of the “more serious problems” of the “push” method is significant delay:

Push-based approaches, in contrast, avoid the issues identified for client-pull, but have the problem of deciding which data to send to clients in the absence of specific requests. Clearly, sending irrelevant data to clients is a waste of resources. ***A more serious problem, however, is that in the absence of requests it is possible that the servers will not deliver the specific data that are needed by clients in a timely fashion (if ever).***

Ex. 1009, [0017].

63. This passage does not teach or suggest “receiving most recent data by ‘push’ method” as required by Uber’s construction—quite the opposite, Franklin teaches that using a “push” method might result in the data never arriving, or arriving with a serious delay. Indeed, when describing “periodic push” Franklin teaches that it should be used for clients that “can **wait** until the item appears.” *Id.*, [0027]. Thus, in my opinion a POSITA

reading Franklin would understand that its “periodic push” is **not** meant for real time applications, rather, it should be used for applications that will not be impacted by delays.

64. In order to solve this delay problem caused by “push,” Franklin teaches using a “publish/subscribe” method. *Id.* According to this method clients provide a profile and receive updates based on their profile preferences. *Id.* Franklin describes this methodology as “in effect, a continuous query.” *Id.* The reference to a “continuous query” described by Franklin would be readily understood as a type of ***pull method***. Instead of pushing data without a request, a “continuous query” method only pushes requested updates. Thus, Franklin teaches the ***opposite*** of the “push” required by Uber’s construction, suggesting that this method is flawed and a “pull” method should be used instead. Accordingly, in my opinion a POSITA looking at Franklin would be dissuaded from using a “push” method, and instead pursue a “pull” method.

C. The Jacob-Franklin Combination

65. In my opinion Uber’s assertion that the combination of Jacob and Franklin renders obvious the claim also fails, because it does not cure the deficiencies identified above in Section 1 and 2. In particular, Uber argues that a “POSITA would have been motivated ... to implement communications

between Jacob’s channels and REZTRIP (+combinations) using Franklin’s beneficial teachings of periodic push.” Pet. 38-42.

66. First, this does not overcome the fact that neither Jacob nor Franklin disclose receiving “most recent data.” Indeed, as discussed above, Franklin expressly disclose that timeliness is a “serious” problem with its “push” method. Ex. 1009, [0017]. Thus, even if combined, the proposed Jacob-Franklin combination would still fail to disclose the claimed receiving of data “in real time” or “in near real time” under Uber’s construction.

67. Second, as discussed above, neither Franklin nor Jacob discloses receiving data *from* the alleged distribution channels as required by the claims. The combination of Franklin and Jacob, thus, also fails to overcome this deficiency. Indeed, Jacob teaches the exact opposite—sending data *to* the alleged distribution channels. Ex. 1004, [0005].

68. Third, Uber’s suggestion that Franklin’s “push” method could be employed in Jacob as “short” or “vanishingly short” intervals is not supported by either reference. Indeed, Jacob does not disclose transmission at “short” or “vanishingly short” intervals, let alone doing so by “push” method. Likewise, as noted above, Franklin discloses that its periodic push method is plagued by delay—this contradicts Uber’s suggestion that the push intervals could be “short” or “vanishingly short.” Ex. 1009, [0017]; *see also id.*, [0035]

(“Two ***different*** [data] consistency models have been studied – immediate and periodic (i.e., based on the period of the broadcast).”).

69. Accordingly, Uber’s proposed combination fails to overcome the deficiencies identified in Jacob and Franklin.

VIII. UBER’S MOTIVATIONS TO COMBINE ARE DEFICIENT

70. As noted above, Uber has failed to identify (1) which prior art references it proposes combining for each claim element and (2) which teachings from those references should be combined. Instead, Uber’s claim charts merely include disparate citations from six different prior art references, resulting in thousands of potential combinations. Thus, Uber has not identified which elements of the prior art it proposes combining for specific challenged claim elements.

71. Setting aside this issue, in my opinion Uber’s stated motivations to combine are insufficient. In my opinion, Uber’s motivations to combine cursory and conclusory. For example, when analyzing the claim limitation 9[h], “inventory items allocated,” Uber asserts that a POSITA would be motivated to use Evangelist’s “teachings of initially allocating inventory to channels” in the Jacob reference because “[t]his would have beneficially increased the likelihood the proper quantities/most relevant inventory types are initially allocated to each channel.” Pet. 78. But I cannot discern from

Uber's petition any reason **why** using Evangelist's alleged allocation techniques would increase quantities of inventory. And Uber also does not explain **why** Evangelist's alleged allocation techniques would increase the likelihood of relevant inventory being allocated. Indeed, in my opinion these benefits would not necessarily be achieved through the use of Evangelist's allocation techniques—whether these benefits would be achieved would depend on the specific implementation of allocations, and Evangelist does not suggest that its allocations could always achieve these benefits in any system. I note that Uber also fails to explain **how** Evangelist's teachings would be incorporated into any of Jacob's embodiments in the first place.

72. This is just one example—Uber's motivations to combine throughout its petition are equally conclusory. *See also* Pet. 44 (arguing motivation to combine Jacob with Kono or Tamura to “advantageously increased the system's ability to fulfill Jacob's goal of maximizing revenue, Evangelist's of promoting efficient operations, and Tamura's of reducing lost sales” without explaining **how** the prior art would be combined or **how** these alleged advantages would be achieved); Pet. 58 (arguing that it would be “obvious, straightforward, and advantageous to implement Jacob's teachings ... so its resulting system” meet the limitation with explaining **how** the combination would be combined or **why** a POSITA would be motivated

to make such a combination); Pet. 69 n.36 (arguing that it would have been “obvious to modify the recited combinations ... using Tamura’s beneficial teachings of automatically adjusting price” because “would have beneficially furthered Jacob’s/Tamura’s/Kono’s goals” without explaining **which** teachings in the references would be combined or **how** any “goals” would be achieved through the combination).

73. Likewise, Uber’s arguments regarding reasonable expectation of success are also conclusory. In fact, for **every** proposed combination Uber repeats the same conclusory statement: “[f]or POSITA it would have been routine to make these implementation choices, and clear they would work, providing the expected functionality and predictable results with a reasonable expectation of success.” Pet. 29-30; *see also* Pet. 41, 43, 44-5, 54, 55, 58, 59, 61, 62, 68-69, 69 n.36, 70, 78-79 (same conclusory REOS assertions). But this language does not address the combination of any **specific** teachings in the prior art, let alone explain why a POSITA would have understood such combinations could be made successfully. Indeed, the prior art includes disclosures of various, unrelated systems as well as multiple embodiments per reference. A POSITA would not assume that the teachings from these disparate applications could be readily combined successfully.

74. Moreover, Uber’s alleged motivations to combine are often not related to the teachings in the prior art that Uber suggests combining. For example, for limitation 9[e], Uber states that “[f]or the same reasons discussed with respect to **cl.9[d]**, POSITA would have found it obvious, straightforward, and advantageous to implement Jacob ... using Tamura’s disclosure of querying whether a particular ‘retailer’ has a ‘low sales progress rate’ or, instead, is one with a ‘high sales progress rate’” Pet. 58-59. But the motivation to combine proposed by Uber for claim limitation 9[d] has **nothing** to do with any supposed (but unexplained) benefit from querying a retailer’s progress rate. Instead, for claim 9[d] Uber focuses on Tamura’s allegedly “beneficial teachings of processing sale data by automatically carrying out calculations to obtain a performance rating.” Pet. 53-54. Thus, Uber’s motivation to combine is not related to the proposed combination at all. A POSITA would not be so motivated as Uber suggests.

75. This is just one example—Uber consistently relies on motivations to combine that are completely disconnected from its proposed combination. *See also* Pet. 52 (providing alleged motivations to combine Jacob with Phillips to “automatically” calculate performance rating, but no motivation to incorporate Phillips’ alleged performance ratings); Pet. 53 (providing alleged motivation for “automatically processing sale data,” but no

motivation to include Tamura or Kono's alleged performance ratings); Pet. 59 (citing to analysis for limitation 9[d] "calculations to obtain a performance rating," but no motivation to combine Kono's "querying whether an agency is one 'where sales have fallen' or ... 'still sells'"); Pet. 62 (citing to analysis for limitation 9[e]'s "querying ...," but no motivation to combine references for performing steps "based on the query"); Pet. 67 (citing to analysis for limitation 9[b] to "carry[] out all of jacob's functions automatically," but no motivation to incorporate Phillips' alleged price adjustments); Pet. 78 (citing to analysis for limitation 9[d]'s "calculations to obtain a performance rating" but no motivation to combine references for re-allocating inventory).

76. In addition, in my opinion Uber and Dr. Regan also fails to address disclosures in the prior art that would teach away from Uber's proposed combinations. For example, Uber alleges that POSITA would be motivated to combine Jacob with Franklin's "periodic push" to render obvious "receiving sale data ... in real time" Pet. 38-42. But Uber fails to address the "tradeoffs between push and pull" disclosed in Franklin, including the "serious problem[]" that, with the "push" method, "it is possible that the servers will not deliver the specific data that are needed by clients *in a timely fashion (if ever)*." Ex. 1009, [0017]. Ignoring Franklin's teachings that the "push" method may result in a transmission *never* being received and that a

pull method should be used instead, Uber argues that a POSITA would have been motivated to incorporate Franklin’s “push” method in Jacob to achieve “real time” transmissions.

IX. UBER’S CLAIM CHART COVERS THOUSANDS OF POSSIBLE PRIOR ART COMBINATIONS

77. Uber includes block quotations from multiple prior art references for each element of claim 9:

- **9[pre]:** Jacob (Pet. 25).²
- **9[a]-[b]:** Jacob, Phillips and Evangelist (*id.* at 25-27).
- **9[c]:** Jacob, Evangelist, Franklin, Tamura and Kono (*id.* at 30-38).
- **9[d]:** Jacob, Phillips, Tamura and Kono (*id.* at 45-50).
- **9[e]:** Jacob, Tamura and Kono (*id.* at 55-58).
- **9[f]:** Jacob, Tamura and Kono (*id.* at 60-61).
- **9[g]:** Jacob, Phillips and Tamura (*id.* at 62-66).
- **9[h]:** Jacob, Phillips, Tamura and Kono (*id.* at 70-76).

78. But because Uber’s omnibus chart does not specify which references pertain to which ground, any number of combinations could be

² Uber relies only on Jacob for the preamble, but asserts that the preamble is not limiting. Pet. 24, n.13

constructed. For example, any of the three different combinations below could be encompassed by Uber's claim 9 charts for Ground 4:

Claim Element	Combination 1	Combination 2	Combination 3
9pre	Jacob	Jacob	Jacob
9a	Jacob	Phillips	Evangelist
9b	Jacob	Jacob	Phillips
9c	Jacob	Evangelist	Kono
9d	Jacob	Phillips	Kono
9e	Jacob	Tamura	Kono
9f	Jacob	Tamura	Kono
9g	Jacob	Phillips	Tamura
9h	Jacob	Phillips	Tamura

79. These are just a few examples of possible prior art combinations. The total number of possible combinations can be calculated by multiplying the number of references Uber lists for each claim element 9[pre]-[h]. Thus, there are: $1*3*3*5*4*3*3*3*4 = \mathbf{19,440}$ **possible unique combinations** of the references (of course, the references may repeat, but the combinations of references for each limitation are still unique).

X. CONCLUSION

80. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of

me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

81. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on the information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed: July 12, 2023



Vijay K. Madiseti, Ph.D.