

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QUOTIENT TECHNOLOGY, LLC,
Petitioner,

v.

INTELLIGENT CLEARING NETWORK, INC.,
Patent Owner.

Case No. IPR2024-01324

U.S. Patent No. 9,098,855

**Declaration of Dr. Todd C. Mowry in Support of
Petition for *Inter Partes* Review of U.S. Patent No. 9,098,855**

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PETITIONER’S EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 9,098,855
1002	File History for U.S. Patent No. 9,098,855
1003	Declaration of Todd Mowry
1004	U.S. Patent No. 6,993,498 (“Deaton”)
1005	U.S. Patent App. Publ. No. US 2006/0074784 (“Brown”)
1006	U.S. Patent No. 7,013,286 (“Aggrawal”)
1007	U.S. Patent No. 6,932,270 (“Fajkowski”)
1008	U.S. Patent App. Publ. No. US 2007/0162337 A1 (“Hawkins”)
1009	U.S. Patent App. Publ. No. US 2005/0216340 A1 (“Schneider”)
1010	Complaint, <i>Inmar Brand Solutions, Inc. v. Quotient Technology Inc.</i> , 23-cv-00994, D. Del. (filed September 7, 2023)
1011	Scheduling Order, <i>Inmar Brand Solutions, Inc. v. Quotient Technology Inc.</i> , 23-cv-00994, D. Del. (filed June 4, 2024)
1012	District Court Trial Statistics (12-Month Period Ending March 31, 2024)
1013	U.S. Patent Application Publication No. 2003/0024981 (“Narasimhan”)
1014	The UPC at https://www.ibm.com/history/upc
1015	U.S. Patent No. 3,959,624 (“Kaslow”)
1016	U.S. Patent No. 8,511,553 (“McIntyre”)
1017	E.F. Codd, “A relational model of data for large shared data banks” Communications of the ACM, Vol. 13, Issue 6, June 1970 377-387
1018	David Gifford et al, “The CIRRUS banking network” Communications of the ACM, Vol. 28, Issue 8, Aug. 1985 798–807
1019	Electronic ‘Coupons’: Savings but No Scissors (Apr. 21, 1990) at https://www.nytimes.com/1990/04/21/style/consumer-s-world-electronic-coupons-savings-but-no-scissors.html
1020	Patent Application Publication 2004/0030598 (“Boal”)
1021	U.S. Patent No. 7,231,357 (“Shanman”)

Exhibit No.	Description
1022	Axel Winkelmann, <i>Integrated Couponing: A Process-Based Framework for In-Sore Coupon Promotion Handling in Retail</i> , Logos Verlag, (2006)
1023	Philip A. Bernstein, Newcomer, Eric. <i>Principles of Transaction Processing for the Systems Professional</i> , United Kingdom: Elsevier Science, (1997)
1024	U.S. Patent Application Publication No. 2005/114211 (“Amjadi”)
1025	A. S. Tanenbaum, A. S., & Van Steen, M., <i>Distributed systems: Principles and paradigms</i> , Prentice Hall (2002).

TABLE OF ABBREVIATIONS

Abbreviation	Term
'855 patent	U.S. Patent No. 9,098,855
AIA	America Invents Act
Challenged Claims	Claims 1-57 U.S. Patent No. 9,098,855
Ex.	Exhibit
Fig.	Figure
IPR	<i>inter partes</i> review
Patent Owner	Intelligent Clearing Network, Inc.
Petitioners	Quotient Technology, LLC
POSITA	Person[s] of ordinary skill in the art

I, Dr. Todd C. Mowry, declare as follows:

1. I have been retained by counsel for Quotient Technology, LLC to submit a Declaration in support of the Petition for *Inter Partes* Review of U.S. Patent No. 9,098,855 (“the Petition”).

2. I have been asked to opine on whether the ’855 patent is invalid over the prior art. My opinions are based on my experience, knowledge, and skill in computer science, as well as my experience in distributed computing, networked computer systems, database management systems, and transaction processing. In preparation for this declaration, I have reviewed the ’855 patent, its prosecution history, and all exhibits cited in this Declaration and in the Petition.

3. I may rely upon these materials, my experience and knowledge, and/or additional materials to rebut arguments raised by the Patent Owner. Further, I may also consider additional documents and information in forming any necessary opinions, including documents that may not yet have been provided to me.

4. My analysis of the materials produced in this investigation is ongoing and I will continue to review any new material as it is provided. This Declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

5. I am being paid at my normal hourly rate for my work on this matter. I have no personal or financial stake or interest in the outcome of the Petition.

I. QUALIFICATIONS

6. My qualifications are stated more fully in my curriculum vitae, which is attached as Appendix A. Below is a summary of my education, work experience, and other qualifications.

7. I am a Professor in the Department of Computer Science at Carnegie Mellon University. I also have a courtesy appointment in the Department of Electrical and Computer Engineering. I have served on the faculty of Carnegie Mellon University for 27 years starting in 1997 through the present (2024).

8. I also served on the faculty of the University of Toronto for four years between 1993 and 1997, in the Department of Electrical and Computer Engineering and a courtesy appointment in the Department of Computer Science. Prior to that appointment, I served as a Graduate Research Assistant in the Department of Electrical Engineering at Stanford University for four years between 1989 and 1993.

9. As a faculty member, I have taught and continue to teach courses and directed research in computer systems and software, operating systems, distributed and network systems, parallel processing, and compiler optimization.

10. I received a B.S. degree in Electrical Engineering with Highest Distinction from the University of Virginia in May 1988. I received an M.S. in

Electrical Engineering from Stanford University in June 1989, and a Ph.D. in Electrical Engineering from Stanford University in March 1994.

11. I have worked in the computer industry in various capacities. I was a part-time Computer Architect and then Computer Architecture Consultant at Silicon Graphics, Inc., in Mountain View, California (formerly MIPS Computer Systems in Sunnyvale, California) from 1989 to 1993 and 1993 to 1996, respectively. I was a Visiting Scientist at IBM in Toronto from 1996 to 2004. During that same time period (1996 to 2004), I was also a Member of the Technical Advisory Board of SandCraft, Inc. in Santa Clara, California. I was the Director of the Intel Research Pittsburgh Lab at Intel Corporation in Pittsburgh, Pennsylvania from 2004 to 2007.

12. I have authored 21 journal articles and 71 conference papers. I am also an inventor on 5 patents.

13. I have published a number of papers in the top research conferences and journals in the fields of computer systems and data management (including papers that won the Best Paper awards at top conferences in the fields of operating systems (OSDI '96) and database management systems (ICDE 2004). See, e.g., Christopher B. Colohan, Anastassia Ailamaki, J. Gregory Steffan, and Todd C. Mowry, Incrementally parallelizing database transactions with thread-level speculation, in ACM Transactions on Computer Systems (TOCS), 26(1), February 2008; Amit Manjhi, Charles Garrod, Bruce M. Maggs, Todd C. Mowry, Anthony Tomasic,

Holistic Query Transformations for Dynamic Web Applications, in Proceedings of the 2009 IEEE 25th International Conference on Data Engineering (ICDE), March-April 2009; Charles Garrod, Amit Manjhi, Anastasia Ailamaki, Bruce Maggs, Todd Mowry, Christopher Olston, and Anthony Tomasic, Scalable Query Result Caching for Web Applications, in Proceedings of the 34th International Conference on Very Large Databases (VLDB), August 2008; Ziqi Wang, Michael A. Kozuch, Todd C. Mowry, and Vivek Seshadri, Multiversioned Page Overlays: Enabling Faster Serializable Hardware Transactional Memory, in Proceedings of the 28th International Conference on Parallel Architectures and Compilation Techniques (PACT), September 2019; and Prashanth Menon, Amadou Ngom, Lin Ma, Todd C. Mowry, and Andrew Pavlo, Permutable Compiled Queries: Dynamically Adapting Compiled Queries without Recompiling, in Proceedings of the VLDB Endowment, 14(2):101-113, October 2020.

14. I have also been an active member of the Parallel Data Lab at Carnegie Mellon University since 1997, which is often described as “academia’s premiere data systems research center.”

15. I am the recipient of several honors and awards: the Arthur Samuel Thesis Award (awarded by the Stanford Computer Science department to the top two Ph.D. theses in a given year), several IBM Faculty Development Awards (1996, 1997, 1998, 2000, 2001, 2002, and 2003), several Best Paper Awards (the Second

Symposium on Operating Systems Design and Implementation in 1996; the 20th International Conference on Data Engineering (ICDE) in 2004), the Alfred P. Sloan Research Fellowship (awarded to researchers in recognition of distinguished performance and a unique potential to make substantial contributions to their field), the Most Thought-Provoking Idea Award in 2004 (awarded by the Architectural Support for Programming Languages and Operating Systems (ASPLOS)), the TR100 Award in 1999 (awarded by MIT's Technology Review magazine to the top 100 most promising young innovators in science and technology), and I became an ACM Fellow in 2016.

16. I am a member of the Institute of Electrical and Electronics Engineers (IEEE) and the Association of Computing Machinery (ACM). I was the Editor-in-Chief of ACM Transactions on Computer Systems (the premier journal for computer systems research) from 2013–2018. I was an Associate Editor for the journal prior to that, since 2001. I was the Program Chair of the International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) in 2010. I was the Co-Program Chair of the International Conference on Parallel Architectures and Compilation Techniques (PACT) in 2001. I have been on the programming committee in various years for ASPLOS, the International Symposium on Computer Architecture (ISCA), and the International Symposium on Microarchitectures.

17. Overall, I have over 30 years of experience in the field of computer science, including distributed computing, networked computer systems, database management systems, and transaction processing. In light of the foregoing, I consider myself to be an expert in the field of computer science and believe that I am qualified to provide an opinion as to what a person of ordinary skill in the art would have understood, known, or concluded regarding the subject matter of the '855 patent at the time of its alleged invention.

II. SCOPE OF OPINIONS

18. I have been asked to provide my opinions regarding whether the Challenged Claims of the '855 patent would have been obvious to one of ordinary skill in the art at the time of the alleged invention in view of Deaton (**Grounds 1 and 2**), the combination of Deaton and Brown (**Ground 3**), the combination of Deaton and Brown in view of Aggrawal (**Ground 4**), the combination of Deaton and Fajkowski (**Ground 5**), the combination of Deaton and Hawkins (**Ground 6**), and the combination of Deaton and Schneider (**Ground 7**).

19. This Declaration, including the exhibits cited herein, sets forth my opinions on these topics. It is my opinion that the Challenged Claims of the '855 patent would have been anticipated and/or obvious based on the Grounds listed above. I do not take a position on whether any of the claims are indefinite, and my

analysis of the claims and opinions on validity are not intended to convey an opinion that the claims are not indefinite.

III. MATERIALS REVIEWED AND CONSIDERED

20. The materials I considered and relied upon in preparing my Declaration and forming my opinions include all exhibits cited in this Declaration and the Petition, including the '855 patent, the file history of the '855 patent, and all of the relevant prior art.

21. I also have relied on my professional experience, knowledge, and skill in computer science, as well as my experience in distributed computing, networked computer systems, database management systems, and transaction processing in reaching the opinions expressed in this Declaration.

IV. LEVEL OF ORDINARY SKILL IN THE ART

22. In rendering the opinions set forth in this Declaration, I was asked to consider the patent claims and the prior art through the eyes of one of ordinary skill in the art at the effective filing date of the claimed invention.

23. I understand that various factors, such as the education level of those working in the field, sophistication of the technology, types of problems encountered in the art, prior art solutions to those problems, and speed at which innovations are made, may help establish the level of skill in the art. In determining the level of ordinary skill in the art, I have taken into account these factors as well as my years

of experience in the personal care appliance industry related to the subject matter of the '855 patent.

24. It is my opinion that one of ordinary skill in the art would have had an undergraduate degree in electrical engineering, computer science, computer engineering, or similar technical field; and one to two years of experience in the analysis, design, development, and implementation of distributed applications that involve client machines communicating with remote server machines over a network to perform queries and update transactions on data stored in database management systems, with additional education substituting for less experience and vice versa.

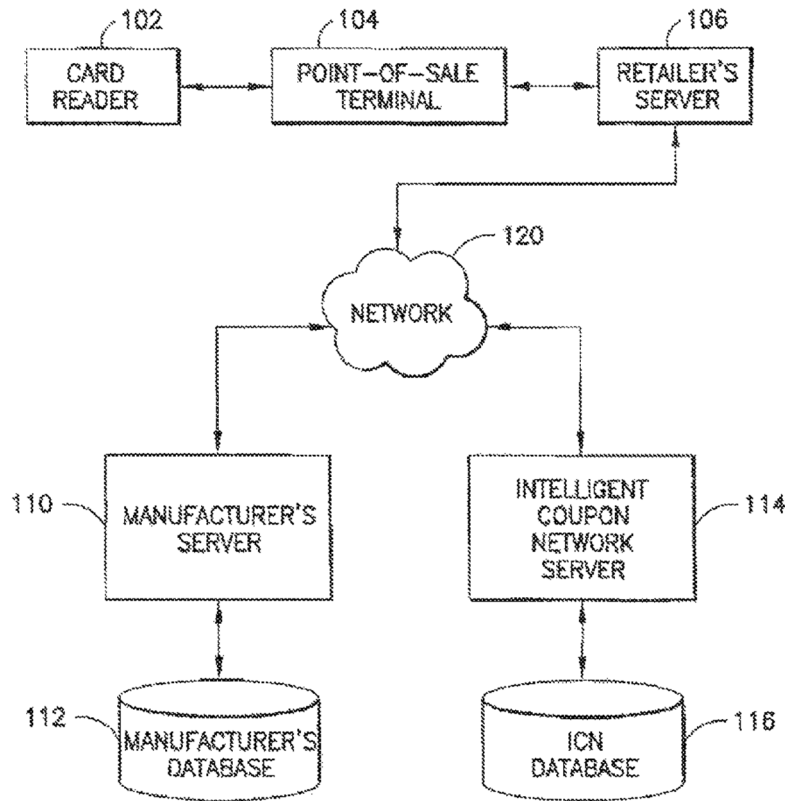
V. STATEMENT OF LEGAL PRINCIPLES

25. I am not an attorney. In forming my opinions in this Declaration, I applied the relevant legal principles provided to me by counsel, which are summarized in Appendix C.

VI. SUMMARY OF THE '855 PATENT

26. The '855 patent discloses a “system for redeeming coupons, promotions, or incentives.” Ex-1001, Abstract.

27. For example, Fig. 1 shows:

**FIG.1**

28. The system, referred to as an “Intelligent Clearing Network” (ICN), can electronically validate and redeem coupons through “a centralized database, such as ICN database 116, which is coupled to the ICN server 114.” Ex-1001, 4:17-27. Card reader 102 can read a customer’s coupon card and then send that information via the point-of-sale terminal 104 to the retail store server 106 and then to the ICN server 114. Ex-1001, 4:43-46. The ICN server can then notify the manufacture of a completed transaction by sending information to manufacturer’s server 110. Ex-1001, 5:1-4.

29. The ICN server, and manufacturers, the '855 patent describes various embodiments involving coupons. For instance, Figure 10 shows an embodiment where “coupons are delivered based on the presence of specific [Uniform Product Codes (UPCs)] or products in the consumer’s transaction 1004.” Ex-1001, 17:38-40.

30. The customer can present “products with UPCs 1004 to be purchased” at the point-of-sale terminal 1006. Ex-1001, 17:47-50. The UPCs are then communicated from the point-of-sale through the retailer’s network to ICN server 1012. Ex-1001, 17:51 65. Through the ICN promotion redemption service 1013, the ICN server can compare the UPCs to be purchased “to all active promotions defined by the manufacturer or its representative on the ICN database 1014.” Ex-1001, 17:65-18:2. For any promotions applicable to the UPCs to be purchased, the ICN promotion redemption service 1013 may send a message back to the point-of-sale with “the manufacturer coupon code.” Ex-1001, 18:2-7. The point-of-sale may “attempt to redeem the manufacturer coupon against the target UPC.” Ex. 1001, 18:14-18. The point-of-sale may also generate a message that contains “information regarding the success of the coupon redemption process” and transmit that message to the ICN server. Ex-1001, 18:21-27.

A. Challenged Claims

31. All claims of the '855 patent are Challenged Claims.

32. The Challenged Claims 1-57 are provided in Appendix B attached to my Declaration.

B. Prosecution History

33. I understand that the application that resulted in the '855 patent was Appl. No. 12/283,206, filed on September 9, 2008.

34. I understand that on June 7, 2011, the Examiner rejected, among other rejections, the pending claims as anticipated by Fajkowski (U.S. Patent App. Publ. No. 2005/0230473). Ex-1002, 157-178.

35. I understand that on September 13, 2011, the Applicant distinguished Fajkowski in arguing that it does not disclose a server that is remote from the claimed POS terminals via the POS controllers for validation of coupons. Ex-1002, 199-200.

36. I understand that on November 17, 2011, the Examiner rejected, among other rejections, the pending claims as anticipated over Paul (U.S. Patent No. 7,240,843). Ex-1002, 206-230.

37. I understand that on August 22, 2014, the Applicant distinguished Paul by amending the claims to include the limitation that the coupon processing server for coupon validation is located remotely from the retail store. Ex-1002, 316.

38. I understand that on June 24, 2015, the Examiner issued a notice of allowance and the patent issued on August 4, 2015. Ex-1002, 366, 391. Thus, based on my review of the prosecution history, in my opinion, it appears that the Examiner

allowed the claims only because the coupon processing server used for coupon validation is recited as being remote from the retail store.

VII. STATE OF THE ART

39. To put in context my opinions herein, I provide an overview of the relevant technological background, which relates to coupons, computing systems and their network communication capabilities, and financial transaction processing.

A. Computer Networking

40. A key event in the development of wide-area networking technology was the creation of the ARPANET in 1969. The initial network link (connecting nodes at Stanford and UCLA) eventually grew into the Internet as we know it today. For the first several decades of its existence, however, use of the Internet was restricted to academic and military applications (focusing mostly on networking research and communication between universities and government agencies). In the early 1990s, the U.S. Congress passed the Scientific and Advanced-Technology Act that legalized use of the Internet for commercial purposes. This led to the emergence of a major boom in electronic commerce (e-commerce) such as the creation of numerous “dot-com” companies such as Amazon, eBay, etc. E-commerce quickly became a driving force in the expansion of the Internet, necessitating advancements in web technologies, secure payment systems, and digital communication protocols. The rapid growth of online shopping, digital payments, and internet-based services

further fueled investment in the underlying infrastructure of the Internet, transforming it into a critical platform for business and commerce by the year 2000.

41. While the Internet was being created, another technological breakthrough was happening in database management technology. In the early 1970s, Ted Codd (a researcher at IBM) published a seminal paper that introduced the “relational” model that revolutionized how data was stored, queried and managed in databases. Relational databases, characterized by their use of tables to store data and Structured Query Language (SQL) for querying, became the foundation for modern data management. E.F. Codd, A relational model of data for large shared data banks, 13 Communications of the ACM 6, 377-387 (1970). By the late 1980s and early 1990s, relational database management systems (RDBMS) had become the standard for enterprise data management, particularly within banks and financial institutions. Examples included IBM’s DB2, Oracle, Microsoft SQL Server, Sybase and Informix. These systems enabled institutions to efficiently manage large volumes of customer data, query account balances, and execute transactions with high levels of accuracy and reliability.

42. By the early 2000s, relational DBMS technologies had matured, offering robust transaction processing capabilities that were especially important for financial applications. Banks relied heavily on these systems to perform complex queries and maintain the integrity of financial transactions. The introduction of

features such as ACID (Atomicity, Consistency, Isolation, Durability) properties ensured that transactions were processed reliably, even in the event of system failures. This reliability made relational databases indispensable for handling sensitive financial data, where the accuracy of account balances and the consistency of transactional updates were critically important. Philip A. Bernstein, Newcomer, Eric. *Principles of Transaction Processing for the Systems Professional*, United Kingdom: Elsevier Science, (1997).

43. The development of distributed computing further enhanced the capabilities of databases and transaction processing systems. Distributed computing architectures, particularly the client-server model, became prevalent in the 1990s, enabling remote hosts to interact with centralized servers over a network. This model allowed for the distribution of computational tasks across multiple machines, improving scalability and reliability. Distributed systems facilitated the processing of transactions across multiple locations, making it possible for companies to maintain a global presence while ensuring that their systems could handle the demands of a distributed user base. The rise of distributed databases, where data could be stored and processed across multiple servers in different geographic locations, was a direct consequence of these advancements. A. S. Tanenbaum, A. S., & Van Steen, M., *Distributed systems: Principles and paradigms*, Prentice Hall (2002).

44. One example of how distributed systems were used to perform financial transactions was the CIRRUS network, which was established in 1982 to manage ATM transactions across various banks in the United States. David Gifford and Alfred Spector, The CIRRUS banking network. *Commun.*, 28 ACM 8, 798–807 (Aug. 1985), available at <https://doi.org/10.1145/4021.4022>, <https://dl.acm.org/doi/10.1145/4021.4022>. When a customer initiated a transaction, the ATM's host system processed the request by reading the account information from the card. If the account was not held by the host bank, the transaction was routed through the CIRRUS switch, utilizing the ANSI X9.2 message protocol. This protocol ensured that the transaction request, including account number, transaction type, and amount, was forwarded to the appropriate bank's node. Upon receipt, the customer's bank verified the transaction, updated the customer's account in its database (using a memo post), and sent an approval message back through the network. This CIRRUS network system (which also leveraged redundant messaging to handle potential timeouts) maintained database consistency and ensured accurate account updates. During the mid-1990s, I gave lectures on how the CIRRUS network worked to undergraduate computer science majors at the University of Toronto in one of the classes that I regularly taught (CS372: Microprocessor Software).

B. Coupon Systems

45. Originally, coupon processing was completed manually. First, paper coupons were distributed to customers through vouchers, newspapers or other periodicals. Then a customer redeemed the coupon at a retail location. The cashier had to autonomously validate the coupon by determining if the coupon was genuine, not expired, and met quantity requirements or total amount limits, and then calculate the benefit to the customer. Axel Winkelmann, *Integrated Couponing: A Process-Based Framework for In-Store Coupon Promotion Handling in Retail*, 86 (2006). Coupon validation required training and had a high risk of fraud. *Id.* The coupons would then be physically mailed to clearing houses. *Id.* at 88. The clearing houses would count and sort the coupons by manufacturer and determine the amount owed to the retailer by the manufacturer. *Id.* In a two-step clearing process, the manufacturer will also count the coupons and verify the amount. *Id.* at 84. In the late 1990s to early 2000s, computing and network evolved and changed the entire coupon validation and clearing process. *See* Electronic ‘Coupons’: Savings but No Scissors (Apr. 21, 1990) at <https://www.nytimes.com/1990/04/21/style/consumer-s-world-electronic-coupons-savings-but-no-scissors.html>. Instead of printing coupons in newspapers, coupon distribution became digital. *Id.* For example, it was known that electronic coupons could be distributed based on a customer

identification, and then the customer could retrieve their available coupons stored on a central server. Patent Application Publication 2004/0030598 (“Boal”).

46. Also, instead of a customer clipping a paper coupon and bringing it into the retail store, systems for an automated coupon redemption were also known in the art. Retail store devices could scan a product barcode and automatically search the network for coupons available for that product. U.S. Patent Application Publication No. 2003/0024981 (“Narasimhan”), [0007]. The coupons would then be available for immediate redemption at the retail store, and the redemption information would be transmitted in real-time to the coupon issuer and/or product manufacturer. *Id.* at [0015], [0028].

47. It was also known that coupons could be distributed via data processing systems that generated personalized shopping lists and distributed coupons that matched planned purchases. U.S. Patent No. 7,231,357 (“Shanman”). Specifically, a customer could enter their shopping list into a terminal, and then the computer server would automatically return a file with electronic coupons that corresponded with an item on a shopping list. *Id.* at Abstract, 5:3–19, cl. 1.

48. With the introduction of terminals with scanners that could read and interpret barcodes, automatic coupon validation became easy and routine. *See* UPC, IBM.com at <https://www.ibm.com/history/upc>; Axel Winkelmann, Integrated Couponing: A Process-Based Framework for In-Sore Coupon Promotion Handling

in Retail, 86 (2006) (“Winklemann”). Coupons could have a Uniform Product Code (“UPC”) that corresponded to a product scanned at a Point of Sale (“POS”) terminal, and the terminal that could automatically determine the appropriate discount. *See* U.S. Patent No. 3,959,624 (“Kaslow”). Cashiers no longer had to determine if a coupon was valid—computers communicating in real-time over networks could. Winklemann at 92–93; U.S. Patent No. 8,511,553 (“McIntyre”).

49. McIntyre, a patent filed in 2003, describes:

[A] real-time, secure Internet-based method and process for purchase validation award processing and make real-time status information available at all times to the purchaser, seller and manufacturer using unique transaction data that is supplied to the purchaser by the selling operation at the time of purchase and/or delivery.

McIntyre at 3:23–29. Specifically, after a consumer bought a qualified product from the retailer, a unique transaction code was sent to a remote server via a network. *Id.* at 4:1–30.

50. The remote server then determined based on pre-determined rules if the award was available to the consumer (i.e., the process of validating a coupon). *Id.* If yes, the remote sever sent the correct award information back to the retail store for the consumer to redeem the coupon. *Id.* Other methods were also known for real-time validation, including the use of a central server. *See* U.S. Patent Application Publication No. 2005/114211 (“Amjadi”).

VIII. APPLICATION OF THE PRIOR ART TO THE CLAIMS

A. Priority Date

51. I have been instructed to assume that the Challenged Claims are entitled to an effective filing date of May 23, 2006, which is the filing date of an application of which the application that issued as the '855 patent is a continuation-in-part application.

B. Claim Construction

52. As I explained above, unless I specify otherwise, I have applied the ordinary and customary meaning of the terms of the Challenged Claims throughout my analysis in this Declaration.

C. Overview of the Prior Art

1. U.S. Patent No. 6,993,498 (“Deaton”)

53. The Deaton reference is U.S. Patent No. 6,993,498 (“Deaton”), titled “Point-of-sale server and method,” and issued on January 31, 2006 from an application filed on July 26, 1999. I understand that Deaton qualifies as prior art to the '855 patent under pre-AIA 35 U.S.C. § 102(a), (e).

54. Deaton describes a “point-of-sale server and method” that includes sending UPC(s) “over the Internet to a remote computer connected to the Internet.” Ex-1004, Title, Abstract. Figure 1 shows a “system for providing point-of-sale information to a manufacturer.” Ex-1004, 2:42-43.

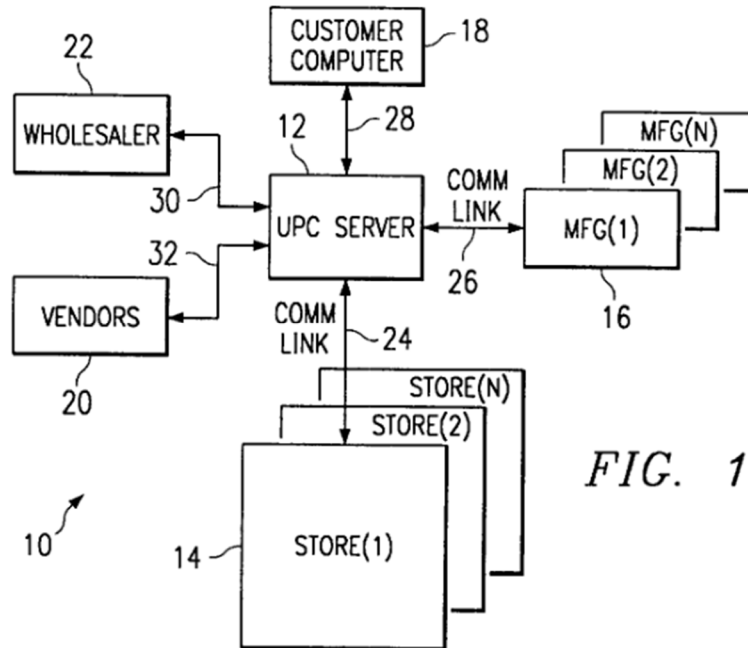
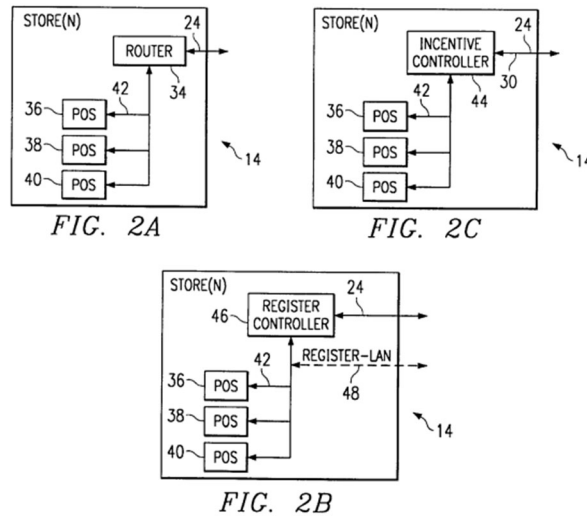


FIG. 1

In system 10, “UPC server 12 [is] connected to one or more stores 14 by a communication link 24.” Ex-1004, 3:32-35. Manufacturers 16 are also connected to UPC server by communication link 26. Ex-1004, 3:35-37. Deaton discloses that point-of-sale information, such as UPC codes or customer IDs, “obtained at store 14 [are] communicated on a substantially real-time basis to UPC server 12.” Ex-1004, 3:47-49.

55. Figs. 2B and 2C provide the details of the stores 14 shown in Fig. 1. Ex-1004, 2:44-47.



56. As seen above, Fig. 2B shows a store with a “register controller” that “operates to provide information to points-of- sale 36, 38, and 40 related to product prices and descriptions and, in addition, transmits point-of-sale information to manufacturers 16 over communication link 24” Ex-1004, 4:35-44. In addition, the register controller 46 receives information from “manufacturers 16 for delivery to the customer at the points-of- sale 36, 38, 40.” Ex-1004, 4:34-46.

57. As seen above, Fig. 2C shows a store with an “incentive controller” that “receives point-of-sale information directly from points-of- sale 36, 38, and 40 on a substantially real-time basis over, for example, communication link 42.” Ex-1004, 4:53-60. The incentive controller 44 then “transmits the point-of-sale information on a substantially real-time basis over communication link 24 to UPC server 12.” Ex-1004, 4:60-63. The incentive controller 44 may also “provide incentives, such as redeemable coupons or a written notification of a future product discount or advertising message, to customers at points of sale 36, 38, 40.” Ex-1004, 4:66-5:3.

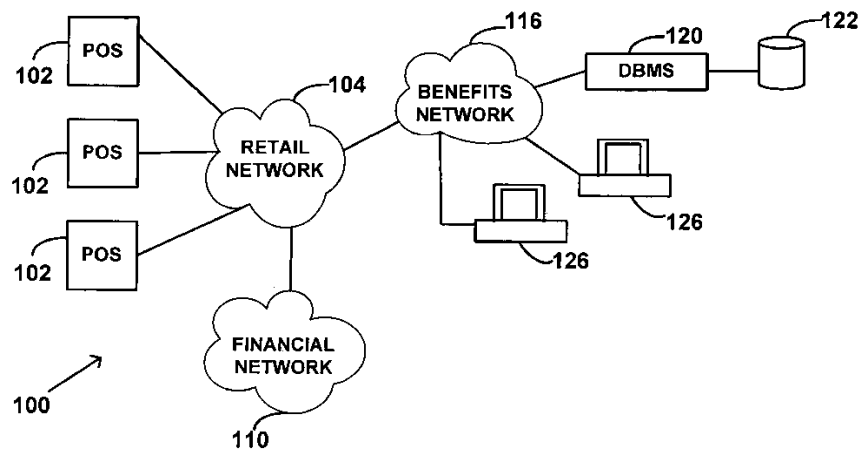
58. Deaton further explains that “[i]n response to receiving information from the point-of-sale, manufacturer 16 may communicate, through UPC server 12, incentives to be communicated to a customer of store 14.” Ex-1004, 4:43-5:46. In addition, Deaton explains “[i]t should be understood that although a particular configuration of store 14 is illustrated in FIG. 2D, other configurations may be utilized.” Ex-1004, 6:5-11.

2. U.S. Patent App. Publ. No. US 2006/0074784 (“Brown”)

59. The Brown reference is a U.S. Patent Application Publication that was filed on September 27, 2004 and was published on April 6, 2006. Ex.-1004. Brown is entitled “Stored value account for use with virtual coupons.” I understand that Brown is available as prior art under 102(a) and 102(e) because the application was filed and published before the priority date of the ’855 patent (May 23, 2006).

60. Brown discloses a “system and method for the purchase of products, wherein a database account is credited with virtual coupons.” Brown, Abstract. The “system includes a database for storing credits to the account, the credits representing virtual coupons.” Brown at 6. When a “product is purchased, the associated coupon is debited from the account.” Brown at 6.

61. Figure 1 provides a “diagram showing a system for facilitating the redemption of coupon units.” Brown at 9.



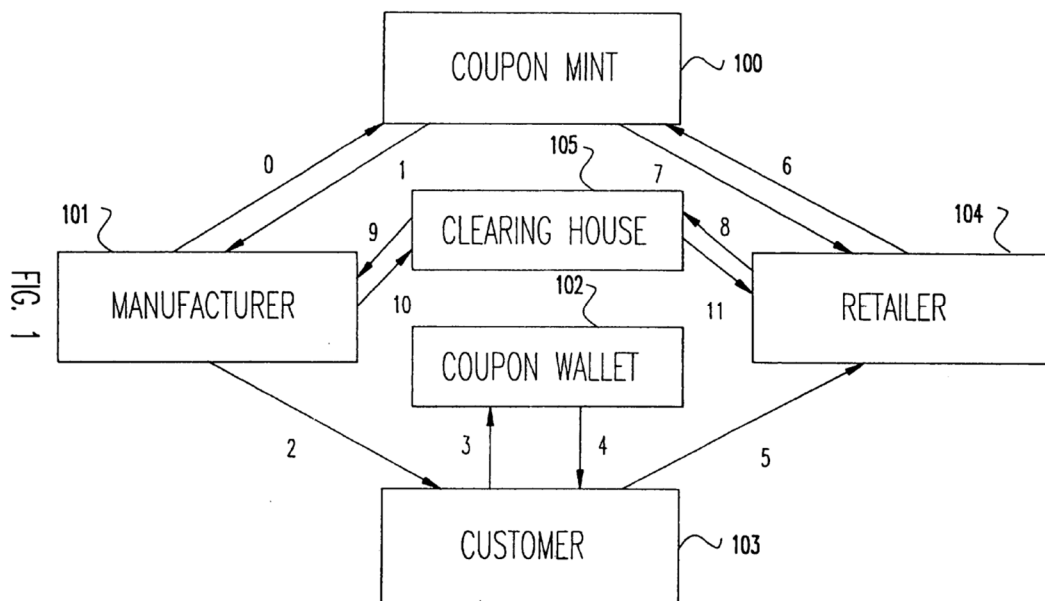
62. The “system 100” in Figure 1 includes a plurality of point-of-sale (POS) terminals 102 located at retail establishments that are connected to a retail network 104 and a benefits network 116. Brown at 15. The benefits network 116 processes “information entered at the POS terminals 102 that pertains to the redemption of electronic or virtual coupons maintained in a benefits account.” Brown at 18. During operation of the system 100 “customer and account information is entered [] at one of the POS terminals 102 [and] communicated through the retail network 104 to the benefits network 116.” Brown at 19.

3. U.S. Patent No. 6,993,498 (“Aggrawal”)

63. The Aggrawal reference is U.S. Patent No. 7,013,286 (“Aggrawal”) titled “Generation, distribution, storage, redemption, validation and clearing of electronic coupons,” issued on March 14, 2006 from an application filed on Dec. 30, 1999. I understand that Aggrawal qualifies as prior art to the ’855 patent under pre-

AIA 35 U.S.C. § 102(a), (e). Aggrawal was not cited or discussed during prosecution of the '855 patent

64. Aggrawal describes a method and system that “generates, distributes, stores, redeems, validates and clears electronic manufacturer coupons and electronic store coupons.” Ex-1006, Abstract. Figure 1 of Aggrawal shows a retailer 104, coupon mint 100, clearing house 105, and manufacturer 101. Ex-1006, 6:12-20. Aggrawal also explains that the coupon mint and clearing house can be performed by the same service provider. Ex-1004, 10:55-58.



65. Aggrawal describes ways to validate and redeem coupons. For example, Figure 2 shows an “electronic manufacturer coupon life-cycle.” Ex-1004, 5:10-11.

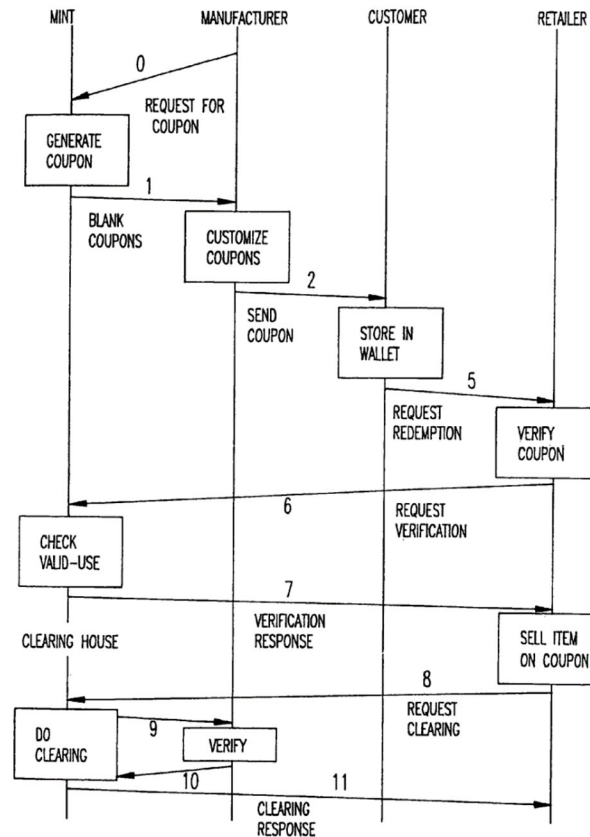


FIG. 2

66. Messages 0 to 2 describe the process for creating a coupon. Ex-1004, 12:3-43. Referring to both Figures 1 and 2, a customer 103 can go to a retailer 104 to purchase products. Ex-1004, 12:44-45. The customer can retrieve a coupon and use it at the retailer (message 5). Ex-1004, 12:50-52. The retailer 104 does an initial verification of the coupon (e.g., checks if it is expired) and then “sends a message to the coupon mint 100 to authorize the use of this coupon (message 6).” Ex-1004, 12:55-61. “It may also send some additional information related to the transaction like the transaction identifier, invoice number, or a proof of purchase etc to the verification center.” Ex-1004, 8:35-37. The coupon mint 100 validates the coupon

and sends a certificate of use and other information, such as the coupon identifier and information about the appropriate discount, to the retailer (message 7). Ex-1004, 13:1-10. After the retailer receives the response, the retailer decides whether to honor the coupon, and if so, collects the coupon from the customer and provides her with the appropriate discount. Ex-1004, 13:11-15.

67. Next, the retailer “can send this coupon, along with transaction identifications, to the clearing house 105 for clearing, either immediately or later on, after periodic intervals (message 8).” Ex-1004, 13:16-19. The clearing house sends the coupons received to the manufacturer (message 9). Ex-1004, 13:19-21. The manufacturer confirms the transactions are legitimate, and “sends a confirmation message, possibly along with money, to the clearing house 105 (message 10).” Ex-1004, 13:21-28.

4. U.S. Patent No. 6,932,270 (“Fajkowski”)

68. The Fajkowski reference is U.S. Patent No. 6,932,270, titled “Method and apparatus for coupon management and redemption,” was issued and published on August 23, 2005 and was issued from a Patent Application filed on October 27, 1997. Ex-1007. I understand that Fajkowski qualifies as prior art under pre-AIA 35 U.S.C. § 102(a) and 102(e) because it was filed and published before the priority date of the ’855 patent.

69. Fajkowski discloses “a system for the electronic management and redemption of coupons.” Ex-1007, Abstract. Fajkowski describes a server 200 that will collect information from the point-of-sale “related to the volume of coupons redeemed.” Ex-1007, 22:24-26. Fajkowski explains that “[t]his redeemed coupon data will be used, in part, to create coupon redemption reports for the retail outlet.” Ex-1007, 22:26-28. While Fajkowski explains this in the context of a server located at a store, Fajkowski states the invention covers where the point-of-sale communicates “directly with a remote clearinghouse.” Ex-1007, 24:4-9.

**5. U.S. Patent App. Publ. No. US 2007/0162337 A1
 (“Hawkins”)**

70. The Hawkins reference is U.S. Patent App. Publ. No. US 2007/0162337 A1 (“Hawkins”) titled “Method and system for distributing and redeeming targeted offers to customers.” was published on July 12, 2007 from an application filed on December 5, 2006. Ex-1006. I understand that Hawkins qualifies as prior art under pre-AIA 35 U.S.C. § 102(a) and 102(e) because it was filed and published before the priority date of the ’855 patent.

71. Hawkins is directed to “[m]ethods and systems are provided for activating and redeeming product discount offers targeted to particular customers.” Ex-1008, Abstract. Hawkins describes a “biometrically enhanced infrastructure architecture” that is used for “activating and redeeming personal incentives and conducting biometric payment transactions at a merchant location.” Ex-1008, ¶18.

More specifically, Hawkins describes a “merchant's point of sale (‘POS’) 105 may include an electronic cash register (‘ECR’) 110 that is coupled to a PIN pad 116 which is further coupled to a biometric access point (‘BAP’) 120.” Ex-1008, ¶18.

6. U.S. Patent App. Publ. No. US 2005/0216340 (“Schneider”)

72. The Schneider reference is U.S. Patent App. Publ. No. US 2005/0216340, titled “Biometric loyalty transaction system and method,” was published on September 29, 2005 and was filed on March 3, 2005. Ex-1009. I understand that Schneider qualifies as prior art under pre-AIA 35 U.S.C. § 102(a) and 102(e) because it was filed and published before the priority date of the ’855 patent.

73. Schneider is directed to a system with a “database of enrolled biometric samples, a point-of-sale station having a biometric-sample receiver, and a comparator in communication with the database and the point-of-sale station. I.” Ex-1009, Abstract. Schneider describes a “tokenless reward system” where “the customer no longer has the requirement of carrying a token, such as a card or chip, that can be lost, stolen or forgotten.” Ex-1009, ¶4. More specifically, Schneider discloses “customer reward system 10 may include a database 13 of enrolled biometric samples, a point-of-sale station 16 having a biometric-sample receiver 19, and a comparator 22.” Ex. 1009, ¶10.

IX. DETAILED ANALYSIS OF INVALIDITY GROUNDS

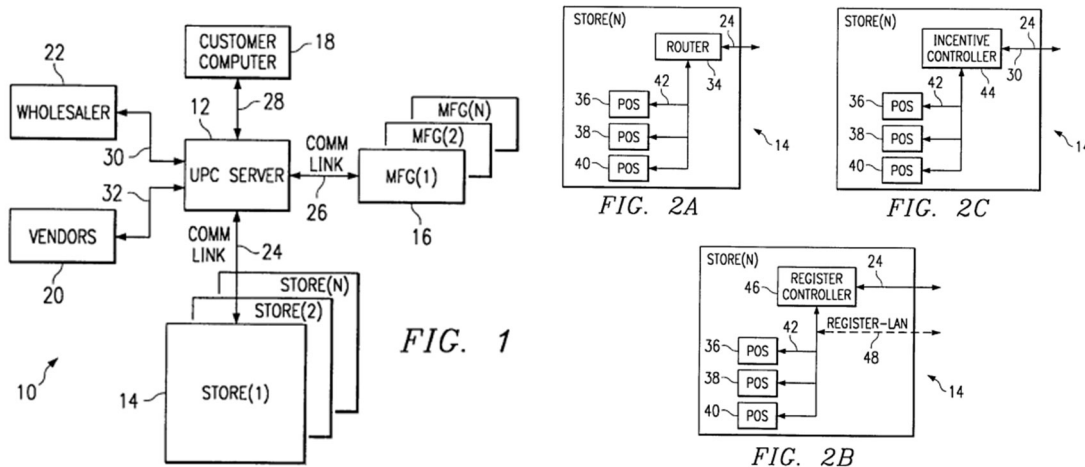
74. I have analyzed all of the claims of the '855 patent, and it is my opinion that Claims 1-23, 29-36, 41, and 45-57 are anticipated and/or rendered obvious over Deaton (**Grounds 1 and 2**), Claims 23-27, 38-40, and 42-43 are rendered Obvious Over Deaton and Brown (**Ground 3**), Claims 28 and 44 is rendered obvious over Deaton and Brown in view of Aggrawal (**Ground 4**), claim 8 is rendered obvious over Deaton in view of Fajkowski (**Ground 5**), claim 37 is rendered obvious over Deaton in view of Hawkins (**Ground 6**), and claim 37 is rendered obvious over Deaton in view of Schneider (**Ground 7**).

A. Grounds 1 and 2: Claims 1-23, 29-36, 45-48, and 51-57 Are Anticipated and/or Rendered Obvious Over Deaton

1. Claim 1

- a) **Elements [1pre] to [1d]: A system, comprising: an Intelligent Clearing Network (ICN) network; at least two point-of-sale (POS) terminals; at least two POS controllers, where each POS controller is configured to communicate with a plurality of the at least two POS terminals; and an ICN server configured to communicate with the at least two POS controllers,**

75. In my opinion, Deaton teaches a “system” comprising an ICN network with at least two point-of-sale (“POS”) terminals, at least two POS controllers configured to communicate with the POS terminals, and an ICN server configured to communicate with the two POS controllers. Ex-1004, 3:32-46; 4:53-65; Figs. 1, 2, which I have reproduced below.



76. As seen in the figures above, Deaton discloses a system that includes a network (the combination of links 24, 26, 28, 30 and 32), which serves as an ICN network. The system further comprises with an “ICN server” (labeled as “UPC server 12” above) with “at least two POS controllers” (labeled as “incentive controller 44” and “register controller 46” above, individually and collectively serving as POS controllers with multiple such components indicated in Figure 1) connected to “at least two POS terminals” (labeled as “POS [36, 38, and 40]” above and indicated to be multiple in Figures 1 and 2A, B and C). Ex-1004, Figs. 1-2; Ex-1004, 3:32-35 (“FIG. 1 is a block diagram of a system 10 for providing point-of-sale information to a manufacturer 16. System 10 includes a UPC server 12 connected to one or more stores 14 by a communication link 24.”); Ex-1004, 4:35-52 (“FIG. 2B is a block diagram of a store 14 showing alternative details of a portion of system 10 for providing point-of-sale information to manufacturer 16. ...In this embodiment, register controller 46 operates to provide information to points-of-sale

36, 38, and 40 related to product prices and descriptions and, in addition, transmits point-of-sale information to manufacturers 16 over communication link 24.”); Ex-1004, 4:53-65 (“FIG. 2C is a block diagram of store ... In this embodiment of store 14, router 34 is replaced with an incentive controller 44. Incentive controller 44 receives point-of-sale information directly from points-of- sale 36, 38, and 40 on a substantially real-time basis over, for example, communication link 42.”).

- b) Element [1e]: wherein a POS terminal of the at least two POS terminals is located at a retail store and is configured to scan, at a point-of-sale (POS) terminal, first coupon or incentive related information including universal product code information of an item to be purchased, and to transmit the first coupon or incentive related information at the POS terminal to a POS controller of the at least two POS controllers;**

77. In my opinion, Deaton teaches that a POS terminal is located at a retail store and is configured to scan a first coupon or incentive related information (the “first information”), including UPC information about the product. Deaton explicitly discloses that “FIG. 3 is a block diagram of particular examples of points-of- sale 36, 38, and 40...” Ex-1004, 6:16-17. “Point-of-sale 36 includes an electronic cash register 50. Electronic cash register 50 receives a signal indicative of the bar code of an item scanned by a scanner 52. A scanned item may include a product for purchase, a coupon being redeemed, or other suitable item bearing a scannable code.

Based upon **the signal indicative of the UPC bar code**, a price is associated with the scanned item as well as a description of the scanned item.” Ex. 1004, 6:21-30.

78. Deaton further teaches that the POS terminal transmits the first information to a POS controller. Ex-1004, 4:35-65. For example, “Incentive controller 44 receives point-of-sale information directly from points-of- sale 36, 38, and 40 on a substantially real-time basis over, for example, communication link 42.” Ex-1004, 4:57-60. Also, “register controller 46 operates to provide information to points-of- sale 36, 38, and 40 related to product prices and descriptions and, in addition, transmits point-of-sale information to manufacturers 16 over communication link 24.” Ex. 1004, 4:39-44.

- c) **Element [1f]: the POS controller is configured to transmit the first coupon and/or incentive related information to the ICN server via the network, where the ICN server is at a location that is remote from the retail store; and**

79. In my opinion, Deaton teaches that the POS controller is configured to transmit the first information to the server **via the network**, where the server is at a location that is remote from the retail store. As Deaton explains and shows in Fig. 1, the controllers transmit information to the manufacturers via the UPC server (i.e., the ICN server) via the network. Ex-1004, Fig. 1. Moreover, Deaton discloses that in an exemplary embodiment, “a method for use in marketing includes detecting, at the point-of-sale, a plurality of Uniform Product Codes associated with respective

items purchased by a customer and transmitting, on a substantially real-time basis, the plurality of Uniform Product Codes **over the Internet** to a remote computer connected to the Internet.” Ex-1004, 1:50-56. For another example, “register controller 46 operates to provide information to points-of-sale 36, 38, and 40 related to product prices and descriptions and, in addition, transmits point-of-sale information to manufacturers 16 **over communication link 24.**” Ex.1004, 4:39-44; For another example, “Incentive controller 44 receives point-of-sale information directly from points-of- sale 36, 38, and 40 on a substantially real-time basis over, for example, **communication link 42.**” 4:60-63. For another example, “Incentive controller 44 is connected to kiosk 47 by communication link 51. According to the teachings of the invention, point-of-sale information is communicated **through communication link 24** to UPC server 12. Such information is then communicated to a manufacturer 16.” 5:39-43. For another example, “a remote computer connected to the Internet, the computer comprising a processor, a storage medium connected to the processor, and a computer program stored on the storage medium, the remote computer located remote from the store in which the electronic cash register is located.” 14:4-9.

80. As Deaton explains and shows in Fig. 1, the controllers transmit information to the manufacturers via the UPC server (i.e., the ICN server) via the network. Ex-1004, Fig. 1

- d) **Element [1g]: the ICN server is configured to validate the first coupon or incentive related information for redemption based at least in part on the universal product codes of items to be purchased and, in response to validating the first coupon or incentive related information, to transmit to the POS terminal, via the POS controller, second coupon or incentive related information**

81. In my opinion, Deaton teaches the server can be configured to validate the first information based at least in part on the UPC codes of the items. For example, Deaton discloses that “FIG. 9 is a block diagram illustrating the use of UPC server in facilitating coupon redemption validation and electronic crediting.” Ex-1004, 10:63-65 Further, “the manufacturer may verify the proper redemption of a manufacturer coupon and provide an appropriate credit to store 14. Such redemption verification includes verifying that the product associated with the coupon is actually purchased. Verification may also include verifying the price at which the product was purchased. In addition, for incentives associated with a particular customer, the identity of the person receiving a discount may be verified. Alternatively, **UPC server 12 may include circuitry and/or software 70 for also performing this validation** and for providing manufacturer 16 of a summary of the number and amount of coupons redeemed for the particular manufacturer” Ex. 1004, 11:4-16. *see also* 5:4-7 (“Incentive controller 44 may also be used in validating product purchases in conjunction with products offered at a discount or for products for which coupons are redeemed.”).

82. In my opinion, Deaton teaches that the UPC server may store electronic discounts, and when the customer is identified purchasing a product associated with the discount (i.e., validating . . . the first coupon or incentive related information by performing a comparison of the first coupon or incentive related information based at least in part on the universal product code information), the discount may be sent to the store for application. For example, Deaton discloses that “discounts may be electronically stored on UPC server 12 . . . for subsequent access by the customer. The electronic discounts may also communicate to store 14 for application when the customer is identified purchasing the product associated with the discount.” Ex-1004, 12:65-13:3.

83. Further, the server disclosed in Deaton was capable of receiving information and filtering information received from the POS controllers. Ex-1004, 9:30-35. Deaton further teaches that the UPC server may be implemented in many forms and that although a particular configuration of a store is illustrated, other configurations may be utilized. Ex-1004, 6:5-7; 7:7-8.

84. Deaton also discloses that in response to validating the first information, the server, via the manufacturer, transmits to the POS terminal via the POS controller second coupon or incentive related information (the “second information”). Ex-1004, 4:44-49; 5:39-48; *see also* Fig. 1.

85. To the extent it is found that a particular configuration in Deaton differs from the claimed system, Deaton further teaches that the UPC server may be implemented in many forms and that although a particular configuration of a store is illustrated, other configurations may be utilized. For example, Deaton discloses that “[i]t should be understood that although a particular configuration of store 14 is illustrated in FIG. 2D, other configurations may be utilized, including combining register controller 46 and incentive controller 44 into a single integrated device, combining incentive controller 44 and kiosk 47 into a single integrated device, and eliminating redundant communication links.” Ex-1004, 6:5-7; *see also* 7:7-8 (“FIG. 4A is a block diagram of one example of UPC server 12. UPC server 12 may be implemented in many forms.”).

86. In my opinion, a POSITA would have found it obvious based on this teaching to reconfigure the various components of the system in Deaton to meet the claimed system and would have had a reasonable expectation of success in doing so because the systems described are basic computer components like servers, networks and terminals.

87. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 1.

- 2. Claim 2: A system as in claim 1, wherein the ICN server is a coupon or incentive processing server, the system further comprising a retailer's POS controller through which the POS terminal is communicatively coupled to the ICN network and the ICN coupon or incentive processing server via ICN POS bridge software installed on the POS controller and the POS terminal**

88. In my opinion, the ICN server disclosed in Deaton (e.g., the “UPC server”) is a coupon or incentive processing server. Ex-1004, 11:12-16 (“UPC server 12 may include circuitry and/or software 70 for also performing this validation and for providing manufacturer 16 of a summary of the number and amount of coupons redeemed for the particular manufacturer”); *see also* Ex-1004, 3:32-46; 9:30-34.

89. Further, the Deaton system included a POS terminal that was communicatively coupled to the ICN network and ICN server through a retailer’s POS controller. Ex-1004, 3:32-46; 4:53-65; Figs. 1, 2. The POS controller and POS terminal in Deaton are also computer systems capable of connecting over the internet, and therefore, include ICS POS bridge software bridging the two systems. Ex-1004, 1:46-56; 3:32-46.

90. In any event, a POSITA would have found it obvious to modify Deaton to include such software to the extent that Deaton does not explicitly disclose ICN POS bridge software installed on the POS terminals and controllers. Deaton teaches that the UPC server was comprised of software. “UPC server software 70 may be executed by processor 60 while stored in memory 64. Alternatively, UPC server

software may be executed from storage area 62. UPC server software 70 contains software coding sufficient to execute functions performed by UPC server 12 described in greater detail below.” Ex. 1004, 7:13-18. 10:25-29. See also Ex. 1004, 10:41-45; 10:57-62; 11:12-16. Based on this teaching, a POSITA would have understood that software would be installed on the POS controllers and POS terminals as well, and would have had a reasonable expectation of success since Deaton explains that software can be installed on its systems.

91. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 2.

3. Claim 3: The system as in claim 2, further comprising a manufacturer's server communicatively coupled to the ICN server

92. In my opinion, Deaton discloses a manufacturer server that is communicatively coupled to the ICN server – namely the manufacturer element 16 identified in the figures that is shown to be a server because it is shown as connected to the network and described as communicating over the network. Ex-1004, Fig. 1, 3:32-46 (“FIG. 1 is a block diagram of a system 10 for providing point-of-sale information to a manufacturer 16. System 10 includes a UPC server 12 connected to one or more stores 14 by a communication link 24.”); 4:53-65.

93. A POSITA would have understood that the information transmitted from the UPC server to a manufacturer would have been transmitted to the

manufacturer's server. Indeed, Deaton explains that the manufacturer is capable of performing the functions that use hardware and software elements. For instance, Deaton discloses that "the manufacturer may verify the proper redemption of a manufacturer coupon" (11:4-5), and that the "UPC server 12 may include circuitry and/or software 70 for also performing this validation" (11:12-13).

94. In addition, the ICN server in Deaton would have exchanged information in real-time with the manufacturer, which would have required the server to be communicatively coupled to the manufacturer's server. Ex-1004, 8:6-9 ("After point-of-sale information is received by UPC server 12, point-of-sale information is transmitted on a substantially real-time basis over communication link 26 to manufacturer 16").

95. To the extent Deaton does not explicitly disclose a manufacturer's server communicatively coupled to the ICN server, in my opinion, such a configuration would have been obvious over Deaton. For instance, the Deaton system explains that the ICN server is coupled to the manufacturer and transmits information in real-time to the manufacturer. Ex. 1004, Fig. 1; 8:6-9 ("After point-of-sale information is received by UPC server 12, point-of-sale information is transmitted on a substantially real-time basis over communication link 26 to manufacturer 16"). In my opinion, a POSITA would have found it obvious to

communicatively couple the ICN server to the manufacturer's server to provide such real-time exchange of information

96. Therefore, Deaton discloses, and/or renders obvious, claim 3.

4. **Claim 4: The system as in claim 3, wherein the first coupon related information includes information regarding a consumer's transaction at the POS terminal including at least one of date, time, store, lane, total dollar amount spent, customer ID, and universal product codes**

97. In my opinion, Deaton teaches that the first coupon information includes at least the universal product code for the purchased product, store information, and customer IDs. Ex-1004, 3:46-67. "Such point-of-sale information may include **UPC codes for purchased products, UPC codes for redeemed coupons, prices of purchased products**, other suitable identifications of purchased products, and other suitable data obtained at the point-of-sale, including codes not currently used. Additional point-of-sale information may include **a store identification such as an Internet address, the register or lane number, and additional data such as lines of print sent to the receipt tape, smart card contents, customer IDs, and receipt lines including item description, quantity, and price, and receipt total.**" Ex. 1004, 3:46-59.

98. Deaton further states that the "entire contents of a customer's smart card may also be provided to UPC server 12. In addition, payment instrument data such as **credit card number, check number, and debit card number** may be

transferred. Such numbers may be used as unique customer identification codes for identifying particular customers. The identification of particular customers allows determining what products a particular customer purchases, which may be used in marketing.” Ex. 1004, 3:60-67.

99. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 4.

5. Claim 5: The system as in claim 3, wherein the first coupon related information comprises a control number provided through a downloaded coupon or coupon card

100. In my opinion, Deaton discloses that the first information includes a control number (e.g., a “unique identification number”). “The customer may then print the redeemable coupon on a printer associated with customer computer 18. Such a coupon may include **a unique identification number** that is available at store 14 to prevent unlawful duplication of redeemable coupons.” Ex-1004, 13:8-11. In my opinion, POSITA would have understood that the printed coupon was downloaded on the customer computer and therefore it was provided “through a downloaded coupon.” Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 5.

6. Claim 6: The system as in claim 1, wherein the first coupon or incentive related information is consumer identification information

101. In my opinion, Deaton teaches that the first information includes customer identification information (e.g., “customer IDs”). “Additional point-of-sale information may include ... **customer IDs** ... In addition, payment instrument data such as credit card number, check number, and debit card number may be transferred. Such numbers may be used as unique customer identification codes for identifying particular customers.” Ex-1004, 3:46-67. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 6.

7. Claim 7: The system as in claim 1, wherein the second coupon or incentive related information is GS1 coupon code

102. In my opinion, Deaton teaches that the second information includes UPC coupon codes. Ex-1004, 3:46-67 (“a manufacturer may offer a customer a coupon for a product in response to the customer’s purchase of particular products”). Further, “coupons are marked with a Uniform Product Code.” 10:65-66; *see also* 5:43-46. In addition, Deaton teaches that the system may be used with “other types of codes representative of products, including existing codes.” Ex-1004, 13:48-52. In my opinion, a POSITA would have known that GS1 coupon code would have been contemplated as a “type[] of code representation of products.” Ex-1004, 13:48-52. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 7.

8. Claim 8: The system as in claim 7, wherein the second coupon or incentive related information includes an application identifier, a product number system character, manufacturer offer code, expiration date, and household identifier

103. In my opinion, Deaton teaches that the second information includes a coupon offer code from the manufacturer. For instance Deaton explains that “a manufacturer may offer a customer a coupon for a product in response to the customer’s purchase of particular products.” Ex-1004, 3:46-67.

104. Deaton further explains that additional such point-of-sale information “may include UPC codes for purchased products, UPC codes for redeemed coupons, prices of purchased products, other suitable identifications of purchased products, and other suitable data obtained at the point-of-sale, including codes not currently used.” Ex-1004, 2:16-17. In my opinion, a POSITA reading Deaton would understand that the second coupon information could include additional codes as identifiers, including an application identifier and a product number system character (e.g., “UPC codes for purchased products, UPC codes for redeemed coupons, prices of purchased products, other suitable identifications of purchased products”), and a household identifier (e.g., a “customer ID”), because Deaton was concerned with “respond[ing] to market conditions,” and such identifiers could be used to better assess the market. Ex-1004, 2:16-17. Also, in my opinion, it would have been obvious to transmit an expiration date so that the store could know if the

coupon had expired. Determining the expiration of a coupon would be part of the process of validation, which as explained above, the Deaton system performed.

105. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 8.

9. Claim 9: The system as in claim 1, wherein the server is coupled to a centralized database that provides second coupon or incentive related information when the server receives first coupon or incentive information

106. In my opinion, Deaton discloses that the server is associated with a storage device and memory device, and as such, the server is coupled to a centralized database. “UPC server 12 includes a processor 60 associated **with a storage device 62 and a memory device 64.**” Ex-1004, 7:7-11. As explained above such as in Claim 1, the server provides second information when the server receives second information that it retrieves from its centralized database.

107. A POSITA would have found it obvious to retrieve and store such information from the manufacturer in a centralized database to the extent that Deaton system does not explicitly receive the second coupon or incentive information from the centralized database. Deaton explains that the manufacturers in the system provide information on a real-time basis to particular customers: “a manufacturer may provide customer incentives, such as redeemable coupons, on a real-time basis to particular customers identified to the manufacturer through substantially real-time purchasing data. Such an ability allows a manufacturer, for example, to market its

products to purchasers of competing products.” Ex-1004, 8:6-9. A POSITA would have understood that there can be delays in communicating with different nodes of the network, and would have been motivated to store some of the information in a centralized database so that the ICN server can provide information to the customer in real-time. Further, A POSITA would have also had a reasonable expectation of success in using a centralized database to retrieve second information because the system in Deaton already included such a database.

108. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 9.

10. Claim 10: The system as in claim 1, wherein the server tabulates raw data of at least one of coupon and incentive processing transactions for a manufacturer

109. In my opinion, Deaton discloses tabulating raw data of at least one of coupon and incentive processing transactions for the manufacturer. For example, Deaton discloses that the UPC server is able to “provid[e] manufacturer 16 of a summary of the number and amount of coupons redeemed for the particular manufacturer.” Ex-1004, 11:12-18. A POSITA would understand that the “coupons redeemed for the particular manufacturer” is the raw data of coupon and incentive processing transactions, and that the summary Deaton provides tabulates such data for the manufacturer.

110. Deaton discloses that the server receives information received from the POS controllers (i.e., “raw data of at least one of coupon and incentive processing transactions) and filters that data (i.e., “tabulat[es] the raw data”) for the manufacturer. For example, “FIG. 6 is a block diagram illustrating additional details of one example of UPC server 12 showing UPC server 12, showing units for receiving information, **filtering that information, and distributing the filtered information to appropriate manufacturers 16.**” Ex-1004, 9:30-35. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 10.

11. Claim 11: The system as in claim 10, wherein the server provides the tabulated data to the manufacturer in real time in the form of a report

111. As I explained above for Claim 10, Deaton discloses that the server tabulates raw data. *See* Claim 10.

112. In my opinion, Deaton discloses that the raw data is tabulated in the form of a report (e.g., “a summary of the number and amount of coupons redeemed for the particular manufacturer.”). Ex-1004, 11:12 18. Deaton discloses that after information is received by the server, the information is transmitted to the manufacturer on a real-time basis. Ex-1004, 8:6-9 (“After point-of-sale information is received by UPC server 12, point-of-sale information is transmitted on a substantially real-time basis over communication link 26 to manufacturer 16”); 4:1-3 (“The communicated information is then made available on a substantially real-

time basis to manufacturers 16, vendors 20, wholesalers 22, and other appropriate clients.”); see also 1:47-54; 4:13-21; 4:57-63; 10:13-17; 10:53-57. In my opinion, a POSITA would have understood that the system in Deaton was concerned with sending information to the manufacturer in real-time and would have sent the reports that it produced to the manufacturer as so. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 11.

12. Claim 12: The system as in claim 1, wherein the network is the World Wide Web

Claim 13: The system as in claim 1, wherein the network is an internet

113. Deaton teaches that its system can be implemented over the Internet, and specifically describes using the World Wide Web for communications. “According to one embodiment of the invention, communications links 24, 26, 30, and 32 utilize **the Internet**.” Ex-1004, 3:45-46. “According to one embodiment, communication link 24 provides Internet access to store 14 and therefore, connects UPC server 12 to store 14 **via the Internet**.” Ex. 1004, 7:50-52.

114. Further, Deaton explains that network can be connected through a website and thus would communicate to the website over the world wide web. Ex-1004, 13:13-15 (“a manufacturer may communicate product discounts to store web site 124, through UPC server 12, for viewing by customers.”). Therefore, in my opinion, Deaton discloses, and/or renders obvious, claims 12 and 13.

13. Claim 14: The system as in claim 1, wherein each of the at least two POS terminals transmits third coupon or incentive related information to the POS controller through the ICN POS bridge software upon successful redemption of a coupon

115. In my opinion, Deaton teaches that at least two POS terminals are connected to the POS controller (e.g., the “incentive controller”), which receives “point-of-sale information” directly from the POS terminals. Ex-1004, 4:57-58. The point-of-sale information can include “UPC codes for redeemed coupons” (i.e., “third coupon or incentive related information”). Ex-1004, 3:49-51. Deaton teaches that the controller can “be used in validating product purchases in conjunction with products offered at a discount or for products for which coupons are redeemed.” Ex-1004, 5:4-7. A POSITA would understand that UPC codes were transmitted upon successful redemption of a coupon (i.e., “redeemed coupon”). As discussed above in claims 1 and 2, A POSITA reading Deaton would understand that information regarding such information was received from the POS terminals through a bridge software. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 14.

14. Claim 15: The system as in claim 14, wherein the third coupon related information comprises identification information from the product purchased and the GS 1 coupon code of the second coupon related information and retailer identification information

116. In my opinion, Deaton teaches that “point-of-sale information obtained at store 14 is communicated on a substantially real-time basis to UPC server 12,” which is communicated via the POS controllers. Ex-1004, 1:47-49. Deaton explains that such point-of-sale information “may include UPC codes for purchased products, UPC codes for redeemed coupons, prices of purchased products, other suitable identifications of purchased products, and other suitable data obtained at the point-of-sale, including codes not currently used” (i.e., identification information from the product purchased and the GS 1 coupon code of the second coupon related information) and that “[a]dditional point-of-sale information may include a store identification such as an Internet address, the register or lane number, and additional data such as lines of print sent to the receipt tape, smart card contents, customer IDs, and receipt lines including item description, quantity, and price, and receipt total” (i.e., retailer identification information). Ex-1004, 1:49-59. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 15.

15. Claim 16: The system as in claim 15, the third coupon related information being used by the server to generate a report to the manufacturer whose product was purchased through redemption of the coupon code.

117. In my opinion, Deaton discloses providing a summary of the number and amount of coupons redeemed (generating a coupon audit report). As discussed above in claim 14, the third coupon related information (e.g., information regarding redeemed coupons) is used by the UPC server to generate a summary of the number and amount of coupons redeemed for the manufacturer (i.e., a “report to the manufacturer whose product was purchased through redemption of the coupon code”). For example, Deaton discloses that the UPC server is able to “provid[e] manufacturer 16 of a summary of the number and amount of coupons redeemed for the particular manufacturer.” Ex-1004, 11:12-18. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 16.

16. Claim 17: The system as in claim 1, wherein the ICN POS bridge software installed on the POS controller transmits second coupon or incentive related information to the ICN POS bridge software installed on each of the at least two POS terminals

118. In my opinion, Deaton teaches that the POS controller transmits second information to the POS terminal (see above Claim 1) using ICN POS bridge software (see above Claim 2). Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 17.

17. Claim 18: The system as in claim 1, wherein the network is a virtual private network

Claim 19: The system as in claim 1, wherein the network is a high speed dedicated communication line

119. In my opinion, Deaton teaches that the network can be configured to be a virtual private network (e.g., “register local area network”). For example, Deaton teaches that “communication link 26 is an Internet connection between manufacturers 16 and UPC server 12; however, other suitable connections may be established including satellite links, wireless communications, phone lines, and dedicated lines.” Ex-1004, 7:10-14. A POSITA would understand that the network in Deaton could be configured using “other suitable connections,” including a virtual private network and a high speed dedicated communication line. *See* Ex-1004, 4:49-52; 7:57-65.

120. To the extent that using a virtual private network is not taught in Deaton, using such a network would have been obvious to a POSITA. Deaton explains that its network can be configured as a “local area network,” which a POSITA would understand could be a private network as well as a high speed dedicated communication line. Ex-1004, 4:49-52; 7:57-65. Using a virtual private network or a high speed dedicated communication line would have been obvious to a POSITA because it would have been more secure, efficient and reliable.

121. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claims 18 and 19.

- 18. Claim 20: The system as in claim 1, wherein the POS controller transmits third coupon related information to the ICN server through the ICN POS bridge software upon successful redemption of a coupon or incentive**

122. In my opinion, Deaton teaches claim 20. As explained above in claim 14, the POS terminal transmits third coupon related information to the POS controller upon successful redemption of a coupon or incentive. Deaton further teaches that the POS controller transmits such “information on a substantially real-time basis over communication link 24 to UPC server 12.” Ex-1004, 4:60-63. Therefore, Deaton discloses, and/or renders obvious, claim 20

- 19. Claim 21: The system as in claim 2, wherein the ICN POS bridge software comprises a configurable software suite that is physically installed and controls POS behavior based on information sent and received to and from the ICN server**
Claim 22: The system as in claim 21, wherein the POS data bridge software is configurable for each unique retailer

123. The POS controller and terminal in Deaton are computer systems capable of connecting over the internet, and therefore, included software that was physically installed on the . Ex-1004, 1:46-56; 3:32-46. Deaton further teaches that the POS behavior is controlled (e.g., the POS provides customer incentives) based on information received from manufacturers via the ICN server. Ex-1004, 6:54-57 (The POS “may receive information generated by manufacturers 16 for providing to a customer at point-of-sale 36, such as customer incentives.”)

124. In my opinion, Deaton discloses that multiple configurations of its stores “may be utilized.” Ex-1004, 6:5-15. As such, a POSITA would have understood that Deaton teaches its system would have software configurable for each store. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claims 21 and 22.

20. Claim 23: The system as in claim 3, further comprising an originating financial institution server coupled to the retailer server

125. The system in Deaton includes a server connected to one or more different manufacturers, vendors, and wholesalers. Ex-1004, 3:32-46; Fig. 1. Because Deaton relates to the purchase of goods over the Internet, the system in Deaton would necessarily have been connected to a financial institution server. Indeed, Deaton teaches that the “UPC server 12 facilitates electronic settlement of credit and debits between store 14 and manufacturer.” Ex-1004, 11:19-22.

126. To the extent it is found that such a system was not necessarily present, a POSITA would have found it obvious to couple a originating financial institution server to the server disclosed in Deaton, which facilitated purchases through the Internet. A POSITA would have also had a reasonable expectation of success because Deaton already describes a system capable of electronically settling credits and debits between the store and manufacturer. Therefore, claim 23 would have been obvious over Deaton alone.

127. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 23.

21. Claim 29: The system as in claim 1, wherein when the universal product codes corresponding to the first coupon or incentive related information are trigger universal product codes, coupon related information corresponding to target universal product codes is transmitted by the ICN coupon or incentive processing server to the POS terminal

128. In my opinion, Deaton discloses that the second information is transmitted by the server to the stores in response to the first information, and as such the first information in Deaton, which includes universal product codes, are trigger universal product codes. For example, “[i]n addition, register controller 46 receives information from manufacturers 16 for delivery to the customer at the points-of- sale 36, 38, 40.”) Ex-1004, 4:44-49. “In response to receiving information from the point-of-sale, manufacturer 16 may communicate, through UPC server 12, incentives to be communicated to a customer of store 14.” Ex-1004, 5:39-48. Further, “point-of-sale information may include UPC codes for purchased products, UPC codes for redeemed coupons, prices of purchased products, other suitable identifications of purchased products, and other suitable data obtained at the point-of-sale, including codes not currently used.” Ex. 1004, 3:49-54.

129. In addition, Deaton teaches that the controller “may also be used in validating product purchases in conjunction with products offered at a discount or for products for which coupons are redeemed” (Ex-1004, 5:4-7), and that a

“manufacturer may offer a customer a coupon for a product in response to the customer’s purchase of particular products” (Ex-1004, 6:57-59). Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 29.

22. Claim 30: The system as in claim 29, wherein at least one of the target universal product codes corresponds to a product that at least one of the trigger universal product codes corresponds to

Claim 31: The system as in claim 30, wherein at least one of the target universal product codes corresponds to a product that none of the trigger universal product codes corresponds to

130. In my opinion, Deaton teaches that a “manufacturer may offer a customer a coupon for a product in response to the customer’s purchase of particular products” (Ex-1004, 6:57-59). A POSITA would have understood from this teaching that particular products (e.g., products that correspond to trigger universal product codes) may correspond to a coupon for another product. In addition, a POSITA would have understood that the manufacturer could offer a coupon for a product that is not based on the said purchase of particular products. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claims 30 and 31.

23. Claim 32:

131. In my opinion, Deaton teaches a method for processing at least one of coupons and incentives. *See* Ex-1004, 1:50-56. In my opinion, Deaton teaches each of the remaining elements of claim 32. *See* claim 1, Elements [1a] to [1g].

a) Element [32pre]: A method for processing at least one of coupons and incentives, comprising

132. More specifically, Deaton teaches a method for processing at least one of coupons and incentives. See Ex-1004, 1:50-56 (“According to one embodiment of the invention, a method for use in marketing includes detecting, at the point-of-sale, a plurality of Uniform Product Codes associated with respective items purchased by a customer and transmitting, on a substantially real-time basis, the plurality of Uniform Product Codes over the Internet to a remote computer connected to the Internet.”)

b) Element [32a]: scanning via a first interface, first coupon or incentive related information at a terminal located at a retail store, the first coupon or incentive related information including universal product code information of an item to be purchased

133. Deaton teaches scanning via a first interface (e.g., the POS terminal) first coupon or incentive related information including universal product code information of an item to be purchased. See claim 1, Element [1e].

c) Element [32b]: transmitting, via a second interface, the first coupon or incentive related information through a network to a coupon or incentive processing server for validation and redemption, where the first interface is different from the second interface, and where the coupon or incentive processing server is located remotely from the retail store; and

134. Deaton teaches transmitting via a second interface (e.g., the “incentive controller”) the first coupon information to the coupon processing server (e.g., the

“UPC server”) for validation and redemption where the server is located remotely from the retail store. *See* claim 1, Element [1f]]. The POS terminal (i.e., the first interface) is different from the POS controller (i.e., the second interface) in Deaton.

- d) Element [32c]: in response to the first coupon or incentive related information being validated at the coupon or incentive processing server based at least in part on the universal product code information, receiving, via the second interface, second coupon related information through the network to the terminal, where the second coupon related information indicates whether the coupon or incentive processing server has validated the first coupon related information**

135. Deaton teaches that the coupon or incentive processing server (e.g., the “UPC server”) can be configured to validate the first coupon information, which includes the universal product code of items to be purchased. Ex-1004, 10:63-65 (“UPC server includes circuitry and/or software for facilitating both coupon redemption validation”); 11:12-16 (“UPC server 12 may include circuitry and/or software 70 for also performing this validation”); *see* claim 1, Element [1g]. In addition, Deaton teaches that second coupon related information can be transmitted from the manufacture via the UPC server through the incentive controller to the POS terminal. *See* claim 1, Element [1g]

136. Deaton further discloses that after verifying the proper redemption of a coupon, the system provides an appropriate credit to the store, which would indicate whether the coupon or incentive processing server has validated the first coupon

information. Ex-1004, 11:4-7 (“the manufacturer may verify the proper redemption of a manufacturer coupon and provide an appropriate credit to store 14. Such redemption verification includes verifying that the product associated with the coupon is actually purchased.”); 11:12-13 (“UPC server 12 may include circuitry and/or software 70 for also performing this validation”).

137. To the extent that Deaton does not teach transmitting information indicating that the coupon was validated, a POSITA would have found it obvious to modify Deaton to transmit such information because the store and customer would need to know whether the coupon is valid to properly redeem the coupon.

138. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 32.

24. Claim 33: The method as in claim 32, further comprising, if the terminal validates the second coupon or incentive related information, redeeming a corresponding coupon or incentive and transmitting coupon or incentive redemption information to the coupon processing server.

139. In my opinion, Deaton discloses that the corresponding coupon or incentive information is redeemed if the terminal validates the second information. For example, “manufacturer may verify the proper redemption of a manufacturer coupon and provide an appropriate credit to store 14” and the “UPC server 12 may include circuitry and/or software 70 for also performing this validation.” Ex-1004,

10:51-11:6. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 33.

25. Claim 34: The method as in claim 33, further comprising when the coupon or incentive processing server receives the coupon or incentive redemption information, deactivating the corresponding coupon or incentive

140. In my opinion, Deaton teaches that deactivating the coupon when the coupon information is received. “Once a coupon having a unique identification number is redeemed, no other coupons having that same number will be redeemed.” Ex-1004, 13:11-15. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 34.

26. Claim 35: The method as in claim 34, further comprising storing processed coupon information corresponding to the coupon or incentive redemption information in a database and making that information available in real time as reports to a manufacturer through a web portal.

141. In my opinion, Deaton discloses that the server is associated with a storage device and memory device, and as such, information is stored in a database. Deaton discloses that the ICN server is associated with a storage device and memory device, and as such, information is stored in a database. Ex-1004, 7:7-11 (“UPC server 12 includes a processor 60 associated with a storage device 62 and a memory device 64.”). Deaton also teaches that information is transmitted to a manufacturer “on a substantially real-time basis.” Ex-1004, 8:6-9 (“After point-of-sale information is received by UPC server 12, point-of-sale information is transmitted

on a substantially real-time basis over communication link 26 to manufacturer 16”); 4:1-3 (“The communicated information is then made available on a substantially real-time basis to manufacturers 16, vendors 20, wholesalers 22, and other appropriate clients.”); see also 1:47-54; 4:13-21; 4:57-63; 10:13-17; 10:53-57. Deaton also teaches making information available via a web portal and states that “discounts may be electronically stored on UPC server 12 or a web site 124 associated with store 14 for subsequent access by the customer.” Ex-1004, 12:65-67. Therefore, it would have been obvious to configure the UPC server to make the stored coupon information available to manufacturers through a web portal. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 35.

27. Claim 36: The method as in claim 35, further comprising the coupon or incentive processing server transmitting processed coupon information corresponding to the coupon or incentive redemption information to a manufacturer's server

142. In my opinion, Deaton teaches that the server transmits processed information to the manufacturer. Ex-1004, 1:31-39 (“FIG. 1 is a block diagram of a system 10 for providing point-of-sale information to a manufacturer 16.”); 9:26-30 (“UPC server 12 may perform a filtering function in which only subscribed to data is transmitted to any particular manufacturer 16. Such filtering is described in greater detail below in conjunction with FIG. 6.”); .”); 11:12 18 (“UPC server 12 may include circuitry and/or software 70 for also performing this validation and for

providing manufacturer 16 of a summary of the number and amount of coupons redeemed for the particular manufacturer.”); *see also* 9:30-35.

28. Claim 41: The method as in claim 35, wherein clearing the processed coupon or incentive information comprises debiting a promotion sponsor in an amount of coupons or incentives dispensed, intelligent clearing network rate, and retailer credit rate; holding funds by the intelligent clearing network and storing clearing rate total debited from the promotion sponsor; and crediting a retailer with a value of the coupons or incentives dispensed and a credit rate

143. In my opinion, Deaton discloses that clearing the processed coupon or incentive information (i.e., “verify[ing] the proper redemption of a manufacturer coupon”) comprises debiting a promotion sponsor (i.e., the “retailer” (see Ex-1001, 26:33-34)). Ex-1004, 11:4-7 (“the manufacturer may verify the proper redemption of a manufacturer coupon and provide an appropriate credit to store 14.”). Further, Deaton discloses crediting a retailer with a value of the coupons or incentives dispensed. Ex-1004, 11:16-18 (“once verified manufacturer 16 may effect a credit, demonstrated by arrow 104, directed to store 14 in the amount of the redeemed coupons.”) 11:44-47 (“manufacturer 16 may provide a credit notification through UPC server 12 for transmission to store 14, thus effecting electronic settlement of temporary price reductions offered by a manufacturer and implemented by a store.”)

144. A POSITA would have understood that clearing the processed coupon could include a rate, including an intelligent clearing network rate and retailer credit rate because it would be expected to charge a fee to facilitate the transaction. In

addition, a POSITA would have understand that crediting a retailer would necessarily mean that funds are held. To the extent that such rates and holding of funds are not disclosed in Deaton, however, a POSITA would have found such limitations obvious over Deaton. As explained above, Deaton discloses providing a credit to the store after redeeming a coupon, which would have resulted in holding funds and/or charging a fee to facilitate the transaction.

145. Therefore, Deaton discloses, and/or renders obvious, claim 41.

29. Claim 45: The method as in claim 32, wherein when the universal product code corresponding to the first coupon or incentive related information is a trigger universal product code, and coupon or incentive related information corresponding to a target universal product code is transmitted by the ICN coupon or incentive processing server to the POS terminal

146. In my opinion, as discussed above in Claim 29, Deaton discloses, and/or renders obvious, claim 45. *See* Claim 29.

30. Claim 46: The method as in claim 45, wherein the target universal product code corresponds to a product that the trigger universal product code corresponds to
Claim 47: The method as in claim 46, wherein the target universal product code corresponds to a product that the trigger universal product code does not corresponds to

147. In my opinion, as discussed above in Claims 30 and 31, Deaton discloses, and/or renders obvious, claims 46 and 47. *See* Claims 30 and 31.

31. Claim 48: The method as in claim 32, wherein the first coupon or incentive related information also comprises a control code obtained by a customer who visits a web site to select from at least one coupon, promotion, or incentive

148. In my opinion, Deaton teaches that the first information can comprise a control code obtained by a customer who visits a website to select a coupon or incentive. Ex-1004, 12:65-15 (“Further, discounts may be electronically stored on UPC server 12 or a web site 124 associated with store 14 for subsequent access by the customer. ... Such a coupon may include a unique identification number that is available at store 14 to prevent unlawful duplication of redeemable coupons. Once a coupon having a unique identification number is redeemed, no other coupons having that same number will be redeemed. Alternatively, a manufacturer may communicate product discounts to store web site 124, through UPC server 12, for viewing by customers.”). Also, Deaton teaches that “discounts may be electronically stored on UPC server 12 or a web site 124 associated with store 14 for subsequent access by the customer.” Ex-1004, 12:65-67. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 48.

32. Claim 49

- a) **Element [49pre]: A computer readable medium storing computer code for processing coupons or incentives across a network, where execution of the computer code by a processor causes the processor to perform action comprising**

149. The POS controller and terminal in Deaton are computer systems capable of connecting over the internet, and therefore, included a computer readable medium storing computer code for processing coupons. Ex-1004, 1:46-56; 3:32-46. In my opinion, as discussed above in Claim 1, Deaton teaches each of the remaining elements of claim 49.

- b) **Element [49a]: receiving, at an ICN server from a terminal via the network, first coupon or incentive related information including universal product code information of an item to be purchased at the terminal, where the first coupon or incentive related information is scanned at the terminal located at a retail store, where the ICN server is at a location that is remote from the retail store and the ICN server is configured to receive first coupon or incentive related information from a plurality of terminals**

150. Deaton discloses Element [49a] for the same reason it discloses Elements [1e]-[1f] and [32a]-[32b] discussed above.

- c) **Elements [49b] and [49c]: interpreting, and comparing the first coupon or incentive related information at the ICN server; validating the first coupon or incentive related information based on the interpreting, and comparing and based at least in part on the universal product code information;**

151. Deaton discloses Elements [49b] and [49c], for the same reasons it discloses Claim 1, Element [1g] and Claim 32, Element [32c], as discussed above. The ICN server in Deaton is “is able to receive both the product Uniform Product Code and the Uniform Product Code associated with a coupon for that product. Therefore, the [UPC server] may verify the proper redemption of a manufacturer coupon and provide an appropriate credit to store 14,” and therefore, interprets and compares the first information. Ex-1004, 11:1-8; see also 11:12-13 (“UPC server 12 may include circuitry and/or software 70 for also performing this validation...”);

- d) **Element [49d]: in response to validating the first coupon or incentive code, retrieving coupon or incentive codes and any corresponding target universal product codes triggered by the validation of the first coupon or incentive code from a centralized database; and**

152. Deaton teaches retrieving information “from a centralized database” (see Claim 9) and “in response to validating the first coupon or incentive code, retrieving coupon or incentive codes and any corresponding target universal product codes triggered by the validation of the first coupon or incentive code from” (see Elements [1g] and [32c], Claim 45)

e) Element [49e]: transmitting the retrieved coupon or incentive codes to the terminal via the network

153. Deaton discloses Element [49e] for the same reasons it discloses Elements [1g] and [32c] as discussed above.

154. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 49.

33. Claim 50: The computer readable medium of claim 49, the actions further comprising notifying the coupon or incentive processing server of successful coupon or incentive redemptions

155. In my opinion, Deaton teaches that the controller “may also be used in validating product purchases in conjunction with products offered at a discount or for products for which coupons are redeemed” and transmit such point-of-sale information to the server. Ex-1004, 5:4-7. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 50.

34. Claim 51

a) Element [51pre]: A point of sale (POS) terminal located at a retail store comprising

156. In my opinion, Deaton teaches a POS terminal located at a retail store with a first interface (e.g., labeled as the POS) and a second interface (e.g., the “incentive controller” and “register controller). See Elements [1a]-[1d] and [31a]-[32b]. Also, the POS controller and terminal in Deaton included processing hardware software bridging the two systems. See Claim 2.

- b) Elements [51a] and [51b]: a first interface configured to scan coupon or incentive related information and to scan product code information of an item to be purchased; a second interface configured to receive information from and transmit information to a retailer server, where the first interface is different from the second interface;**

157. In my opinion, Deaton discloses, and/or renders obvious, Elements [51a] and [51b]. *See* Elements [1a]-[1d] and [31a]-[32b].

- c) Elements [51c] to [51d]: a processor; and a memory for storing a point of sale bridge software configured to redeem a manufacturer coupon or incentive contained in a promotion request message received through the second interface, where the promotion request message indicates that a coupon or incentive processing server has validated the manufacturer coupon or incentive,**

158. In my opinion, Deaton discloses, and/or renders obvious, Elements [51c] and [51d]. *See* Elements [1g] and [32c]. Deaton discloses that the second interface (e.g., the POS controller) transmits to the POS terminal second coupon information, including “redeemable coupons or a written notification of a future product discount or advertising message” (i.e., “promotion request message”). Ex-1004, 4:67-5:4. Deaton also discloses whether the second coupon information, which can include the promotion request message, indicates whether that coupon was validated by the manufacturer. *See* Elements [1g] and [32c].

- d) **Element [51e]: where the promotion request message indicates that a coupon or incentive processing server has validated the manufacturer coupon or incentive,**

159. In my opinion, Deaton discloses, and/or renders obvious, Element [51e]. *See* Elements [1g] and [32c].

- e) **Element [52f]: the processor configured to receive information comprising product code information of an item to be purchased and the coupon related information from the first interface; to transmit the information through the second interface to the coupon or incentive processing server, where the coupon or incentive processing server is at a location that is remote from the retail store; in response to the coupon or incentive related information being validated at the coupon or incentive processing server based at least in part on the product code information, to receive the promotion request message; and to execute the point of sale bridge software**

160. In my opinion, Deaton discloses, and/or renders obvious, Element [51f]. *See* Elements [1g] and [32c].

35. **Claim 52: The point of sale terminal as in claim 51, wherein the first interface is configured to communicate with a universal product code reading device**

161. In my opinion, Deaton teaches that the first interface is configured to communicate with a device that can read a universal product code such as a bar code scanner 52. “Point-of-sale 36 includes an electronic cash register 50. Electronic cash register 50 receives a signal indicative of the bar code of an item scanned by a scanner 52.” Ex-1004, 6:21-30.

36. Claim 53

- a) **Elements [53pre] and [53a]: An Intelligent Clearing Network (ICN) server comprising: a processor; an interface configured to permit communications over a network to a plurality of POS terminals; and an ICN database,**

162. Deaton teaches an ICN server that includes a processor with an interface configured to communicate over a network to a plurality of POS terminals. Ex-1004, Fig. 1; 7:9-10 (“UPC server 12 includes a processor 60...”). Deaton also discloses that the server is associated with a storage device and memory device, and as such, the server is coupled to a centralized database. Ex-1004, 7:7-11. Deaton discloses, and/or renders obvious, Elements [53pre]-[53a]. *See* Elements [1g] and [32c].

- b) **Element [53b]:** wherein the processor of the ICN server is configured to receive data elements through a network from a point-of-sale (POS) terminal of a retailer for validation and redemption, the data elements including product code information of an item to be purchased at the POS terminal and a promotion request message, where the promotion request message is scanned at the POS terminal located at a retail store, where the ICN server is at a location that is remote from the retail store, to validate the promotion request message based at least in part on the product code information, and, in response to validating the data elements at the ICN server, to send a promotion request response message that indicates whether the promotion request message has been validated.

163. Deaton discloses, and/or renders obvious, Element [53b]. *See* Elements [1g] and [32c].

37. Claim 54

- a) **Elements [54pre] and [54a]:** A method comprising: receiving, at an intelligent clearing network (ICN) server, a first message from a point-of-sale terminal via a network, where the first message comprises a unique account number and product code information of an item to be purchased at the POS terminal, where the unique account number is scanned at the POS terminal located at a retail store, where the ICN server is at a location that is remote from the retail store;

164. In my opinion, Deaton teaches the method recited. Deaton teaches that the ICN server receives a first message from the point-of-sale terminal over a network and that the first message includes a unique account number. . Ex-1004, 3:54-65 (“[a]dditional point-of-sale information may include ... customer IDs ...

The entire contents of a customer's smart card may also be provided to UPC server 12. In addition, payment instrument data such as credit card number, check number, and debit card number may be transferred. Such numbers may be used as unique customer identification codes for identifying particular customers”). The POS information also includes product code information of an item to be purchased. Ex-1004, 1:47-54 (“UPC codes for purchased products, UPC codes for redeemed coupons, prices of purchased products, other suitable identifications of purchased products, and other suitable data obtained at the point-of-sale, including codes not currently used.”); *see* Elements [1a]-[1e].

b) Element [54b]: in response to receiving the first message, determining, at the ICN server, whether at least one coupon code is assigned to the unique account number, where a coupon code comprises a first portion and a second portion;

165. In my opinion, Deaton describes that in response to receiving the first message, the UPC server generates incentives for a particular customer (i.e., “determin[es]... whether at least one coupon code is assigned to the unique account number”). Ex-1004, 8:34-40 (“generating incentives based on the purchases of a customer, including examination of the products purchased by the customer in past and/or present transactions or the customer's economic impact on manufacturer 16, as measured by the volume of purchases by a particular customer.”).

166. Deaton further explains that the coupon code comprises at least two portions – the uniform product code and the code associated with a coupon for that product. Ex-1004, 10:65-11:12 (“coupons are marked with a Uniform Product Code and thus, bar codes scanned from a coupon may also be provided to manufacturer 16 by UPC server 12 as indicated by arrow 102. Thus, manufacturer 16 is able to receive both the product Uniform Product Code and the Uniform Product Code associated with a coupon for that product... In addition, for incentives associated with a particular customer, the identity of the person receiving a discount may be verified.”).

- c) **Element [54c]: in response to determining that the at least one coupon code is assigned to the unique account number, validating the at least one coupon code based at least in part on the product code information and transmitting, from the ICN server, a second message to the point-of-sale terminal via the network, the second message comprising the first portion of each of the at least one coupon code assigned to the unique account number**

167. In my opinion, Deaton discloses, and/or renders obvious, Element [54c]. *See* claim 1, Elements [1g], [32c].

- d) **Element [54d]: in response to transmitting the second message, receiving, at the ICN server, a third message, from the point-of-sale terminal via the network, the third message indicating which of the at least one coupon code was redeemed at the point-of-sale terminal; and**

168. In my opinion, for the same reasons discussed above for Claims 14 and 20, Deaton discloses, and/or renders obvious, claim Element [54d]. *See* Claims 14, 20.

- e) **Element [54e]: transmitting, from the ICN server, a fourth message to a manufacturer, the fourth message comprising the second portion of at least one coupon code that was redeemed.**

169. In my opinion, Deaton teaches that the server can provide to the manufacturer a fourth message comprising the second message of at least one coupon code that was redeemed (e.g., “providing manufacturer 16 of a summary of the number and amount of coupons redeemed for the particular manufacturer”). Ex-1004 11:12-16.

170. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 54.

38. **Claim 55: The method of claim 54, further comprising: receiving an opt-in message comprising the unique account number; and assigning at least one opted-in coupon code to the unique account number based on the opt-in message**

171. In my opinion, Deaton teaches that to receive incentives and additional information, customer can opt in by providing information in the store (i.e.,

“receiving an opt-in message”). *See* Ex-1004, 7:21-42. In addition, Deaton explains that the customer may be provided a coupon code assigned to the unique account number (i.e., “comprising the unique account number” and “assigning at least one opted-in coupon code to the unique account number based on the opt-in message”). Ex-1004, 13:7-11 (the customer is provided a “redeemable coupon on a printer associated with customer computer 18. Such a coupon may include a unique identification number that is available at store 14 to prevent unlawful duplication of redeemable coupons.”)

172. Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 55.

39. Claim 56: The method of claim 54, further comprising in response to receiving the first message, determining, at the ICN server, whether the unique account number is valid, where determining whether at least one coupon code is assigned to the unique account number is further in response to determining that the unique account number is valid

173. In my opinion, as discussed above for Element 54[b], Deaton teaches that “for incentives associated with a particular customer, the identity of the person receiving a discount may be verified.” Ex-1004, 11:9-12. As explained above, the Deaton system determines whether a coupon code is assigned to a unique account number. In my opinion, a POSITA reading Deaton would understand that assigning the coupon code to a unique account number would occur after determining the

identity of the customer was verified to ensure the correct coupon code was assigned.

Therefore, in my opinion, Deaton discloses, and/or renders obvious, claim 56.

40. Claim 57

a) Elements [57pre] to [57d]

174. As set forth in Claim 1 for Elements [1pre]-[1d], in my opinion, Deaton teaches each of the elements [57pre] to [57d].

b) Element [57e]

175. For the same reasons set forth in Elements [1e] and [57e], in my opinion, Deaton teaches [57e]. Deaton also teaches that a POS terminal is located at a retail store and is configured to scan a first coupon **and** incentive related information (as opposed to “or” recited in claim 1). Ex-1004, 6:19-26. Therefore, in my opinion Deaton discloses, and/or renders obvious, claim 57[e].

c) Element [57f]

176. In my opinion, Deaton discloses, and/or renders obvious, Elements [57f]. *See* Elements [1f] and [57e].

d) Element [57g]

177. In my opinion, Deaton discloses, and/or renders obvious, Elements [57g]. *See* Elements [1g] and [57e].

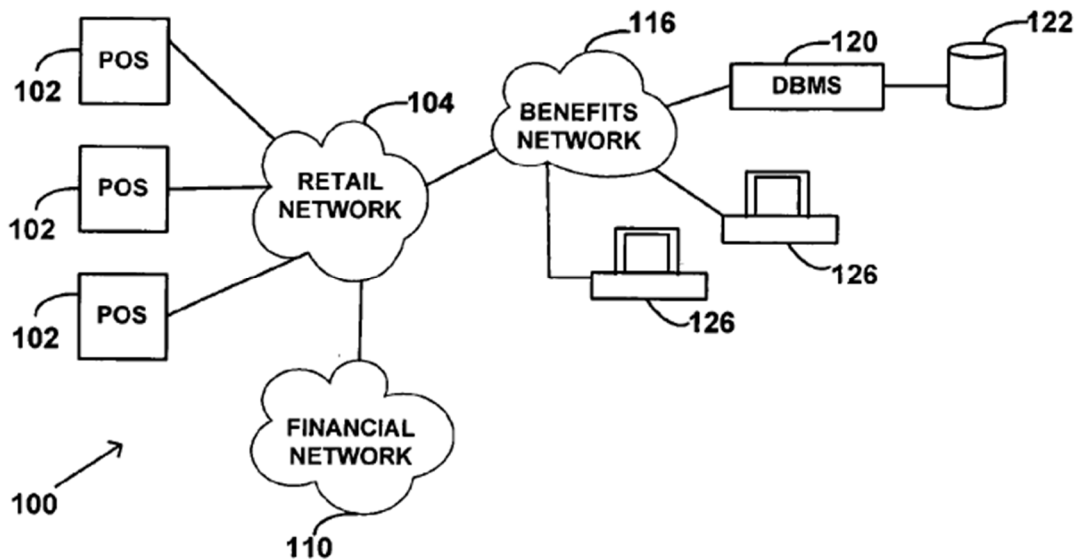
178. Therefore, in my opinion, Deaton discloses, and/or renders obvious, Claim 57.

179. To the extent a claim and/or limitation above is found not to be taught in Deaton, such claim and/or limitation would have been obvious over Deaton alone for the reasons given above.

B. Ground 3: Claims 23-27, 38-40, and 42-43 Would Have Been Obvious Over Deaton and Brown

1. Claim 23: The system as in claim 3, further comprising an originating financial institution server coupled to the retailer server

180. As I explained in Grounds 1 and 2 above, in my opinion, Deaton would have anticipated and/or rendered obvious claim 23. But to the extent Deaton does not, a POSITA would have found claim 23 obvious over Deaton in view of Brown. Brown specifically describes a retail network system “connected to a banking or financial network 110 in order to handle credit card and other electronic transactions passing through the retail network 104, e.g., originating at POS terminals 102.” Ex-1005, [0015], Fig. 1 (reproduced below).



181. In my opinion, a POSITA would have been motivated to combine Deaton and Brown. As an initial matter, both Deaton and Brown teach coupon systems with numerous similarities, including having information transmitted from a point-of-sale to a central sever. As a result, combining Deatons' teaching with Brown would have used known methods (sending additional information and then using that information to verify proper redemption) to improve Deaton's coupon redemption and validation system.

182. A POSITA would have been motivated to combine the teachings from Brown with Deaton because Brown teaches a method for facilitating the purchase of products with the use of virtual coupons by connecting multiple networks, including a financial network. Ex-1005, Abstract. A POSITA would understand that like Brown, Deaton also relates to the purchase of products using coupons using an

interconnected network, and would have been motivated to implement the teachings of Brown to facilitate the financial transactions.

183. In addition, in my opinion, POSITA would have reasonably been expected to succeed in combining the teachings of Deaton and Brown. Implementation of Brown's functionality would have required only routine knowledge because Deaton already contemplated that information would be sent from a point-of-sale to a central server and that the central would have performed tasks. Such a combination would have been straightforward, requiring only a minor modification. Thus, a POSITA would have a reasonable expectation of success.

2. Claim 24: The system as in claim 23, further comprising a secure file transfer protocol server which receives debit and credit information from the retailer server and provides automated clearing house processing to the originating financial institution.

Claim 25: The system as in claim 24, wherein the secure file transfer protocol server provides the processed debit and credit information to the originating financial institution.

Claim 26: The system as in claim 3, further comprising a file transfer protocol server in communication with the ICN server

184. In my opinion, Brown discloses that the network with the financial institution can be configured using various different networks, which would include using a secure file transfer protocol server. For instance, Brown teaches that "[t]he networks 104, [financial institution] 110 and 116 may be implemented using the Internet, an intranet, a wide area network (WAN), a local area network (LAN), a

virtual private network, or any combination of the foregoing. The networks may include both wired and wireless connections, including optical links.” Ex-1005, ¶20.

185. Brown further discloses the financial institution receives debit and credit information from the retail server. Ex-1005, ¶17 (“customer may use cash or a financial card (e.g., credit, debit or similar card), and in the case of a card, information may be read at the POS terminal (e.g., at a magnetic stripe reader) and transmitted to a bank or financial institution through financial network 110 in order to authorize the transaction and post it to the appropriate account.”). Brown also teaches that the payments are processed by the clearing house. Ex-1005, ¶29 (“payments from the benefits account to the retail establishment or merchant are handled in the same manner as a conventional debit card transaction, with the amount debited from the benefits account being electronically transferred through a clearing house network (e.g., financial network 110) and credited to the account of the merchant.”)

186. As explained above, a POSITA would have been motivated to combine Deaton with Brown, and would have had a reasonable expectation of success.

187. Therefore, claims 24 to 26 would have been obvious over Deaton in view of Brown.

3. **Claim 27: The system as in claim 26, wherein the redemption data stored in the ICN database is provided to the file transfer protocol server and stored in a central billing database of the file transfer protocol server.**

188. In my opinion, Brown teaches that information can be stored in a central database. Ex-1005, ¶19 (“[t]he database 122 stores data (to be described in greater detail later in conjunction with FIG. 4) which may, among other things, identify program participants, account balances, and product IDs for program eligible products.) In my opinion, a POSITA reading Deaton and Brown could understand that the redemption data generated in the Deaton system could be stored in the database described in Brown.

189. As explained above, a POSITA would have been motivated to combine Deaton with Brown and would have had a reasonable expectation of success.

4. **Claim 38: The method as in claim 36, further comprising the retailer server transmitting debit and credit information corresponding to the redeemed coupon or incentive information to a secure file transfer protocol server**
Claim 39: The method as in claim 38, wherein the secure file transfer protocol server provides an automated clearing house processing of billing information corresponding to the debit and credit information and places the processed billing information in a file
Claim 40: The method as in claim 39, wherein the secure file transfer protocol server transmits the file to an originating financial institution

190. Deaton in view of Brown would have rendered obvious claims 38 to 40 for the same reasons set forth above for claims 24-26.

5. **Claim 42: The method as in claim 35, wherein clearing the processed coupon or incentive information comprises requesting by an automated clearing house redemption data from the coupon or incentive processing server**
Claim 43: The method as in claim 42, wherein clearing the processed coupon or incentive information comprises requesting, by an automated clearing house server, redemption data from the coupon or incentive processing server

191. Deaton in view of Brown would have rendered obvious claims 42 and 43 for the same reasons set forth above in claims 24-26.

C. Ground 4: Claims 28 and 44 Would Have Been Obvious Over Deaton and Brown In View Of Aggrawal

1. **Claim 28: The system as in claim 27, the file transfer protocol server comprising an automated clearing house processing system configured to generate reports for at least one financial institution**

192. Claim 28 depends on claim 27, and as I explained above in Ground 3, claim 27 would have been obvious over Deaton in view of Brown. In my opinion, Deaton and Brown in view of Aggrawal would render obvious claim 28.

193. Aggrawal teaches an automated clearing house processing system can be configured to generate and transmit reports. “It then sorts the coupons by retailers and manufacturers and generates reports along with sorted coupon lists to transfer the required amount from manufacturer to the retailer.” Ex. 1006, 9:19-29) A POSITA would understand that these reports generated by the clearing house processing in the Aggrawal system could be transmitted to the financial institution

described in Brown because Brown discloses a retailer network configured to be coupled to the financial network.

194. As demonstrated above on Ground 3, a POSITA would have been motivated to modify Deaton to include the teaching from Brown. A POSITA would have also been motivated to modify to include the teaching from Aggrawal as well.

195. As an initial matter, both Deaton and Aggrawal teach coupon systems with numerous similarities, including having information transmitted from a point-of-sale to a central sever. As a result, combining Deatons' teaching with Aggrawal would have used known methods (sending additional information and then using that information to verify proper redemption) to improve Deaton's coupon redemption and validation system.

196. Deaton describes a system where different manufacturers are coupled with a central UPC server. Ex-1004, Fig. 1. Aggrawal discloses a clearing house that is "a single point interface to the retailers" to consolidate coupons from "different manufacturers." Ex-1006, 9:18-21. A POSITA would have been motivated to combine the teachings from Aggrawal with Deaton because it could have simplified the consolidation of coupons from different manufacturers for the retailers in the already consolidated UPC server.

197. In addition, A POSITA would have reasonably been expected to succeed in combining the teachings of Deaton and Aggrawal. Implementation of

Aggrawal's functionality would have required only routine knowledge because Deaton already contemplated that information would be sent from a point-of-sale to a central server and that the central would have performed tasks. In my opinion, such a combination would have been straightforward, requiring only a minor modification. Thus, a POSITA would have a reasonable expectation of success.

198. Therefore, in my opinion, claim 28 would have been obvious over Deaton and Brown in view of Aggrawal.

2. Claim 44: The method as in claim 43, wherein the redemption data received by the automated clearing house server is reported to an originating financial institution

199. Deaton and Brown in view of Aggrawal would have rendered obvious claim 44 for the same reasons set forth above in claims 28.

D. Ground 5: Claim 8 Would Have Been Obvious Over Deaton In View Of Fajkowski

1. Claim 8: The system as in claim 7, wherein the second coupon or incentive related information includes an application identifier, a product number system character, manufacturer offer code, expiration date, and household identifier

200. As explained above Deaton teaches and/or renders obvious claim 8. To the extent Deaton does not, however, a POSITA would have found claim 8 obvious over Deaton in view of Fajkowski.

201. Fajkowski teaches that the electronic coupons contain additional "data which will provide additional information such as what product is represented by the

coupon.” Ex-1007, 10:16-18. Further, Fajkowski teaches that data includes “the product’s brand name, the required size, number or combination of items required to redeem the coupon, the expiration date, and the discount amount of the coupon...” Ex-1007, 10:19-25. Thus, Fajkowski teaches that the data can include an application identifier (e.g., the “product’s brand name”) and the expiration date. Ex-1007, 10:19-25. A POSITA combining Fajkowski with the second coupon information disclosed in Deaton (as demonstrated above) would have found claim 8 obvious.

202. A POSITA would have also had a motivation to combine Deaton with Fajkowski. As an initial matter, both Deaton and Fajkowski teach coupon systems with numerous similarities, including having information transmitted from a point-of-sale to a central sever. As a result, combining Deatons’ teaching with Fajkowski would have used known methods and apparatus to improve Deaton’s coupon redemption and validation system.

203. Fajkowski describes a system for “electronically collecting, carrying and redeeming coupons” which “eliminates the many disadvantages consumers, retailers and manufacturers face when shepherding paper coupons through the redemption process.” Ex-1007, 3:53-57. In my opinion, a POSITA reading Fajkowski would have understood that the coupon system in Deaton could implement the teachings of Fajkowski to eliminate potential disadvantages to

customers. Indeed, Deaton already taught the use of electronic coupons, and would have been motivated to implement the additional teachings in Fajkowski.

204. In addition, in my opinion, a POSITA would have reasonably been expected to succeed in combining the teachings of Deaton and Fajkowski. Implementation of Hawkin's functionality would have required only routine knowledge because like Deaton describes the use of electronic coupons. Ex-1004, 6:22-25; Ex-1008, ¶18. Such a combination would have been straightforward, requiring only a minor modification. Thus, a POSITA would have a reasonable expectation of success.

205. Therefore, in my opinion, claim 8 would have been obvious over Deaton in view of Fajkowski.

E. Ground 6: Claim 37 Would Have Been Obvious Over Deaton In View of Hawkins

1. Claim 37: The method as in claim 36, where validating comprises biometrically identifying a user at the terminal

206. In my opinion, Deaton does not expressly teach that the validating step comprises biometrically identifying a user at the terminal. A POSITA would have, however, found such a step obvious over Deaton in view of Hawkins. Hawkins teaches that a "biometrically accessible loyalty kiosk 170 may also be placed at the merchant to provide customers the opportunity to view and activate their personal incentives prior to initiating their shopping experience." Ex-1008, ¶18. In addition,

Hawkins teaches that “a biometric scanner device (without the additional processing, memory and software capabilities of a BAP 120) may be coupled directly to the ECR [electronic cash register] 110 and the logic for communication between the biometric scanner device and the IMS 165 may be managed by the addition of another server coupled to the store controller 135 in the back of the merchant's location.” Ex-1008, ¶19.

207. In my opinion, a POSITA would have been motivated to couple a biometric scanning device to the terminals disclosed in Deaton. Both Deaton and Hawkins teach coupon systems with numerous similarities, including having information transmitted from a point-of-sale to a central sever. As a result, combining Deatons’ teaching with Hawkins would have used known methods and apparatus to improve Deaton’s coupon redemption and validation system.

208. Hawkins describes a “biometrically enhanced infrastructure architecture” that is used for “activating and redeeming personal incentives and conducting biometric payment transactions at a merchant location.” Ex-1008, ¶18. A POSITA reading Hawkins would have understood that the coupon system in Deaton could be “biometrically enhanced,” providing an additional layer of customer and coupon identification. Indeed, Deaton already taught the use of customer smart cards for identification, and would have been motivated to

implement the biometric identification system in Hawkins for the additional security Hawkins teaches that it provides. Ex-1004, 3:54-61.

209. In addition, a POSITA would have reasonably been expected to succeed in combining the teachings of Deaton and Hawkins. Implementation of Hawkin's functionality would have required only routine knowledge because like Deaton describes the use of an electronic cash register connected with accessories, such as a scanner, and Hawkins describes that its biometric access point can be coupled to an electronic cash register. Ex-1004, 6:22-25; Ex-1008, ¶18. Such a combination would have been straightforward, requiring only a minor modification. Thus, a POSITA would have a reasonable expectation of success.

210. Therefore, in my opinion, claim 37 would have been obvious over Deaton in view of Hawkins.

F. Ground 7: Claim 37 Would Have Been Obvious Over Deaton In View of Schneider

1. Claim 37: The method as in claim 36, where validating comprises biometrically identifying a user at the terminal

211. In my opinion, Deaton does not expressly teach that the validating step comprises biometrically identifying a user at the terminal. A POSITA would have, however, found such a step obvious over Deaton in view of Schneider. Schneider teaches that a “point-of-sale station 16 having a biometric-sample receiver.” Ex-1009, ¶10. In addition, Schneider teaches that the “point-of-sale station 16 may be

a check-out register. The check-out register may include a cash drawer and a scanner for scanning bar codes on items being purchased. The biometric sample receiver 19 may include a facial-image camera, an iris scanner, or an ultrasonic fingerprint scanner.” *Id.*, ¶11

212. A POSITA would have been motivated to couple a biometric scanning device to the terminals disclosed in Deaton. Both Deaton and Schneider teach coupon and incentive reward systems with numerous similarities, including having information transmitted from a point-of-sale to a central sever. As a result, combining Deatons’ teaching with Schneider would have used known methods and apparatus to improve Deaton’s coupon redemption and validation system.

213. In addition, Schneider describes a “tokenless reward system” where the customer “customer no longer has the requirement of carrying a token, such as a card or chip, that can be lost, stolen or forgotten.” Ex-1009, ¶4. Further, Schneider explains that “the merchant has a means of positive identification for each customer without the expense and bookkeeping associated with operating a token-based system, and the costs associated with the issuance of the physical token itself.” Ex-1009, ¶4.

214. A POSITA reading Schneider would have understood that the coupon and incentive reward system in Deaton could be improved by implementing a system that could use biometric information to identify its customers, providing an

additional layer of customer and coupon identification. Indeed, Deaton already taught the use of customer smart cards for identification, and would have been motivated to implement the biometric identification system in Schneider for the additional convenience and cost-saving Schneider teaches that it provides. Ex-1004, 3:54-61.

215. In addition, A POSITA would have reasonably been expected to succeed in combining the teachings of Deaton and Schneider. Implementation of Schneider's functionality would have required only routine knowledge because like Deaton describes the use of an electronic cash register connected with accessories, such as a scanner, and Schneider describes that its biometric access point can be coupled to an electronic cash register. Ex-1004, 6:22-25; Ex-1009, ¶¶10-11, Fig. 1. Such a combination would have been straightforward, requiring only a minor modification. Thus, a POSITA would have a reasonable expectation of success.

216. Therefore, in my opinion, claim 37 would have been obvious over Deaton in view of Schneider.

X. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

217. In my opinion, the prior art references that I rely on for the grounds of invalidity are enabled.

218. As I explained above in Section V, I understand that an obviousness analysis includes consideration of “secondary” or “objective” evidence of non-

obviousness, including things such as: (1) a long-felt but unmet need in the prior art that was satisfied by the claimed invention; (2) commercial success or the lack of commercial success of the claimed invention; (3) unexpected results achieved by the claimed invention; (4) praise of the claimed invention by others skilled in the art; (5) taking of licenses under the patent by others; (6) deliberate copying of the claimed invention; and (7) contemporaneous and independent invention by others.

219. I am not aware of any secondary considerations of non-obviousness raised by Patent Owner with respect to the Challenged Claims of the '855 patent. As an example, I am not aware of any showing of a long-felt but unmet need satisfied by the '855 patent. As I explained in my obviousness analysis above, any alleged “need” that would have been satisfied by the '855 patent had already been satisfied in light of the prior art cited herein. As another example, I am not aware of any commercial success of any coupon processing systems that is due to their practicing of the Challenged Claims of the '855 patent. I likewise am not aware of any evidence relating to the other “secondary” or “objective” considerations listed above.

220. Accordingly, the consideration of “secondary” or “objective” evidence of nonobviousness does not change my opinion that claims 1-57 of the '855 patent would have been obvious to one of skill in the art.

XI. CONCLUSION

221. Based on my review and above analysis of the prior art, it is my opinion that claims 1-57 of the '855 patent would have been obvious to one of skill in the art.

I, Todd C. Mowry, declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and 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 on September 6, 2024.

By:

A handwritten signature in black ink, appearing to read "Todd C. Mowry", is written over a horizontal line.

Todd C. Mowry

APPENDIX A: CURRICULUM VITAE

Todd C. Mowry

CURRICULUM VITAE

September, 2024

Contact Information

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Education

Ph.D. in Electrical Engineering, Stanford University, March 1994.

- Thesis: “Tolerating Latency Through Software-Controlled Data Prefetching.”
- Supervisors: Anoop Gupta and Monica Lam.

M.S. in Electrical Engineering, Stanford University, June 1989.

B.S. in Electrical Engineering with Highest Distinction, University of Virginia, May 1988.

Academic Appointments

7/08–Present: Professor, Computer Science Department (with a courtesy appointment in the Department of Electrical and Computer Engineering), Carnegie Mellon University.

8/09–6/10: Associate Department Head for Faculty, Computer Science Department

6/15–Present: Director of the Ph.D. program, Computer Science Department

7/97–6/08: Associate Professor, Computer Science Department (with a courtesy appointment in the Department of Electrical and Computer Engineering), Carnegie Mellon University.

12/93–6/97: Assistant Professor, Department of Electrical and Computer Engineering (with a courtesy appointment in the Department of Computer Science), University of Toronto.

9/89–11/93: Graduate Research Assistant, Stanford University.

Honors and Awards

- ASPLOS Influential Paper Award, 2022 (for “Design and Evaluation of a Compiler Algorithm for Prefetching,” from ASPLOS 1992).
- Best Paper Runner-Up Award, VLDB conference, 2018.
- ACM Fellow, for contributions to software prefetching and thread-level speculation, 2016.
- SCS Doctoral Dissertation Award co-won by Angela Demke Brown (Ph.D. advisee), 2005.
- Most Thought-Provoking Idea Award (for Claytronics), the Wild and Crazy Idea Session IV held at ASPLOS-XI, 2004.
- Best Paper Award, the 20th International Conference on Data Engineering (ICDE), 2004.
- SCS Doctoral Dissertation Award co-won by J. Gregory Steffan (Ph.D. advisee), 2003.
- Runner-Up for Best Paper Award, the ACM SIGMOD Conference, 2001.
- Alfred P. Sloan Research Fellow, 1999–2001.
- TR100 Award (awarded by MIT’s Technology Review magazine to the top 100 most promising young innovators in science and technology), 1999.
- Best Paper Award, the Second Symposium on Operating Systems Design and Implementation, 1996.

Doctoral Thesis Supervision

Student	Thesis Title (or Topic)	Graduation Date
Chi-Keung Luk	Optimizing the Cache Performance of Non-Numeric Applications. <i>(Nominated for the ACM Thesis Award by the University of Toronto Department of Computer Science.)</i>	January, 2000
J. Gregory Steffan	Hardware Support for Thread-Level Speculation. <i>(Co-winner of the SCS Doctoral Dissertation Award.)</i>	April, 2003
Antonia Zhai	Compiler Optimization of Value Communication for Thread-Level Speculation.	January, 2005
Angela Demke Brown	Explicit Compiler-based Memory Management for Out-of-core Applications. <i>(Co-winner of the SCS Doctoral Dissertation Award.)</i>	May, 2005
Christopher Colohan	Applying Thread-Level Speculation to Database Transactions.	November, 2005
Shimin Chen	Redesigning Database Systems in Light of CPU Cache Prefetching.	December, 2005
Amit Manjhi	Increasing the Scalability of Dynamic Web Applications	March, 2008
Olatunji Ruwase	Improving Device Driver Reliability Through Decoupled Dynamic Binary Analysis	May, 2013
Michelle Goodstein	Dataflow Analysis-Based Dynamic Parallel Monitoring	August, 2014
Vivek Seshadri	Simple DRAM and Virtual Memory Abstractions to Enable Highly Efficient Memory Subsystems	May, 2016
Gennady Pekhimenko	Practical Data Compression for Modern Memory Hierarchies	July, 2016
Chris Fallin	Finding and Exploiting Parallelism with Data-Structure-Aware Static and Dynamic Analysis	February, 2019
Prashanth Menon	On Building Robustness into Compilation-Based Main-Memory Database Query Engines	May, 2021
Pratik Fegade	Auto-batching Techniques for Dynamic Deep Learning Computations	January, 2023
Ziqi Wang	Building a More Efficient Cache Hierarchy by Supporting Multiversioning and Leveraging Application-Level Information	January, 2023
Sam Arch	Unifying Declarative and Non-Declarative Code in Relational Database Management Systems	June, 2027 <i>(expected)</i>
Hongyi Jin	Compiler Optimizations for Machine Learning Applications	June, 2027 <i>(expected)</i>
Ruihang Lai	Compiler Optimizations for Machine Learning Applications	June, 2027 <i>(expected)</i>
Patrick Coppock	OS Support for Machine Learning Applications	June, 2027 <i>(expected)</i>

Publications

Book Chapters

1. Amir Yazdanbakhsh, Gennady Pekhimenko, Hadi Esmaeilzadeh, Onur Mutlu, and Todd C. Mowry. Towards Breaking the Memory Bandwidth Wall Using Approximate Value Prediction. In *Approximate Circuits: Methodologies and CAD*, Springer International Publishing, 2019, pages 417–441.

Refereed Journal Articles

1. Mishra, Deepanjali, Konstantinos Kanellopoulos, Ashish Panwar, Akshitha Sriraman, Vivek Seshadri, Onur Mutlu, and Todd C. Mowry. Address Scaling: Architectural Support for Fine-Grained Thread-Safe Metadata Management. In *IEEE Computer Architecture Letters*, 23(01), January 2024.
2. Prashanth Menon, Amadou Ngom, Lin Ma, Todd C. Mowry, and Andrew Pavlo. Permutable Compiled Queries: Dynamically Adapting Compiled Queries without Recompiling. In *Proceedings of the VLDB Endowment*, 14(2):101-113, October 2020.
3. Amir Yazdanbakhsh, Gennady Pekhimenko, Bradley Thwaites, Hadi Esmaeilzadeh, Onur Mutlu, and Todd C. Mowry. RFVP: Rollback-Free Value Prediction with Safe-to-Approximate Loads. In *ACM Transactions on Architecture and Code Optimization (TACO)*, 12(4):62, February 2016.
4. Amir Yazdanbakhsh, Gennady Pekhimenko, Bradley Thwaites, Hadi Esmaeilzadeh, Onur Mutlu, and Todd C. Mowry. Mitigating the Memory Bottleneck with Approximate Load Value Prediction. In *IEEE Design and Test*, 33(1), January 2016.
5. Vivek Seshadri, Samihan Yedkar, Hongyi Xin, Onur Mutlu, Phillip B. Gibbons, Michael A. Kozuch, and Todd C. Mowry. Mitigating Prefetcher-Caused Pollution Using Informed Caching Policies for Prefetched Blocks. In *ACM Transactions on Architecture and Code Optimization (TACO)*, 11(4), January 2015.
6. Shimin Chen, Phillip B. Gibbons, Michael Kozuch, and Todd C. Mowry. Log-Based Architectures: Using Multicore to Help Software Behave Correctly. In *Operating Systems Review*, 45(1), January 2011.
7. Shimin Chen, Michael Kozuch, Phillip B. Gibbons, Michael Ryan, Theodoros Strigkos, Todd C. Mowry, Olatunji Ruwase, Evangelos Vlachos, Babak Falsafi, and Vijaya Ramachandran. Flexible Hardware Acceleration for Instruction-Grain Lifeguards. In *IEEE Micro (Top Picks from 2008 Computer Architecture Conferences)*, 29(1), January 2009.
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Distinguished Lectures

- 9/25/13: *“The Log-Based Architectures Project: Exploiting Multicore to Help Parallel Software Behave Correctly”*, University of Wisconsin-Madison, Department of Computer Science, Distinguished Lecture Series.
- 2/7/08: *“Pario: the Next Step Beyond Audio and Video”*, University of Toronto, Department of Electrical and Computer Engineering Distinguished Lecture Series.

Professional Activities

Professional Societies

- Member of the Institute of Electrical and Electronics Engineers (IEEE)
- Member of the Association of Computing Machinery (ACM)

Industrial Employment

5/04–6/07: Intel Corporation, Pittsburgh, Pennsylvania: Director of the Intel Research Pittsburgh Lab.

6/89–11/93: Silicon Graphics, Inc., Mountain View, California (formerly MIPS Computer Systems, Sunnyvale California): Computer Architect (part-time).

Consulting

7/07–2/11: Intel Corporation, Pittsburgh, Pennsylvania: Research Advisor.

8/96–4/04: SandCraft, Inc., Santa Clara, California: Member of the Technical Advisory Board.

1/96–4/04: IBM, Toronto: Visiting Scientist.

12/93–12/96: Silicon Graphics, Inc., Mountain View, California: Computer Architecture Consultant.

University Committee Work and Other Service Activities

Committee Work

- Faculty Hiring Committees:
 - Computer Science Department: 2008, 2010.
 - Computer Systems Area: 2000, 2001, 2002, 2003, 2004.
- Chair of the Computer Science Department Head Selection Committee, 2007.
- CSD Ph.D. Admissions Committee, 2001, 2002, 2003.
- School of Computer Science Council, 2001-2004.
- Carnegie Mellon University Faculty Senate (Presidential Appointee), 2000-2001.
- Computer Systems Area Advocate, 2000-2004.
- Doctoral Review Committee, 1998-2004.
- ACM Thesis Award Nomination Committee, 1999.

Journal, Conference and Workshop Organization

- Editor-in-Chief, ACM Transactions on Computer Systems, 2013-2018.
- Associate Editor, ACM Transactions on Computer Systems, 2001-2013.
- Program Chair of the International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2011.
- Sponsorship Chair, International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2010.
- Member of the ISCA program committee, 1998, 2000, and 2011.
- Member of the ASPLOS program committee, 2000, 2004.
- Member of the ASPLOS external review committee, 2012.
- Co-Program Chair of the International Conference on Parallel Architectures and Compilation Techniques (PACT), 2001.
- Member of the International Symposium on Microarchitecture program committee, 1998.
- Member of the Workshop on Architectural and System Support for Improving Software Dependability (ASID) program committee, 2005.
- Member of the Workshop on Memory System Performance (MSP) program committee (in conjunction with PLDI), 2002 and 2004.
- Member of the IBM CASCON program committee, 1995, 1996, 1997.
- Member of the First SUIF Workshop Program Committee, 1996.
- Organized the CASCON 97 workshop on Compiler Optimization, 1997.
- Initiated and organized the 1st Toronto / Rochester Workshop on Shared-Memory Multiprocessors, 1994.

APPENDIX B: CHALLENGED CLAIM LISTING

No.	Limitation
1pre	A system, comprising:
1a	an Intelligent Clearing Network (ICN) network;
1b	at least two point-of-sale (POS) terminals;
1c	at least two POS controllers, where each POS controller is configured to communicate with a plurality of the at least two POS terminals; and
1d	an ICN server configured to communicate with the at least two POS controllers,
1e	wherein a POS terminal of the at least two POS terminals is located at a retail store and is configured to scan, at a point-of-sale (POS) terminal, first coupon or incentive related information including universal product code information of an item to be purchased, and to transmit the first coupon or incentive related information at the POS terminal to a POS controller of the at least two POS controllers;
1f	the POS controller is configured to transmit the first coupon and/or incentive related information to the ICN server via the network, where the ICN server is at a location that is remote from the retail store; and
1g	the ICN server is configured to validate the first coupon or incentive related information for redemption based at least in part on the universal product codes of items to be purchased and, in response to validating the first coupon or incentive related information, to transmit to the POS terminal, via the POS controller, second coupon or incentive related information
2	A system as in claim 1, wherein the ICN server is a coupon or incentive processing server, the system further comprising a retailer's POS controller through which the POS terminal is communicatively coupled to the ICN network and the ICN coupon or incentive processing server via ICN POS bridge software installed on the POS controller and the POS terminal.
3	The system as in claim 2, further comprising a manufacturer's server communicatively coupled to the ICN server.

No.	Limitation
4	The system as in claim 3, wherein the first coupon related information includes information regarding a consumer's transaction at the POS terminal including at least one of date, time, store, lane, total dollar amount spent, customer ID, and universal product codes.
5	The system as in claim 3, wherein the first coupon related information comprises a control number provided through a downloaded coupon or coupon card.
6	The system as in claim 1, wherein the first coupon or incentive related information is consumer identification information.
7	The system as in claim 1, wherein the second coupon or incentive related information is GS1 coupon cod
8	The system as in claim 7, wherein the second coupon or incentive related information includes an application identifier, a product number system character, manufacturer offer code, expiration date, and household identifier.
9	The system as in claim 1, wherein the server is coupled to a centralized database that provides second coupon or incentive related information when the server receives first coupon or incentive information
10	The system as in claim 1, wherein the server tabulates raw data of at least one of coupon and incentive processing transactions for a manufacturer.
11	The system as in claim 10, wherein the server provides the tabulated data to the manufacturer in real time in the form of a report.
12	The system as in claim 1, wherein the network is the World Wide Web.
13	The system as in claim 1, wherein the network is an internet.
14	The system as in claim 1, wherein each of the at least two POS terminals transmits third coupon or incentive related information to the POS controller through the ICN POS bridge software upon successful redemption of a coupon.

No.	Limitation
15	The system as in claim 14, wherein the third coupon related information comprises identification information from the product purchased and the GS 1 coupon code of the second coupon related information and retailer identification information.
16	The system as in claim 15, the third coupon related information being used by the server to generate a report to the manufacturer whose product was purchased through redemption of the coupon code.
17	The system as in claim 1, wherein the ICN POS bridge software installed on the POS controller transmits second coupon or incentive related information to the ICN POS bridge software installed on each of the at least two POS terminals.
18	The system as in claim 1, wherein the network is a virtual private network.
19	The system as in claim 1, wherein the network is a high speed dedicated communication line.
20	The system as in claim 1, wherein the POS controller transmits third coupon related information to the ICN server through the ICN POS bridge software upon successful redemption of a coupon or incentive.
21	The system as in claim 2, wherein the ICN POS bridge software comprises a configurable software suite that is physically installed and controls POS behavior based on information sent and received to and from the ICN server.
22	The system as in claim 21, wherein the POS data bridge software is configurable for each unique retailer.
23	The system as in claim 3, further comprising an originating financial institution server coupled to the retailer server.
24	The system as in claim 23, further comprising a secure file transfer protocol server which receives debit and credit information from the retailer server and provides automated clearing house processing to the originating financial institution.
25	The system as in claim 24, wherein the secure file transfer protocol server provides the processed debit and credit information to the originating financial institution.

No.	Limitation
26	The system as in claim 3, further comprising a file transfer protocol server in communication with the ICN server.
27	The system as in claim 26, wherein the redemption data stored in the ICN database is provided to the file transfer protocol server and stored in a central billing database of the file transfer protocol server.
28	The system as in claim 27, the file transfer protocol server comprising an automated clearing house processing system configured to generate reports for at least one financial institution.
29	The system as in claim 1, wherein when the universal product codes corresponding to the first coupon or incentive related information are trigger universal product codes, coupon related information corresponding to target universal product codes is transmitted by the ICN coupon or incentive processing server to the POS terminal.
30	The system as in claim 29, wherein at least one of the target universal product codes corresponds to a product that at least one of the trigger universal product codes corresponds to
31	The system as in claim 30, wherein at least one of the target universal product codes corresponds to a product that none of the trigger universal product codes corresponds to.
32pre	A method for processing at least one of coupons and incentives, comprising:
32a	scanning via a first interface, first coupon or incentive related information at a terminal located at a retail store, the first coupon or incentive related information including universal product code information of an item to be purchased;
32b	transmitting, via a second interface, the first coupon or incentive related information through a network to a coupon or incentive processing server for validation and redemption, where the first interface is different from the second interface, and where the coupon or incentive processing server is located remotely from the retail store; and

No.	Limitation
32c	in response to the first coupon or incentive related information being validated at the coupon or incentive processing server based at least in part on the universal product code information, receiving, via the second interface, second coupon related information through the network to the terminal, where the second coupon related information indicates whether the coupon or incentive processing server has validated the first coupon related information.
33	The method as in claim 32, further comprising, if the terminal validates the second coupon or incentive related information, redeeming a corresponding coupon or incentive and transmitting coupon or incentive redemption information to the coupon processing server.
34	The method as in claim 33, further comprising when the coupon or incentive processing server receives the coupon or incentive redemption information, deactivating the corresponding coupon or incentive.
35	The method as in claim 34, further comprising storing processed coupon information corresponding to the coupon or incentive redemption information in a database and making that information available in real time as reports to a manufacturer through a web portal.
36	The method as in claim 35, further comprising the coupon or incentive processing server transmitting processed coupon information corresponding to the coupon or incentive redemption information to a manufacturer's server.
37	The method as in claim 36, where validating comprises biometrically identifying a user at the terminal.
38	The method as in claim 36, further comprising the retailer server transmitting debit and credit information corresponding to the redeemed coupon or incentive information to a secure file transfer protocol server.
39	The method as in claim 38, wherein the secure file transfer protocol server provides an automated clearing house processing of billing information corresponding to the debit and credit information and places the processed billing information in a file.

No.	Limitation
40	The method as in claim 39, wherein the secure file transfer protocol server transmits the file to an originating financial institution.
41	The method as in claim 35, wherein clearing the processed coupon or incentive information comprises debiting a promotion sponsor in an amount of coupons or incentives dispensed, intelligent clearing network rate, and retailer credit rate; holding funds by the intelligent clearing network and storing clearing rate total debited from the promotion sponsor; and crediting a retailer with a value of the coupons or incentives dispensed and a credit rate.
42	The method as in claim 35, wherein clearing the processed coupon or incentive information comprises requesting by an automated clearing house redemption data from the coupon or incentive processing serv
43	The method as in claim 42, wherein clearing the processed coupon or incentive information comprises requesting, by an automated clearing house server, redemption data from the coupon or incentive processing server
44	The method as in claim 43, wherein the redemption data received by the automated clearing house server is reported to an originating financial institution.
45	The method as in claim 32, wherein when the universal product code corresponding to the first coupon or incentive related information is a trigger universal product code, and coupon or incentive related information corresponding to a target universal product code is transmitted by the ICN coupon or incentive processing server to the POS terminal.
46	The method as in claim 45, wherein the target universal product code corresponds to a product that the trigger universal product code corresponds to.
47	The method as in claim 46, wherein the target universal product code corresponds to a product that the trigger universal product code does not corresponds to.
48	The method as in claim 32, wherein the first coupon or incentive related information also comprises a control code obtained by a customer who visits a web site to select from at least one coupon, promotion, or incentive.

No.	Limitation
49pre	A computer readable medium storing computer code for processing coupons or incentives across a network, where execution of the computer code by a processor causes the processor to perform action comprising
49a	receiving, at an ICN server from a terminal via the network, first coupon or incentive related information including universal product code information of an item to be purchased at the terminal, where the first coupon or incentive related information is scanned at the terminal located at a retail store, where the ICN server is at a location that is remote from the retail store and the ICN server is configured to receive first coupon or incentive related information from a plurality of terminals;
49b	interpreting, and comparing the first coupon or incentive related information at the ICN server;
49c	validating the first coupon or incentive related information based on the interpreting, and comparing and based at least in part on the universal product code information;
49d	in response to validating the first coupon or incentive code, retrieving coupon or incentive codes and any corresponding target universal product codes triggered by the validation of the first coupon or incentive code from a centralized database; and
49e	transmitting the retrieved coupon or incentive codes to the terminal via the network.
50	The computer readable medium of claim 49, the actions further comprising notifying the coupon or incentive processing server of successful coupon or incentive redemptions.
51pre	A point of sale (POS) terminal located at a retail store comprising:
51a	a first interface configured to scan coupon or incentive related information and to scan product code information of an item to be purchased;
51b	a second interface configured to receive information from and transmit information to a retailer server, where the first interface is different from the second interface;
51c	a processor; and

No.	Limitation
51d	a memory for storing a point of sale bridge software configured to redeem a manufacturer coupon or incentive contained in a promotion request message received through the second interface,
51e	where the promotion request message indicates that a coupon or incentive processing server has validated the manufacturer coupon or incentive,
51f	the processor configured to receive information comprising product code information of an item to be purchased and the coupon related information from the first interface; to transmit the information through the second interface to the coupon or incentive processing server, where the coupon or incentive processing server is at a location that is remote from the retail store; in response to the coupon or incentive related information being validated at the coupon or incentive processing server based at least in part on the product code information, to receive the promotion request message; and to execute the point of sale bridge software.
52	The point of sale terminal as in claim 51, wherein the first interface is configured to communicate with a universal product code reading device
53pre	An Intelligent Clearing Network (ICN) server comprising:
53a	a processor; an interface configured to permit communications over a network to a plurality of POS terminals; and an ICN database,
53b	wherein the processor of the ICN server is configured to receive data elements through a network from a point-of-sale (POS) terminal of a retailer for validation and redemption, the data elements including product code information of an item to be purchased at the POS terminal and a promotion request message, where the promotion request message is scanned at the POS terminal located at a retail store, where the ICN server is at a location that is remote from the retail store, to validate the promotion request message based at least in part on the product code information, and, in response to validating the data elements at the ICN server, to send a promotion request response message that indicates whether the promotion request message has been validated.
54pre	A method comprising:

No.	Limitation
54a	receiving, at an intelligent clearing network (ICN) server, a first message from a point-of-sale terminal via a network, where the first message comprises a unique account number and product code information of an item to be purchased at the POS terminal, where the unique account number is scanned at the POS terminal located at a retail store, where the ICN server is at a location that is remote from the retail store;
54b	in response to receiving the first message, determining, at the ICN server, whether at least one coupon code is assigned to the unique account number, where a coupon code comprises a first portion and a second portion;
54c	in response to determining that the at least one coupon code is assigned to the unique account number, validating the at least one coupon code based at least in part on the product code information and transmitting, from the ICN server, a second message to the point-of-sale terminal via the network, the second message comprising the first portion of each of the at least one coupon code assigned to the unique account number
54d	in response to transmitting the second message, receiving, at the ICN server, a third message, from the point-of-sale terminal via the network, the third message indicating which of the at least one coupon code was redeemed at the point-of-sale terminal; and
54e	transmitting, from the ICN server, a fourth message to a manufacturer, the fourth message comprising the second portion of at least one coupon code that was redeemed.
55	The method of claim 54, further comprising: receiving an opt-in message comprising the unique account number; and assigning at least one opted-in coupon code to the unique account number based on the opt-in message.
56	The method of claim 54, further comprising in response to receiving the first message, determining, at the ICN server, whether the unique account number is valid, where determining whether at least one coupon code is assigned to the unique account number is further in response to determining that the unique account number is valid.
57pre	A system, comprising:

No.	Limitation
57a	an Intelligent Clearing Network (ICN) network;
57b	at least two point-of-sale (POS) terminals;
57c	at least two POS controllers, where each POS controller is configured to communicate with a plurality of the at least two POS terminals; and
57d	an ICN server configured to communicate with the at least two POS controllers,
57e	wherein a POS terminal of the at least two POS terminals is located at a retail store and is configured to scan, at a point-of-sale (POS) terminal, first coupon and incentive related information, including universal product code information of an item to be purchased, and to transmit the first coupon and incentive related information at the POS terminal to a POS controller of the at least two POS controllers;
57f	the POS controller is configured to transmit the first coupon and incentive related information to the ICN server via the network where the ICN server is at a location that is remote from the retail store; and
57g	the ICN server is configured to validate the first coupon and incentive related information for redemption based at least in part on the universal product codes of an item to be purchased and, in response to validating the first coupon and incentive related information, to transmit to the POS terminal, via the POS controller, second coupon and incentive related information.

APPENDIX C: UNDERSTANDING OF THE LAW

I have applied the following legal principles provided to me by counsel in arriving at the opinions set forth in this declaration.

Legal Standard for Prior Art

I am not an attorney. I have been informed by attorneys of the relevant legal principles and have applied them to arrive at the opinions set forth in this declaration.

I understand that the petitioner for inter partes review may request the cancelation of one or more claims of a patent based on grounds available under AIA 35 U.S.C. § 102 and 35 U.S.C. § 103 using prior art that consists of patents and printed publications.

Anticipation and Prior Art

I understand that § 102 specifies when a challenged claim is invalid for lacking novelty over the prior art, and that this concept is also known as “anticipation.” I understand that a prior art reference anticipates a challenged claim, and thus renders it invalid by anticipation, if all elements of the challenged claim are disclosed in the prior art reference. I understand the disclosure in the prior art reference can be either explicit or inherent, meaning it is necessarily present or implied. I understand that the prior art reference does not have to use the same words as the challenged claim, but all of the requirements of the claim must be disclosed

so that a person of ordinary skill in the art could make and use the claimed subject matter.

In addition, I understand that § 102 also defines what is available for use as a prior art reference to a challenged claim.

Under § 102(a)(1), a challenged claim is anticipated if it was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

Under § 102(b)(1), a challenged claim is anticipated if it was described in an issued patent or published patent application, in which the patent or application names another inventor and was effectively filed before the effective filing date of the claimed invention.

I understand that the effective filing date of a patent or patent application is the earlier of the actual filing date of the patent or the application for patent or, if the patent or application for patent is entitled to claim earlier priority or the benefit of an earlier filing, the filing date of the earliest application that describes the claimed subject matter.

I understand that when a challenged claim covers several structures, either generically or as alternatives, the claim is deemed anticipated if any of the structures within the scope of the claim is found in the prior art reference.

I understand that when a challenged claim requires selection of an element from a list of alternatives, the prior art teaches the element if one of the alternatives is taught by the prior art.

Legal Standard for Obviousness

I understand that even if a challenged claim is not anticipated, it is still invalid if the differences between the claimed subject matter and the prior art are such that the claimed subject matter would have been obvious to a person of ordinary skill in the pertinent art at the time the alleged invention.

I understand that, in order for a prior art reference to be proper for use in an obviousness analysis, the reference must be analogous art. I understand that a prior art reference is analogous art if: (1) the reference is from the same field of endeavor as the challenged patent (even if it addresses a different problem); or (2) the reference is reasonably pertinent to the problem faced by the inventor of the challenged patent (even if it is not in the same field of endeavor). I understand that the field of endeavor is determined by reference to explanations of the challenged claims' subject matter in the challenged patent, including the embodiments, functions, and structures of the challenged claims. A prior art reference is "reasonably pertinent" to a problem if it would have logically commended itself to an inventor's attention in considering the problem.

I understand that obviousness must be determined with respect to the challenged claim as a whole.

I understand that one cannot rely on hindsight in deciding whether a claim is obvious.

I also understand that an obviousness analysis includes the consideration of factors such as (1) the scope and content of the prior art, (2) the differences between the prior art and the challenged claim, (3) the level of ordinary skill in the pertinent art, and (4) “secondary” or “objective” evidence of non-obviousness.

Secondary or objective evidence of non-obviousness includes evidence of: (1) a long felt but unmet need in the prior art that was satisfied by the claimed invention; (2) commercial success or the lack of commercial success of the claimed invention; (3) unexpected results achieved by the claimed invention; (4) praise of the claimed invention by others skilled in the art; (5) taking of licenses under the patent by others; (6) deliberate copying of the claimed invention; and (7) contemporaneous and independent invention by others. However, I understand that there must be a relationship between any secondary evidence of non-obviousness and the claimed invention.

I understand that a challenged claim can be invalid for obviousness over a combination of prior art references if a reason existed (at the time of the alleged invention) that would have prompted a person of ordinary skill in the art to combine

elements of the prior art in the manner required by the challenged claim. I understand that this requirement is also referred to as a “motivation to combine,” “suggestion to combine,” or “reason to combine,” and that there are several rationales that meet this requirement.

I understand that the prior art references themselves may provide a motivation to combine, but other times simple common sense can link two or more prior art references. I further understand that obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references may come from market forces.

I understand obviousness to include, for instance, scenarios where known techniques are simply applied to other devices, systems, or processes to improve them in an expected or known way. I also understand that practical and common-sense considerations should be applied in a proper obviousness analysis. For instance, familiar items may have obvious uses beyond their primary purposes.

I understand that the combination of familiar elements according to known methods is obvious when it yields predictable results. For instance, obviousness bars patentability of a predictable variation of a technique even if the technique originated in another field of endeavor. This is because design incentives and other market forces can prompt variations of it, and predictable variations are not the product of innovation, but rather ordinary skill and common sense.

I understand that a particular combination may be obvious if it was obvious to try the combination. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. This would result in something obvious because the result is the product not of innovation but of ordinary skill and common sense. However, I understand that it may not be obvious to try a combination when it involves unpredictable technologies.

It is further my understanding that a proper obviousness analysis focuses on what was known or obvious to a person of ordinary skill in the art, not just the patentee. Accordingly, I understand that any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

It is my understanding that the Manual of Patent Examining Procedure §2143 sets forth the following as exemplary rationales that support a conclusion of obviousness:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;
- Use of known technique to improve similar devices (methods, or products) in the same way;

- Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- Choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
- Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

A person of ordinary skill in the art looking to overcome a problem will often use the teachings of multiple publications together. I understand that obviousness analysis takes into account inferences, creative steps, common sense, and practical logic and applications that a person of ordinary skill in the art would employ under the circumstances.

I understand that a claim can be obvious in light of a single reference, if the elements of the challenged claim that are not explicitly or inherently disclosed in the reference can be supplied by the common sense of one of skill in the art.

I understand that obviousness also bars the patentability of applying known or obvious design choices to the prior art. One cannot patent merely substituting one prior art element for another if the substitution can be made with predictable results.

Likewise, combining prior art techniques that are interoperable with respect to one another is generally obvious and not patentable.

In order for a claim to be found invalid based upon a modification or combination of the prior art, there must be reasonable expectation that a person of ordinary skill would have successfully modified or combined the prior art to arrive at the claimed arrangement. This does not mean that it must be certain that a person of ordinary skill would have been successful—the law only requires that the person of ordinary skill in the art would have perceived a reasonable expectation of success in modifying or combining the prior art to arrive at the claimed invention.

In sum, my understanding is that obviousness invalidates claims that merely recite combinations of, or obvious variations of, prior art teachings using understanding and knowledge of one of skill in the art at the time and motivated by the general problem facing the inventor at the time. Under this analysis, the prior art references themselves, or any need or problem known in the field of endeavor at the time of the invention, can provide a reason for combining the elements of or attempting obvious variations on prior art references in the claimed manner.

Legal Standard for Claim Construction

I understand that before any invalidity analysis can be properly performed, the scope and meaning of the challenged claims must be determined by claim construction.

I understand that a patent may include two types of claims, independent claims and dependent claims. I understand that an independent claim stands alone and

includes only the limitations it recites. I understand that a dependent claim depends from an independent claim or another dependent claim. I understand that a dependent claim includes all the limitations that it recites in addition to the limitations recited in the claim (or claims) from which it depends.

In comparing the challenged claims to the prior art, I have carefully considered the patent and its file history in light of the understanding of a person of skill at the time of the alleged invention.

I understand that to determine how a person of ordinary skill would have understood a claim term, one should look to sources available at the time of the alleged invention that show what a person of skill in the art would have understood disputed claim language to mean. It is my understanding that this may include what is called “intrinsic” evidence as well as “extrinsic” evidence.

I understand that, in construing a claim term, one should primarily rely on intrinsic patent evidence, which includes the words of the claims themselves, the remainder of the patent specification, and the prosecution history. I understand that extrinsic evidence, which is evidence external to the patent and the prosecution history, may also be useful in interpreting patent claims when the intrinsic evidence itself is insufficient. I understand that extrinsic evidence may include principles, concepts, terms, and other resources available to those of skill in the art at the time of the invention.

I understand that words or terms should be given their ordinary and accepted meaning unless it appears that the inventors were using them to mean something else or something more specific. I understand that to determine whether a term has special meaning, the claims, the patent specification, and the prosecution history are particularly important, and may show that the inventor gave a term a particular definition or intentionally disclaimed, disavowed, or surrendered claim scope.

I understand that the claims of a patent define the scope of the rights conferred by the patent. I understand that because the claims point out and distinctly claim the subject matter which the inventors regard as their invention, claim construction analysis must begin with and is focused on the claim language itself. I understand that the context of the term within the claim as well as other claims of the patent can inform the meaning of a claim term. For example, because claim terms are normally used consistently throughout the patent, how a term is used in one claim can often inform the meaning of the same term in other claims. Differences among claims or claim terms can also be a useful guide in understanding the meaning of particular claim terms.

I understand that a claim term should be construed not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the entire specification. I understand that because the

specification is a primary basis for construing the claims, a correct construction must align with the specification.

I understand that the prosecution history of the patent as well as art incorporated by reference or otherwise cited during the prosecution history are also highly relevant in construing claim terms. For instance, art cited by or incorporated by reference may indicate how the inventor and others of skill in the art at the time of the invention understood certain terms and concepts. Additionally, the prosecution history may show that the inventors disclaimed or disavowed claim scope, or further explained the meaning of a claim term.

With regard to extrinsic evidence, I understand that all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises, can also be considered. For example, technical dictionaries may indicate how one of skill in the art used or understood the claim terms. However, I understand that extrinsic evidence is considered to be less reliable than intrinsic evidence, and for that reason is generally given less weight than intrinsic evidence.

I understand that in general, a term or phrase found in the introductory words or preamble of the claim, should be construed as a limitation if it recites essential structure or steps, or is necessary to give meaning to the claim. For instance, I understand preamble language may limit claim scope: (i) if dependence on a

preamble phrase for antecedent basis indicates a reliance on both the preamble and claim body to define the claimed invention; (ii) if reference to the preamble is necessary