

Declaration of Samuel H. Russ, Ph.D. in Support of
Petition for *Inter Partes* Review of
U.S. Patent No. 9,741,050

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOAST, INC.
Petitioner

v.

GRATUITY, LLC
Patent Owner

IPR2023-01408

U.S. Patent No. 9,741,050

Issue Date: August 22, 2017

Title: SYSTEM AND METHOD FOR MANAGING GRATUITIES

**DECLARATION OF SAMUEL H. RUSS PH.D. IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,741,050**

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Declaration of Samuel H. Russ, Ph.D. in Support of
Petition for *Inter Partes* Review of
U.S. Patent No. 9,741,050

I, Samuel H. Russ, declare as follows:

I. INTRODUCTION AND QUALIFICATIONS

A. Introduction

1. I have been retained by Petitioner Toast, Inc. (“Petitioner”) in connection with the petition for *inter partes* review of U.S. Patent No. 9,741,050 (“’050 patent”). The statements set forth in this Declaration are based on my own personal knowledge. I am being compensated at my usual rate, which is \$450 per hour, for the time spent preparing this Declaration, and my compensation is not contingent on the outcome of any matter or any of the opinions provided below. I have no financial interest in this matter.

2. I understand that the ’050 patent issued on August 22, 2017 from U.S. Application Serial No. 13/834,466, naming Aleksandar Stepanovich as inventor. I have been advised, and it is my understanding, that the earliest provisional priority date of the ’050 patent is September 4, 2012, the filing date of Provisional Application No. 61/696,569, to which the ’050 patent claims priority. For purposes of my analysis herein, I have used this date as the relevant time period.

3. I have been asked by Petitioner to offer opinions regarding the state of the art for point of sale systems, time-management systems, and restaurant management systems, as well as networking and client-server architectures prior to

September 4, 2012. I have been asked to provide my opinion concerning the question of whether the systems described in claims 1–13 of the '050 patent were novel and would have been nonobvious to a person of ordinary skill in the art (“POSITA”) by September 4, 2012.

4. In preparing this Declaration, I have reviewed the '050 patent, its prosecution history, and each of the documents I reference herein. In reaching my opinions, I have relied upon my experience in the field and have also considered the viewpoint of a POSITA at the time of the '050 patent's priority date. As explained below, I am familiar with the level of skill of a POSITA regarding the technology at issue as of that time frame.

5. I make this Declaration based upon my own personal knowledge, information, and belief, and I would and could competently testify to the matters set forth in this Declaration if called upon to do so. I do not have any personal or financial stake or interest in the outcome of the present proceeding, and the compensation is not dependent on the outcome of this *inter partes* review and in no way affects the substance of my statements in this declaration.

B. Qualifications and Experience

6. I received a Bachelor's degree in Electrical Engineering from the Georgia Institute of Technology (“Georgia Tech”) in 1986 and a Ph.D. in Electrical

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Engineering from Georgia Tech in 1991.

7. From 2007 to the present, I have been a member of the faculty of the University of South Alabama as an Assistant and Associate Professor in the Department of Electrical and Computer Engineering. During that time, I have won awards for excellent teaching and have been actively publishing research in home networking and digital video recording (DVR) technologies. I am active in the Institute of Electrical and Electronic Engineers (IEEE) and am a Distinguished Lecturer for the IEEE Consumer Electronics Society. As an example of the type of research I perform, I helped to manage the development of a fully functional “CubeSat” satellite that was successfully launched into space in September 2022 and sent back data. I teach courses in a variety of topics, including cryptographic methods, embedded system design, and signal integrity. The graduate-level cryptographic methods course covers the techniques needed to create secure systems, such as payment terminals. The embedded-system design course covers the design of practical computer-based, embedded computing systems, such as those found in point of sale systems and terminals. The signal integrity course covers the circuit design techniques to minimize crosstalk and electromagnetic susceptibility. To go with the course, I also authored a textbook on the subject of signal integrity, now in its second edition. The textbook covers the techniques needed to develop

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secure computer systems, such as systems that do not emit unwanted signals and are not susceptible to outside interference.

8. While at Scientific-Atlanta, now Technicolor, I managed the development of cable set-top boxes and managed the development of an in-home server-client network for delivering video content. The network, called Multi-Room DVR, won an Engineering and Technology Emmy® Award in 2013. I was a named inventor on forty-eight (48) patent applications that were filed while I was at Scientific-Atlanta, twenty nine (29) of which have issued as patents as of the writing of this Declaration. Many of these patents are in the area of networking and client/server set-top architectures.

9. I managed the development of a point of sale retail terminal at IVI Checkmate (now Ingenico). The e^N-Touch 1000 (Ex. 1009) was a terminal that could capture signatures, read credit cards (specifically, the magnetic stripe), and could perform debit transactions. (Ex. 1009, pp. 1–2.) It featured a durable capacitively coupled touch screen and a monochromatic graphical display. (*Id.*) A picture of the device is shown below:



(*Id.*)

10. Because of the strict level of security that is used to protect debit transactions, the product was designed from the ground up with advanced security features, including both software and hardware. The terminal was widely sold to customers such as the U.S. Postal Service and Home Depot.

11. I also served on the faculty of Mississippi State University from 1994 to 1999 as an Assistant Professor in the Department of Electrical & Computer Engineering where I taught circuit board design and two-way interactive video classes, among other things. I managed the development of a distributed run-time environment that could run complex physical simulations on networked workstations and could migrate software between workstations while it was running. The environment used a client-server model to allocate tasks to computing resources in real time.

12. I have authored fifty (50) journal articles and conference papers. A conference paper on digital video recording won second place in a “best paper”

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competition at the 2011 International Conference on Consumer Electronics in Las Vegas, NV.

13. In my current capacity as an independent consultant, I have reviewed and verified the operation of a wide variety of technical systems, including processors, personal computers, television devices, smart phones, peripherals, and bus systems.

14. Based on my many years of experience, I believe that I possess significant expertise in the area of networked communication systems such that I am qualified to give opinions on how a “person of ordinary skill” in this field would understand the instant application, prior art, and the nature of the problem to be solved and solutions to it.

15. A copy of my curriculum vitae, which further details my qualifications and experience, is submitted as Ex. 1002.

C. Materials Considered

16. The analysis that I provide in this Declaration is based on my education and experience in point of sale systems, time management systems, and/or restaurant management computer systems, and in networking and client-server architectures, as well as the documents I have considered, including the '050 patent (Ex. 1001) and its prosecution history (Ex. 1008). The '050 patent states on its face that it issued

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from U.S. Application Ser. No. 13/834,466, which was filed on March 15, 2013. The '050 patent also claims priority from Provisional Application No. 61/696,569, filed on September 4, 2012. (See Ex. 1001, face page and 1:7–9).¹ For the purposes of this Declaration, I have assumed September 4, 2012 as the effective filing date for the '050 patent. I have cited to the following documents in my analysis below:

Exhibit No.	Description of Document
1001	U.S. Patent No. 9,741,050 (the "'050 patent")
1003	Curriculum Vitae of Dr. Samuel H. Russ
1004	U.S. Patent Application Publication No. 2008/0065396 ("Marshall")
1005	U.S. Patent Application Publication No. 2014/0365322 ("Phillips")
1006	U.S. Patent No. 4,819,612 to Webb ("Webb")
1008	Prosecution History of the '050 patent ("prosecution history")
1009	e ^N -Touch 1000 datasheet

¹ For purposes of this Declaration, citations to patents and patent applications, including the '050 patent, are in the form a:bb – c:dd, where "a" and "c" are column numbers, and "bb" and "dd" are line numbers.

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Exhibit No.	Description of Document
1010	Aaron Weiss. “Computing in the clouds,” in netWorker, vol. 11, no. 4, pp. 16–25 (December 2007)
1011	R.L. Grossman, “The Case for Cloud Computing,” in IT Professional, vol. 11, no. 2, pp. 23–27, March/April 2009
1012	Mahmood, Z., & Hill, R. (Eds.). (2011). Cloud computing for enterprise architectures (2011th ed.). Springer. pp. 3–4.
1013	Minneapolis-based TimeManagement teams with Agilysys, March 3, 2010.
1014	Christina Volpe, “POS Software 2011”, Hospitality Technology Newsletter, Dec. 19, 2010. Accessed via https://hospitalitytech.com/pos-software-2011 on Aug. 17, 2023
1015	https://web.archive.org/web/20120506043919/http://www.agilysys.com/home/Hospitality/Solutions/infogenesis_pos.htm
1016	https://web.archive.org/web/20120506082635/http://www.agilysys.com/home/Hospitality/Solutions/SaaS.htm
1017	https://web.archive.org/web/20120506042637/http://www.agilysys.com/home/Hospitality/Solutions/eatec.htm
1018	https://web.archive.org/web/20101226144359/http://agilysys.com/home/Hospitality/Solutions/TMx.htm
1019	https://web.archive.org/web/20120504124828/http://download2.pc-america.com/info/RPE%20---%20Quick%20Service.pdf
1020	Levine and Van Wijk, Counting on Computers, Chain Store Publishing Company, 1980

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Exhibit No.	Description of Document
1021	Alan Liddle, “Service staffs steamed over proposed Calif. Tip-share law”, Nation’s Restaurant News, Vol. 38, No. 15, April 12, 2004
1022	Dina Berta, “Operators tip hat to practice of holding gratuities until payday”, Nation’s Restaurant News, Vol. 38, No. 16, April 19, 2004
1023	D. Brown, Restaurant Manager’s Handbook, Atlantic Publishing Group, 3rd Edition, 2003, pp. C16-14 to C16-20.
1026	Barry M. Leiner et al., Brief history of the internet, Internet Society, 1997
1027	https://home.cern/science/computing/birth-web/short-history-web
1028	https://web.archive.org/web/20120506082635/http://www.agilysys.com/home/Hospitality/Solutions/SaaS.htm
1029	https://web.archive.org/web/20120506043142/http://www.agilysys.com/home/Hospitality/Solutions/

II. LEGAL PRINCIPLES

17. I am not an attorney. For purposes of this Declaration, I have been informed by counsel for Petitioner about certain aspects of the law that are relevant to my analysis and opinions, as set forth below.

A. Prior Art

18. I understand that the prior art to the ’050 patent includes patents and printed publications in the relevant art that predate the ’050 patent’s priority date.

As I explained previously, I have been instructed to assume for purposes of my analysis that September 3, 2012 is the relevant date for determining what is “prior art.” In other words, I should consider as “prior art” anything publicly available prior to September 4, 2012. I further understand that, for purposes of this proceeding in the United States Patent Trial and Appeal Board, only patents and documents that have the legal status of a “printed publication” may be relied on as prior art.

B. Claim Construction

19. I understand that claim terms are generally given their ordinary and customary meaning, which is the meaning that the term would have to a POSITA at the time of the invention, i.e., as of the effective filing date of the patent application. I further understand that the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which a claim term appears, but in the context of the entire patent, including the specification.

20. I am informed by counsel that the patent specification has been described as the single best guide to the meaning of a claim term, and is thus highly relevant to the interpretation of claim terms. I understand for terms that do not have a customary meaning within the art, the specification usually supplies the best context of understanding the meaning of those terms.

21. I am further informed by counsel that other claims of the patent in

question, both asserted and unasserted, can be valuable sources of information as to the meaning of a claim term. Because the claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.

22. I understand that the prosecution history can further inform the meaning of the claim language by demonstrating how the inventors understood the invention and whether the inventors limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be. Extrinsic evidence may also be consulted in construing the claim terms, such as my expert testimony.

23. I have been informed by counsel that, in *inter partes* review (“IPR”) proceedings, a claim of a patent shall be construed using the same claim construction standard that would be used to construe the claim in a civil action filed in a U.S. district court (which I understand is called the “*Phillips*” claim construction standard), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

24. I have been instructed by counsel to apply the “*Phillips*” claim construction standard for purposes of interpreting the claims in this proceeding, to

the extent they require an explicit construction. The description of the legal principles set forth above thus provides my understanding of the “*Phillips*” standard as provided to me by counsel.

25. I understand that some claims are independent, and that these claims are complete by themselves. Other claims refer to these independent claims and are “dependent” from those independent claims. The dependent claims include all of the limitations of the claims on which they depend.

C. Anticipation

26. I understand that a patent claim is anticipated if a single prior art document describes every element of the claim such that a POSITA could practice the claimed method without undue experimentation.

27. I understand that anticipation may be by express disclosure in the prior art. I also understand that if the prior art reference does not expressly set forth a particular claim element, the prior art may still anticipate a patent claim if that element is “inherent” in its disclosure—that is, if it is necessarily found in the reference. A property is inherent even if a POSITA would not have appreciated that property as of the date of that prior art.

D. Obviousness

28. I understand that obviousness is a determination of law based on

various underlying determinations of fact. In particular, these underlying factual determinations include: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art at the time the claimed invention was made; (3) the differences between the claimed invention and the prior art; and (4) the extent of any proffered objective indicia of non-obviousness. I understand that the objective indicia which may be considered in such an analysis include commercial success of the patented invention (including evidence of industry recognition or awards), whether the invention fills a long-felt but unsolved need in the field, the failure of others to arrive at the invention, industry acquiescence and recognition, initial skepticism of others in the field, whether the inventors proceeded in a direction contrary to the accepted wisdom of those of ordinary skill in the art, and the taking of licenses under the patent by others, among other factors.

29. To ascertain the scope and content of the prior art, it is necessary to first examine the field of the inventor's endeavor and the particular problem for which the invention was made. The relevant prior art includes prior art in the field of the invention, and also prior art from other fields that a person of ordinary skill in the art would look to when attempting to solve the problem.

30. I understand that a determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the

parameters of the patented invention. Instead, it is my understanding that in order to render a patent claim invalid as being obvious from a combination of references, there must be some evidence within the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination in a way that would produce the patented invention.

31. I further understand that in an obviousness analysis, neither the motivation nor the purpose of the patentee dictates. Rather, any problem known in the field can provide a reason for combining the prior art in the manner claimed.

III. LEVEL OF ORDINARY SKILL IN THE ART

32. I understand that an assessment of claims of the '050 patent should be undertaken from the perspective of a person of ordinary skill in the art as of the earliest claimed priority date, which, as I explained above, I assumed to be September 4, 2012.

33. I understand that a POSITA is a hypothetical person who is presumed to be aware of all pertinent art, applies conventional wisdom in the art, and is a person of ordinary creativity. I have also been advised that to determine the appropriate level of a person having ordinary skill in the art, the following factors may be considered: (1) the types of problems encountered by those working in the field and prior art solutions thereto; (2) the sophistication of the technology in

question, and the rapidity with which innovations occur in the field; (3) the educational level of active workers in the field; and (4) the educational level of the inventor.

34. Applying these factors, as to the '050 patent, a POSITA in September 2012 would have had an undergraduate degree in electrical engineering, computer engineering, computer science, or an equivalent degree with two to three years of experience in point of sale systems, time management systems, and/or restaurant management computer systems, and in networking and client-server architectures. To the extent necessary, a POSITA may collaborate with one or more other persons of skill in another art for one or more aspects with which the other person may have expertise, experience, and/or knowledge that was obtained through his/her own education, industrial, or academic experience.

35. Based on this definition, I am a POSITA at least due to my extensive experience in point of sale systems, time management systems, and/or restaurant management computer systems, and in networking and client-server architectures. I was also a POSITA in the 2011–2012 timeframe relevant to this proceeding.

IV. KNOWLEDGE IN THE ART AT THE TIME OF THE ALLEGED INVENTION OF THE '050 PATENT

36. I understand that a skilled artisan is presumed to know and be familiar with all of the relevant art in the field at the time of the alleged invention.

37. The technology at issue in the challenged claims of the '050 patent relates to point of sale systems, time-management systems, and restaurant management systems, as well as networking and client-server architectures. Such systems have been known and used well before September 2012.

A. Restaurant Management

38. All or nearly all of the material of the challenged claims of the '050 patent represents activities that have been carried out in restaurants for decades.

39. Consider, for example, distribution of gratuities and tips. A front-page article from 2004 on Nation's Restaurant News explains the controversy behind a proposed California law to permit restaurants to "pool", or collect, all tips and distribute some of the money to kitchen employees. (Ex. 1021, p. 1.) Another article explains that many operators are pooling tips and distributing them to employee paychecks. (Ex. 1022, p. 1.) Driven by the increase in customers paying with credit cards, advantages for restaurant employees included "improving reporting for tax purposes" and better management of tip pooling. (*Id.*) The tax law behind tips had become complex and required restaurant management systems to take it into account. (Ex. 1023, pp. C16-14– C16-20.)

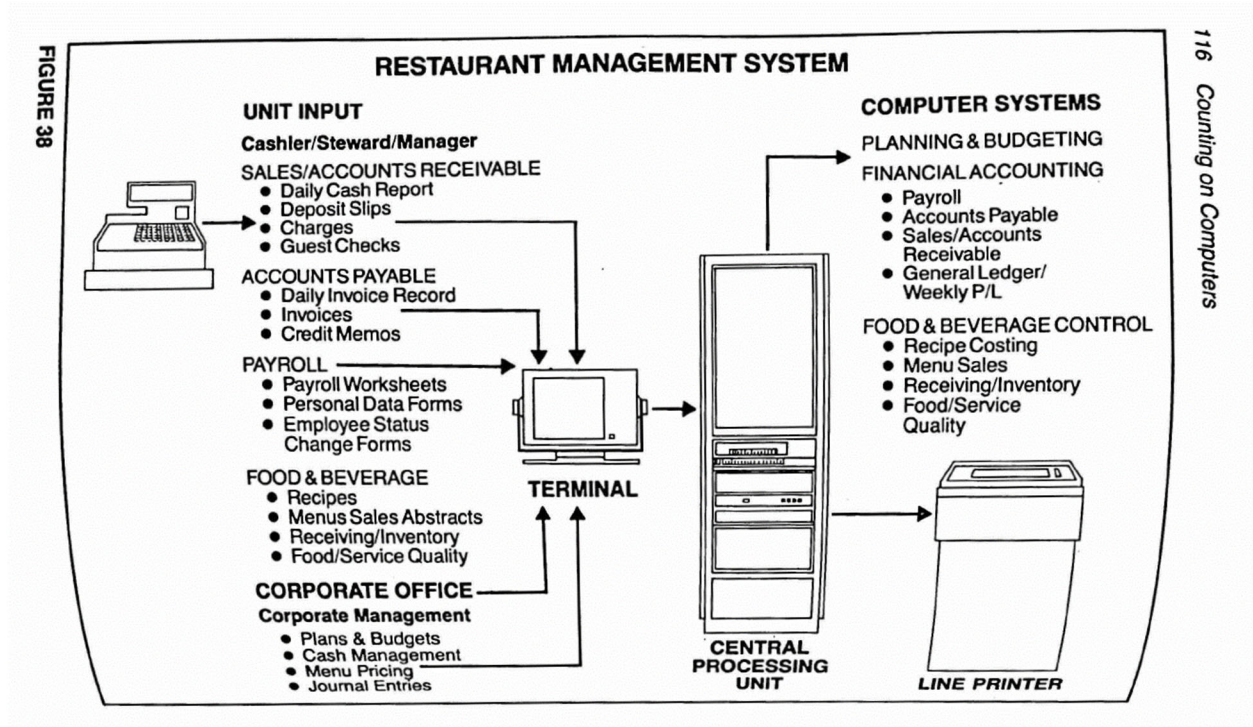
40. In other words, having restaurants gather tips, distribute those tips to employees including kitchen staff, and prepare tax reports were all operations that

restaurant managers would be very much aware of well before and as of September 2012.

41. Another common issue that restaurants have historically handled is the matter of keeping track of employee hours. U.S. Patent No. 4,819,162 to Webb (Ex. 1006), for example, states: “The computerized time clock system includes a personal computer via which employee, job and schedule records may be assembled and maintained. A computerized time clock communicates with the personal computer and received employee and scheduling data therefrom, in order to validate and record time-in and timeout transactions executed by employees.” (Ex. 1006, Abstract.) Webb, which was filed in 1988, highlights that time clock systems have been in widespread use for a long time. (Ex. 1006, face page.)

42. Computerization of restaurant systems is surprisingly old. For example, the 1980 book *Counting on Computers* shows point of sales systems (Ex. 1020, pp. 48–65), lists major companies that use point of sale (POS) and computer technology (including Pizza Hut and Kentucky Fried Chicken) (*id.*, pp. 78–83), computer payroll systems (*id.*, p. 89), tips and taxes (*id.*, pp. 96–97), and diagrams of complete restaurant management systems (*id.*, pp. 112–25). The book lists commercially sold POS systems that include features like modems and remote access (*id.*, pp. 190–95). Additionally, the book lists time keeping and tracking tip

declarations as requirements for a complete system (*id.*, pp. 243–47). In other words, all of these features were commonplace *43 years ago*. A figure from page 116 shows many of the features of the '050 patent:



(*id.*, p. 116 fig. 38.) The figure includes POS input, payroll, and corporate-office access.

43. To recap, restaurants have had to deal with tip and gratuity allocation, payroll, payroll taxes, time and attendance, and handling of customer payments (including credit cards) for decades. As will be shown, the '050 patent is drawn to the computerization of these steps. However, even if computerization of a manual process were patentable (which it is not), the act of computerizing restaurant

operations has been known for over four decades—long before the filing of the '050 patent.

44. The '050 patent claims a specific arrangement of structural elements, such as a t gratuity client and a server to allocate gratuities. However, the building blocks of these elements were well known in the art for a long time, and it is difficult to see any inventive novelty in the arrangement of pieces that have been known, sold, and used for decades.

B. Point of Sale Systems

45. One term of art that appears often in the '050 patent and in the art is “point of sale.” This term refers to a location where consumers make purchases. In addition to checkout lines, such systems can be deployed any place consumers make payment.

46. By the 2000s, credit-card and debit-card terminals had become commonplace. As I explained above, I managed the design of such a terminal in 1999. (See ¶9, *supra*.) Such terminals were usually connected to a cash register using communications protocols such as RS-232 and RS-485 (Ex. 1009, p. 2), and the cash registers were often connected to a store-wide network.

47. By the mid-2000's, it was well known in the restaurant industry that point of sale (POS) systems had “grown up” to complete, integrated computer

systems. Consider this passage from the Marshall patent application (Ex. 1004):

Many POS systems include computers or specialized terminals that are co-located with cash registers, bar code readers, optical scanners, magnetic stripe readers, and the like such that information may be automatically captured by the computer or specialized terminal from the co-located equipment. Furthermore, many POS systems are networked or otherwise linked together such that data from each collection point is transferred to one central location for analysis, reporting, and the like.

(Ex. 1004, ¶70.) In other words, POS systems had “grown up” into complete POS servers.

C. Client-Server Systems and Cloud Architecture

48. One common way to implement computer systems, and especially computer systems that span large geographic areas, is to use a client-server architecture. For example, we were using a client-server architecture to run design software in undergraduate laboratories at Mississippi State University in 1995. From the days of my undergraduate degree (circa 1985), we used “mainframe computers,” the concentration of computing resources into a central system enabled a single, easily managed resource to keep track of transactions and data across a wide geographic area.

49. One necessary technology for client-server systems is networking. An

example of a wide-area network is the Internet. Having grown from ARPANET in the 1970s, by the 2000s, the Internet had grown to near ubiquity. (Ex. 1026.) One technology that fueled its widespread adoption was the World Wide Web, developed in 1989 by scientist Tim Berners-Lee while working at CERN. (Ex. 1027.) As will be explained below, Web-based technologies and server-based technologies had become both sophisticated and widespread by the time of the '050 patent in September 2012.

50. One step in the evolution of server-based technology was so-called “cloud computing.” As explained in a 2007 article:

The data centers of the early dotcom era were, in some respects, direct descendants of Watson’s mainframes. Physically smaller, perhaps, but Sun servers and their ilk continued to represent an exclusive kind of computing—concentrated power designed, and priced, for exclusive customers—namely, enterprise.

But Google turned the data center model on its head. Rather than power a network with a small number of high-powered and very expensive servers, why not deploy cheap, commodity hardware in large numbers?

Today, Google runs an estimated half-million servers clustered into a dozen or so physical locations. By creating a network that is spread thin and wide rather than narrow and deep, Google created a new kind of concentrated power—derived more from scale of the whole than any one constituent part. This, some say, describes the cloud.

As computational and networking architecture, the cloud is very robust. Sometimes described as “self-healing,” a thin, wide network can recover gracefully from the most common ailments, such as connection and hardware failures, because there are so many more drones available to take on the work.

(Ex. 1010, pp. 18–19.)

51. By 2009, the advantages of the cloud implementation had become clear.

From a 2009 article:

Cloud computing provides several important benefits over today’s dominant model in which an enterprise purchases computers a rack at a time and operates them themselves. First, cloud computing’s usage-based pricing model offers several advantages, including reduced capital expense, a low barrier to entry, and the ability to scale up as demand requires, as well as to support brief surges in capacity. Second, cloud services enjoy the same economies of scale that data centers provide. By providing services at the scale of a data center, it’s possible to provide operations, business continuity, and security more efficiently than can be done when providing these services a rack at a time. For this reason, the unit cost for cloud-based services is often lower than the cost if the services were provided directly by the organization itself. Finally, cloud-computing architectures have proven to be very scalable—for example, cloud-based storage services can easily manage a petabyte of data, whereas managing this much data with a traditional database is problematic.

(Ex. 1011, p. 25.)

52. By 2011, a textbook on the subject had been written, further evidencing the widespread adoption of the technology. (*See* Ex. 1012.)

53. First, the book, citing other references, defines cloud computing thusly:

The name *Cloud Computing* was inspired by the cloud symbol that is often used to represent the Internet. Gartner [1] defines Cloud Computing as *a style of computing where massively scalable IT-enabled capabilities are delivered ‘as a service’ to external customers using Internet technologies*. According to NIST (National Institute of Standards and Technology), Cloud Computing is *on-demand access to a shared pool of computing resources* [2]. It is an *all-inclusive solution in which all computing resources (hardware, software, networking, storage, and so on) are provided rapidly to users as demand dictates* [3].

(Ex. 1012, pp. 3–4 (emphasis in original).)

54. Second, the book goes on to explain the benefits of a cloud-based architecture. For example, the book asserts:

Some of the reasons why more and more companies are shifting towards Cloud Computing IT solutions include:

- Reduction in costs associated with delivering IT services and, thus, diverting such resources to other activities such as integration of services

- Reduction in management responsibilities and, thereby, allowing key personnel in the enterprise to focus more on production and innovation
- Increased business agility and scalability and, thus, allowing enterprises to satisfactorily meet the needs of rapidly changing environments

(*Id.*, p. 4.)

The business and technical advantages offered by the cloud provision are simply enormous, and so, its adoption and adaption [*sic*] are gaining unprecedented attention and acceleration. Market analysts and researchers have also come out with astronomical figures in order to indicate and insist on the exploding cloud market. Enterprises are formulating schemes and roadmaps for migration to the cloud environment.

(*Id.*, p. 187.)

55. One aspect of cloud technology is software as a service (“SaaS”). It “refers to prebuilt, functionally independent, vertically integrated and universally available applications (e.g. an e-mail system, human resource management, payroll processing, database processing and other application processes) delivered to and used by customers as *services*.” (*Id.*, p. 7 (emphasis in original).)

56. It is clear that, by 2011, cloud computing was already a stable, mature, commonly selected architecture for server implementations. To recap, cloud

computing was well established as an alternative to conventional “server farms,” and a POSITA would have considered the two as essentially equivalent. In fact, if anything, one of ordinary skill would have considered a cloud implementation advantageous over a conventional server-based implementation for all of the reasons explained above in articles of the era. Any architecture that included a remote server could have been easily and cost-effectively implemented as a cloud-based architecture, and the methods and steps required to make such an implementation were routine and conventional.

D. Restaurant Management Systems

57. While “point of sale” can refer to almost any place that consumers make purchases, it is clear that the ’050 patent is drawn to restaurants particularly. For example, the word “restaurant” appears 28 times according to a word search of the ’050 patent in Adobe Acrobat.

58. Restaurant management systems were designed to support the unique needs of a restaurant. In addition to managing point of sale type functions, such as receiving payments from customers, restaurant management systems included systems for tracking employee hours, meal counts, and sales totals. (Ex. 1013.)

59. By 2010, restaurant management systems had become commonplace. For example, an article surveying such systems reported features such as

“scheduling, time and attendance, human resources, and labor forecasting functions,” “table management and break compliance,” sending “purchase orders to vendors,” “clock-in and clock-out messages,” “electronic receiving,” “user interface for both front- and back-of-house software,” and “single-shift employee training.” (Ex. 1014, pp. 2–4.) The article explained that one company, pcAmerica, was planning in 2011 to “enhance its online web portal for restaurant operators that are looking to technology to access and modify sales reports, menus, employee time and attendance and other information remotely.” (*Id.*, p. 3) In other words, web-portal versions of these capabilities were available. The article explains that these capabilities were offered by various companies, and so it is clear that a certain degree of combinations among vendors might well have been possible.

60. As a further example, the article referenced a company named Agilysys. Agilysys sold the InfoGenesis POS system for restaurants that included abilities such as audit logs, financial and operational reporting, and “powerful reporting and configuration capabilities in the back office.” (Ex. 1015, p. 4.)

61. The InfoGenesis system was also available in a subscription offering, meaning that there was a cloud-based version of the InfoGenesis system available for adoption by restaurants. (*See* Ex. 1016.) As explained in the online product briefing, “[t]his subscription service implementation is tailored to those

organizations that want industry leading technology but may not have the resources immediately available to invest in the additional staff or infrastructure associated with supporting it. Subscription service customers can focus on their core business competencies and let Agilysys attend to systems management.” (*Id.*, pg. 4.) In other words, the article cites the same advantages of a cloud-based implementation as those cited in articles about cloud-based computing, including the ones that I referenced above. The URL of the article includes the term of art “SaaS,” and so makes clear that Agilysys regarded the subscription offering as a SaaS implementation—a common cloud-based implementation of remote services. (*See generally* Ex. 1016.)

62. Another system offered by Agilysys was the Eatec management system. (*See* Ex. 1017.) Its core features included inventory management, purchasing, receiving, and sales tracking. (*Id.*, p. 5.) Note that sales tracking was facilitated by “point-of-sale (POS) integration.” (*Id.*) In other words, the products sold by Agilysys were able to interoperate and share data. The system was available as a Windows application or, like InfoGenesis, as a hosted application. (*Id.*, p. 4.)

63. The Agilysys family of restaurant management systems included a labor-management system named TMx from Time Management Corporation. (Ex. 1018, p. 4.) This was an “easy to use enterprise system” that included integration of

labor features, such as scheduling and time and attendance, into other Agilysys solutions such as point of sale systems. (*Id.*) The TMx system “uses data fields within a customer’s system” to “allocate tips, sales, and other collectibles.” (*Id.*, p. 5.)

64. Agilysys marketed these different systems (InfoGenesis, Eatec, TMx) and touted the company’s ability to manage restaurant operations comprehensively. (Ex. 1029.) They also touted the ability of some of the applications to run in a cloud-based implementation. (Ex. 1028.) It is clear, therefore, that such systems could be “mixed and matched” as needed, with a combination of Windows-based servers in-restaurant and cloud-based offsite SaaS software.

65. Another restaurant solution was offered by a company named pcAmerica. (*See* Ex. 1019.) The pcAmerica system included inventory management, labor management, business reports, and integration with QuickBooks accounting software. (*Id.*, pp. 4–5.) The system included a Web portal for reports, managing menu items and “several other backoffice tasks.” (*Id.*, p. 5.)

66. To recap, by the 2010–2012 timeframe, commercially available restaurant management systems included point of sale management, time and attendance, and interfacing between the two to perform tip allocation. Many of these applications were available both as locally hosted (e.g., on a Windows computer) or

as a subscription service (e.g., a SaaS application on a remote host), and many restaurant management systems included a web portal for back office functions. It would therefore have been clear to a POSITA in September 2012 that combinations of local servers and cloud-based software could be assembled to carry out business functions such as time and attendance and tip allocation.

V. THE '050 PATENT

A. Overview of the '050 Patent

67. The '050 patent is titled “System and Method for Managing Gratuities.” (Ex. 1001, Title.) It issued from U.S. Application Ser. No. 13/834,466, which was filed on March 15, 2013 and claims priority to U.S. Provisional Application Ser. No. 61/696,569. (Ex. 1001, face page and 1:7–9.)

68. The '050 patent discusses methods and systems for managing gratuity allocations. (Ex. 1001, Abstract.) According to the '050 patent, existing systems are incapable of providing “both employers and employees with accurate and timely allocations of gratuities in a cost-effective manner.” (*Id.*, 1:41–44.) The '050 patent explains that, in existing systems, “[t]he sharing of gratuities has often been manually calculated and documented with ad hoc record keeping, complicating compliance with tax and labor regulations[,]” and “[e]ven when properly computed, existing systems for gratuity sharing have not provided easy access to the gratuity

sharing data.” (*Id.*, 1:36–41.)

69. The gratuity management system 100 of the '050 patent is shown schematically in Figure 1, which is reproduced below.

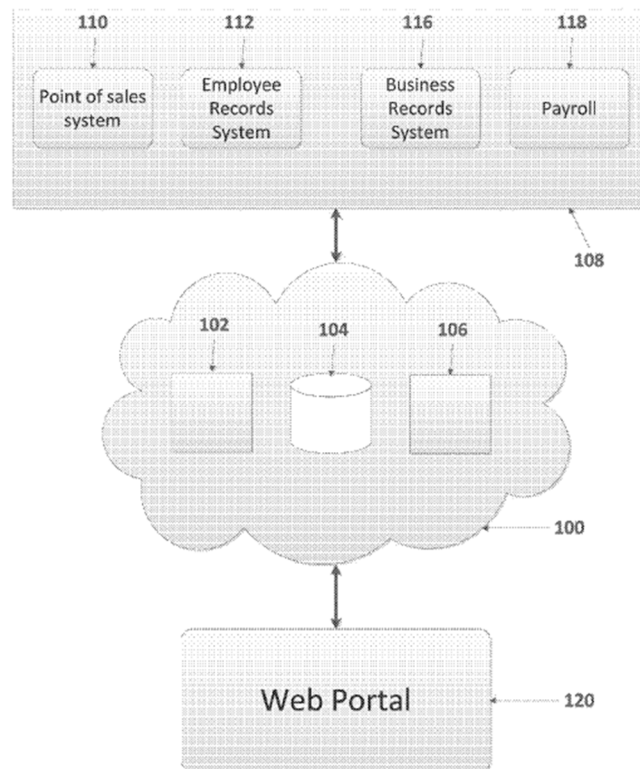


Figure 1

(*Id.*, Fig. 1.) Gratuity management system 100 includes a processor 102, a database 104, and a configuration module 106 for applying gratuity distribution rules as provided by a client (e.g., a restaurant). (*Id.*, 4:20–23, 5:14–22.) According to the '050 patent, gratuity management system 100 interfaces with a restaurant management system 108 and its components to acquire necessary information—such as transaction and employee information. (*Id.*, 4:56–59.) Specifically, gratuity

management system 100 “may receive transaction information from a point of sale system 110” (*id.*, 4:25–27) and “employee information from an employee records system 112” (*id.*, 4:37–39).

70. The ’050 patent further states:

The gratuity management system 100 determines how to allocate the gratuities collected by or on behalf of the gratuity-generating employees among the gratuity-receiving employees based upon the transaction information, employee information, and distribution rules for the given business.

(*Id.*, 5:49–54.) Once the gratuity management system 100 determines the allocation of gratuities collected, “[t]he business records system 116 is configured to receive the determine [*sic*] gratuity allocations for use in distributing the gratuity payments to employees.” (*Id.*, 6:19–21.) In addition, “the system 100 may communicate with a payroll system so that the determined gratuity allocation is added to the employee’s next paycheck.” (*Id.*, 6:28–30.)

71. In addition, the gratuity management system 100 includes a web-portal 120 “configured to allow employees access their own determined gratuity allocation so that the employee may view their accumulated gratuities following an accounting period.” (*Id.*, 6:55–59.)

72. According to the ’050 patent, “the gratuity management system

includes an interface component 206 that integrates with the business's systems to extract the transaction information and employee information to be used in determining the gratuity allocations." (*Id.*, 7:49–53.) In other words, interface component 206, which is labeled "Grat Sync Client Application" in Figure 2A of the '050 patent, lives in the restaurant management system 108 shown in Figure 1, and is tasked with extracting transaction information from point of sale system 110 and employee information from employee record system 112. (*Id.*, Fig. 2A.)

73. Finally, the '050 patent contemplates that its gratuity management system may be implemented in a cloud computing system interfaced with a cloud-based point of sale and/or employee record system (*id.*, 5:2–5) or operated locally on a client's computer system (*id.*, 8:58–62) and, further, that the gratuity management system may be configured to serve multiple clients (*id.*, 8:46–49).

B. Prosecution History

74. I reviewed the history of the application as it was considered and then approved by the United States Patent and Trademark Office ("Office"), which I understand is called the "prosecution history." (Ex. 1008.) I am aware the Office entered several office actions rejecting the claims based on a number of prior art references, including Marshall (Ex. 1004) and Phillips (Ex. 1005).

75. Throughout the prosecution history, the applicant amended the original

claims (i.e., claims 1–29) several times (Ex. 1008, pp. 124–409) before finally canceling them in favor of later introduced claims 30–33, 36–39, and 41–45 (*id.*, pp. 423–35)—which appeared as issued claims 1–13 of the '050 patent.

76. Although Marshall (Ex. 1005) was first introduced in the Final Action of October 16, 2015, directed to originally filed claims 1–4, 6–9, 17–19, and 21 (Ex. 1008, pp. 203, 211–14) for the purposes of demonstrating that, at the time of the filing of the '050 patent, the “processor executing computer executable instructions stored in a memory” to perform the acts was well known (*id.*, p. 214), it was asserted **only** against the limitations of dependent claims. More specifically, the Examiner relied on Marshall for demonstrating that the limitations of: (i) dependent claim 6 (“the at least one processor comprises a cloud computing system”), (ii) dependent claims 7 and 8 (“receiving a computer-readable file ... and storing ... in a database” and “receiving the computer readable file ... via the Internet”), (iii) dependent claim 17 (“communicating the determined gratuity allocation ... to an employer payroll system and distributing ... through a payroll check”), (iv) dependent claims 18–19 (recitation of “a web-portal”), and (v) dependent claim 21 (“receiving gratuity distribution rules from at least one employer”) were well known in the art. (*Id.*, pp. 215–18.) In the prosecution history, Marshall is mentioned for the last time in the Final Action of August 19, 2016. (*Id.*, pp. 323–53.)

77. Notably, the Examiner *did not* assert Marshall against the later introduced claims (30–33, 36–39 and 41–45) that subsequently issued as claims 1–13 of the '050 patent. This is despite the fact that the issued independent claims 1 and 8 inherited some form of the limitations recited in canceled claims 6, 18–19, and 21—to which Marshall was previously found to be very relevant, as discussed above. For example, issued claims 1 and 8 recite, at least, “a cloud computing system” and “distribution rules,” and independent claim 8 further recites “a web portal.” (Ex. 1001, 22:38–24:41.) Yet, the Examiner determined that Marshall was not applicable or relevant to the limitations recited in these claims. It is my opinion that this was an error.

78. Therefore, and although there is no dispute that Marshall was on the record, the Examiner determined that Marshall was no longer relevant to claims 30–33, 36–39, and 41–45 as presented by the Applicant in a response filed on April 7, 2017 (Ex. 1008, pp. 396–409). Instead, the Examiner went one step further and introduced subject matter from the claims which were previously found to be very relevant to Marshall’s teachings via an Examiner’s amendment. (*Id.*, pp. 418–34.) Specifically, the Examiner introduced to independent claims 30 and 39 the limitation that the gratuity system (for claim 30) and the payment management system (for claim 39) “is a cloud computing system remote from the plurality of client business

system[.]” (*Id.*, pp. 425 and 427; emphasis in the original.) It is also worth noting, that the Applicant never addressed, nor challenged, the Examiner’s assertions regarding Marshall’s teachings. Instead, Applicant focused on more prominent prior art references.

79. It is therefore clear that the Examiner: (i) ***did not*** assert Marshall against ***any*** of the limitations of the canceled ***independent*** claims, and (ii) made the conscious decision ***not to assert*** Marshall against claims 30–33, 36–39, and 41–45, even though he previously considered it for limitations recited in independent claims 30 (issued claim 1) and 39 (issued claim 8).

80. For at least these reasons, it is my opinion that the Examiner erred in his decision not to assert Marshall against claims 30–33, 36–39, and 41–45 (issued claims 1–13). Additionally, it is my opinion that the arguments presented in this Petition are not the same or substantially the same to those presented by the Office when the ’050 patent was prosecuted.

81. With regards to Phillips, the reference was used by the Examiner initially as a secondary reference for rejecting the originally filed claims. (*E.g.*, Ex. 1008, p. 147.) The Applicant attempted to swear behind Phillips and other prior art of record, but the Examiner found that the Applicant’s evidence failed to demonstrate any diligence justifying an earlier priority date for the ’050 patent

application. (*Id.*, p. 206.) The Examiner subsequently applied Phillips as a secondary reference against newly added claims 30–36, while also noting that Phillips disclosed many of the limitations of the new claims. (*Id.*, pp. 346–52.) After holding an interview with the Applicant and proposing amendments to the claims, the Examiner issued the Notice of Allowability for claims 30–33, 36–39, and 41–45. (*Id.*, pp. 423–35.) As I noted above, the Examiner never considered Marshall against the newly added claims, and so also never considered Phillips in view of Marshall’s disclosures. The Examiner thus did not consider this prior art argument raised in the Petition, and he also erred in failing to do so. (*Id.*)

82. Finally, the Webb patent (Ex. 1006) is listed on the face of the ’050 patent, but it was never referenced by the Examiner or used for a ground for rejection of any claims during prosecution. (*See* Ex. 1001, face page; *see generally* Ex. 1008.)

C. The Challenged Claims

83. This Declaration addresses claims 1–13 of the ’050 patent. Claims 1 and 8 are the independent claims. Claims 2–7 depend from claim 1, and claims 9–13 depend from claim 8.

84. Independent claim 1 recites:

1[pre]	A system, comprising:
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1[a.1]	a server coupled to a computer network and accessible by a plurality of clients, the server being configurable to independently execute gratuity distribution rules on a client-by-client basis; and
1[a.2]	a database, accessible by the server; and
1[b]	a plurality of client business systems in electronic communication with the server of the gratuity management system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising:
1[b.1]	at least one point of sale server; and
1[b.2]	a gratuity sync client application installed on the respective client business system;
1[c]	wherein the gratuity sync client application on each client business system is configured to (i) extract transaction information and employee information from the client business system and (ii) to initiate transfer of the extracted information to the gratuity management system;”
1[d]	wherein the gratuity management system is a cloud computing system remote from the plurality of client business systems and configured to

	(i) receive the extracted transaction information and employee information from the plurality of client business systems and (ii) to store the received extracted information in the database; and
1[e]	wherein the gratuity management system is further configured to (i) execute, independently for each client, gratuity distribution rules for allocating gratuities among at least a portion of the employees and (ii) to determine a gratuity allocation based on at least the received extracted transaction information, the received extracted employee information, and the gratuity distribution rules and (iii) return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules.

85. Independent claim 8 recites:

8[pre]	A system for providing payment management services to a plurality of clients, comprising:
8[a]	a payment management computer system having a server and a database and being accessible by a plurality of clients, the server being configurable by each client of the plurality of clients via a web portal to execute payment distribution rules independently on a client-by-client basis; and

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8[b]	a plurality of client business systems in electronic communication with the payment management computer system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising:
8[b.1]	at least one point of sale server; and
8[b.2]	an interface component installed on the respective client business system;
8[c]	wherein the interface component on each client business system is configured to (i) extract at least one of transaction information and employee information from the client business system and (ii) to initiate transfer of the extracted information to the payment management computer system;
8[d]	wherein the payment management computer system is a cloud computing system remote from the plurality of client business systems and configured to (i) receive the extracted information from the plurality of client business systems and (ii) to store the received extracted information in the database; and
8[e]	wherein the payment management system is further configured to

	(i) execute, independently for each client, payment distribution rules based on at least the received extracted information and the independently configured payment distribution rules to generate payment information and (ii) return the payment information to the interface component of respective client business systems, without requiring the respective client business systems to execute the payment distribution rules.
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VI. APPLICATION OF THE PRIOR ART TO ASSERTED CLAIMS

86. I have reviewed and analyzed the prior art references and materials listed in section I.C. above. In my opinion, the claims of the '050 patent are rendered unpatentable based on the following prior art:

Ground	References	Claim(s)
1	Marshall (Ex. 1004)	1–3, 8, 10
2	Marshall (Ex. 1004) in view of Webb (Ex. 1006)	4–7, 9, 11–13
3	Phillips (Ex. 1005) in view of Marshall (Ex. 1004)	1–3, 8, 10
4	Phillips (Ex. 1005) in view of Marshall (Ex. 1004) and Webb (Ex. 1006)	4–7, 9, 11–13

87. I am informed by counsel that each reference listed above qualifies as

prior art to the challenged claims because each reference was filed and/or published before the earliest claimed priority date of the '050 patent. I reserve the right to respond in the future to any arguments or positions that the Patent Owner may raise, taking account of new information as it becomes available to me.

A. Brief Summary of Prior Art

1. Marshall (Ex. 1004)

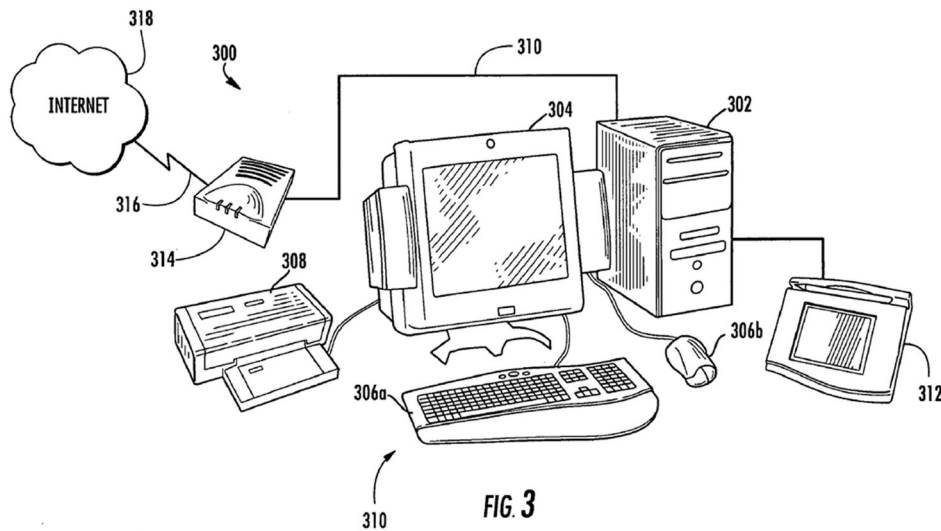
88. U.S. Patent Application Publication No. 2008/0065396 (“Marshall”) (Ex. 1004), titled “Systems and Methods for Managing Tips and Gratuities,” published on March 13, 2008 from Application No. 11/517,550, filed on September 7, 2006. (*See* Ex. 1004, face page.) I am informed that Marshall is prior art to the '050 patent pursuant to at least pre-AIA 35 U.S.C. § 102(b) because its publication date of March 13, 2008 predates the earliest priority date of the '050 patent, September 4, 2012, by more than one year.

89. Marshall relates to “systems and methods for recording, maintaining, and reporting tips and gratuities, optionally including details such as employee, task performed, and shift.” (Ex. 1004, Abstract.) More specifically, Marshall “relates to systems and methods for recording, maintaining, and reporting tips and gratuities including tips and gratuities transferred between individuals and automatically generating the forms and/or returns required by the employee, employer, appropriate

tax authority, etc. or the information required therefore.” (*Id.*, ¶ 9.)

90. According to Marshall, existing systems “do not track all required information including, but not limited to, tips and/or gratuities transferred from a first employee (e.g., a server) to his or her support staff (e.g., busboys, bar servers, etc.) (‘tipout(s)’), methods of attributing tips, methods for automatically identifying under-declared tips ... , methods for automatically generating ... forms, etc.” (*Id.*, ¶ 24.) In contrast, Marshall’s disclosed systems and methods cover these missing aspects.

91. Marshall discloses a tip and gratuity management system, with its accompanied software (Gratuity Reporting and Tip Allocation Software (“GrataSoft”)), which can be used to input declared tip and/or gratuity information and tipout information via a standard PC interface, like system 300 shown in Figure 3 below. (*Id.*, ¶¶ 95, 105–106.)



(*Id.*, Fig. 3.) Marshall’s system and software is equipped with error-checking capabilities that alert the user of any inconsistencies or unexpected errors in the inputted data. (*Id.*, ¶ 95.) “For example, the system may highlight tip declaration problems wherein cash sales are reported but cash tips are either not reported or are reported at a very low level (e.g., as compared to non-cash tips and/or gratuities).” (*Id.*) Marshall further states that “entry of the declared tip and/or gratuity information and tipout information may be entered into the tip and gratuity management system by providing the information to an [interface system] IS and then uploading or downloading such information to the tip and gratuity management system.” (*Id.*)

92. Marshall acknowledges that although system 300 is shown as a local terminal connected to the internet, its “system and methods ... [can] be implemented

in a Web-based manner.” (*Id.*, ¶ 102.) Marshall states:

For example, the systems and methods of the present invention may be executed via a Web server or similar apparatus that interacts with one or more users via an Internet connection such as Internet connection 316 between the Web server and the user’s local processing device or dumb terminal (e.g., a thin client, a thick client, etc.). Such web-based implementations may be programmed via a web programming tool Such interaction may include receiving input from a user and/or providing output (e.g., reports) to a user via the Internet connection.

(*Id.*)

93. According to Marshall, such web-based systems provide additional flexibility and functionality because they “facilitate upload of employee information such as declared tips, contributed and/or received tipouts, 4070 forms, 4070A forms, and the like to the employee’s employer(s)” and allow for “downloading, purchasing, testing, and delivery of software patches, updates, upgrades, software enhancements and the like from the software provider.” (*Id.*, ¶ 104.) The “4070 forms” referenced in Marshall are tax forms required by the US IRS, specifically “Employee’s Report of Tips to Employer.” (U.S. Dep’t. of the Treasury, I.R.S., Form 4070, https://www.irs.gov/pub/irs-access/f4070_accessible.pdf, (last accessed on Aug. 27, 2023).)

94. To cover all aspects of its disclosed GrataSoft system, Marshall uses

schematic diagrams (e.g., flow charts). Marshall begins by describing its system at a high-level (Ex. 1004, Figs. 1, 2A, 4) and progressively transitions to more in-depth analysis, including methods for determining tips and gratuities, payroll data and form generation, etc. Additionally, Marshall uses some of the later flow charts to explain the functionality of steps identified in earlier flow charts. For example, Figures 5A and 5B describe features introduced in Figure 4, etc. (*See id.*, Figs. 5A, 5B.) Although Marshall describes its system as “embodiments” (*see, e.g., id.*, ¶ 9), a POSITA would have understood from Marshall’s entire disclosure that all the recited embodiments merely describe different features or facets of Marshall’s GrataSoft system and that these embodiments when put together provide a detailed overview of Marshall’s system. In other words, the embodiments described in Marshall are complementary and the combination of different features would result in a fully functional system.

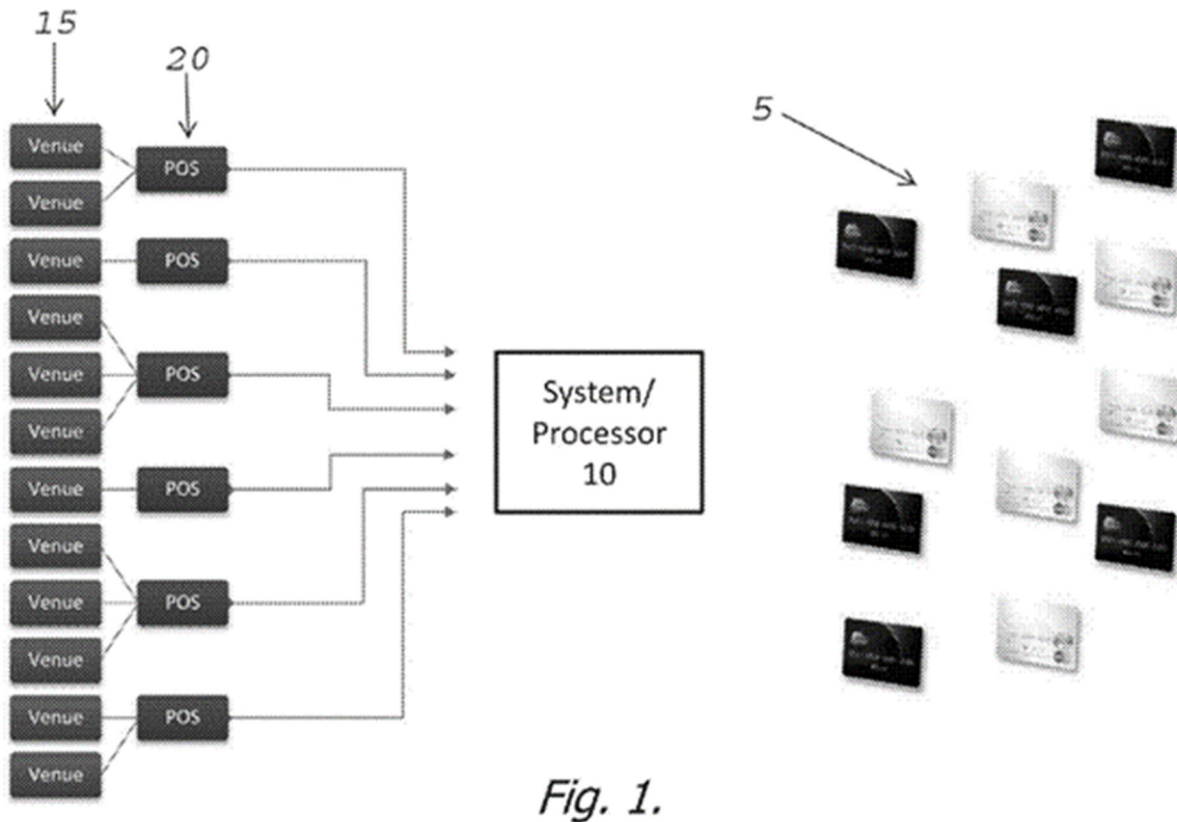
2. Phillips (Ex. 1005)

95. U.S. Patent Application Publication No. 2014/0365322 (“Phillips”) (Ex. 1005) titled “Gratuity Processing System Apparatus and Related Methods,” published on December 11, 2014 from Application No. 14/281,763, filed on May 19, 2014, which claims priority to Provisional Application No. 61/61 1,123 filed on March 15, 2012. (*See Ex. 1005, face page.*) I am informed that Phillips is prior art

Declaration of Samuel H. Russ, Ph.D. in Support of
Petition for *Inter Partes* Review of
U.S. Patent No. 9,741,050

to the '050 patent pursuant to at least pre-AIA 35 U.S.C. § 102I(1) because it was described in an application for patent, published under section 122(b), by another filed in the United States prior to the invention of the '050 patent.

96. Phillips is directed to an apparatus and methods “to improve the administration of tip monitoring, collection and distribution, and related reporting needs (such as for U.S. tax reporting).” (Ex. 1006, Abstract.) Phillips’ core system is captured in Figures 1 and 2a–b where one or more venues 15 (restaurants/other businesses) are communicatively coupled to a processing system 10 via POS systems 20. The system of Figure 1 is shown below as an example.



(*Id.*, Fig. 1.)

97. According to Phillips, tip information is “uploaded from the POS system(s) 20 to a central processing system 10.” (*Id.*, ¶ 34.) “[T]he system of the invention preferably calculates the tips owed to each member of each team/ group, based on the rules and data that have been input” (*id.*, ¶ 68), and provides the calculated tips to employer-issued prepaid debit cards 5 (*id.*, ¶ 33.) While referring to Figure 3, Phillips also discloses that “the tip funds can be further segregated and disbursed to each venue 15 (or each property or other metric), as illustrated by the separate location/property Tip Accounts 45 in FIG. 3.” (*Id.*, ¶ 35.) In other words,

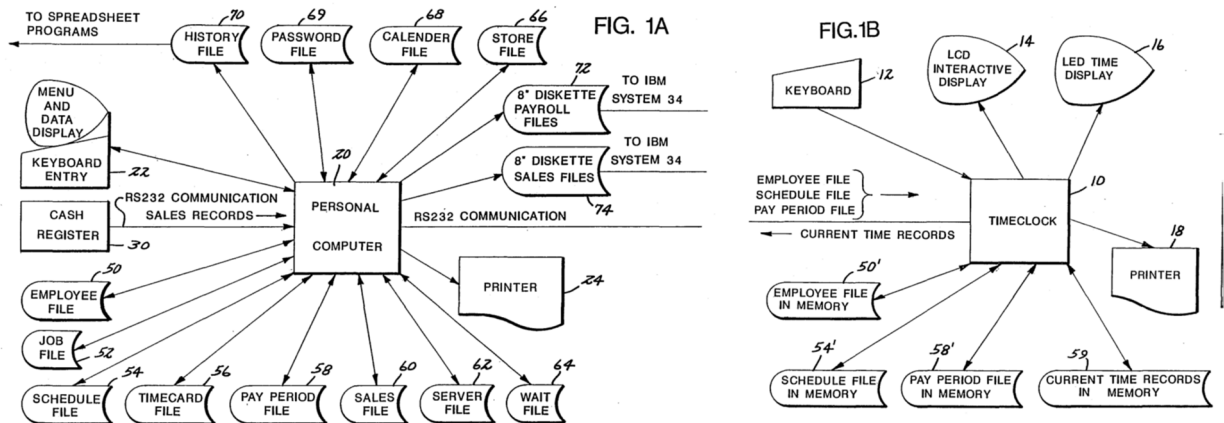
Phillips' system not only distributes tip allocations, but can also be configured to report the tip allocations back to the venues.

3. Webb (Ex. 1006)

98. U.S. Patent 4,819,162 to Webb ("Webb") (Ex. 1006) titled "Time Clock System Including Scheduling Payroll and Productivity Analysis Capability," filed on Feb. 9, 1988, which is a continuation of Application No. 06/735,388, filed on May 17, 1985. (*See* Ex. 1006, face page.) I am informed that Webb is prior art to the '050 patent pursuant to at least pre-AIA 35 U.S.C. § 102(b) because its issued date of April 04, 1989 predates the earliest priority date of the '050 patent, September 4, 2012, by more than one year.

99. Webb is directed to a "computerized time clock system [that] includes a personal computer via which employee, job and schedule records may be assembled and maintained. A computerized time clock communicates with the personal computer and received employee and scheduling data therefrom, in order to validate and record time-in and timeout transactions executed by employees. Current time records are maintained in the memory of the time clock and at the end of each day are transmitted to the personal computer for addition to permanent disk records including a record of each time-in and time-out transaction for an extended period. Sales records may also be maintained in personal computer 20, for example

the quantity of liquor or food served by a particular employee or in a particular department, which sales information may be correlated with labor costs found in the permanent time records.” (Ex. 1006 at Abstract.) Figs. 1A and 1B show the combined system:



(Ex. 1006, Figs. 1A and 1B.)

100. In the system of Webb, a computerized time clock 10 communicates with a dedicated personal computer 20. (*Id.*, 3:44–45.)

101. The time clock 10 of Webb is a dedicated computer with access to payroll information. “In terms of hardware, the invention includes a computerized time clock 10, having a keyboard 12, interactive display 14, time display 16 and a printer 18. Time clock 10 is connected via an RS 232 interface to a personal computer 20” (*Id.*, 3:41-45.) “Referring momentarily to FIGS. 2 and 3, time clock 10 and its associated components are shown in greater detail. Clock 10 includes a microprocessor 40, ROM 42, RAM 44, communications UART 46,

printer 18, LED time display 16, keyboard 12, a real time clock 48, interactive display 14 and an alert or beeper 50.” (*Id.*, 3:50–55.)

102. The personal computer 20 maintains records such as pay period files, timecard files, and sales files. (*Id.*, 3:61–4:6.) The personal computer 20 also has an interface to an electronic cash register 30, an early form of a point of sale (POS) system. (*Id.*, 3:47–49.)

103. The time clock 10 receives updated information from the personal computer 20 and keeps track of employee time. The time information is periodically sent to the personal computer 20. “Time clock 10 maintains in its RAM 44 an EMPLOYEE FILE’50’, SCHEDULE FILE’54’ and PAY PERIOD FILED’58’, which are downloaded copies of the corresponding computer 20 files 50, 54 and 58. In addition, time clock 10 creates and maintains a CURRENT TIME RECORDS FILE 59, which is also stored in RAM 44.” (*Id.*, 4:16–22.)

104. Webb discloses that the personal computer 20, which in practice operates as a time and attendance server, communicates directly with the cash register(s) 30—a point of sale system as discussed above. (*Id.*, 3:47–49.) The cash register 30 provides the sales information that the personal computer 20 needs to maintain payroll records. (*See id.*, 24:48–58.) For example, Webb discloses: “Optionally, much of this sales information may be acquired directly from the

various cash registers 30 in the system, which as mentioned above may communicate with personal computer via an RS 232 interface. Cash registers 30 are preferably computer driven, and include record keeping functions, so that sales could be recorded by server number, and so that sales may be entered and broken down by category descriptions (i.e. food, wine, beer etc. ...).” (*Id.*, 24:51–60.) In other words, Webb discloses an interface between a time and attendance server and a point of sale system so that the information between the two can be shared.

105. The system of Webb is also used to maintain tip records for employees. For example, employees may enter tips received into the terminal. (*Id.*, 12:7–23.) The employee management system includes a place to designate which employees typically receive tips and which do not. (*Id.*, 4:33–43.)

106. In summary, Webb discloses a time-entry computer (time clock 10) that maintains current copies of payroll information and tracks employee time. The time-entry computer interfaces with a separate personal computer 20, functioning as a time and attendance server, that stores information on local files and interfaces with cash registers 30 (e.g., point of sale systems).

B. Ground 1: Marshall Discloses or Renders Obvious Claims 1–3, 8, 10

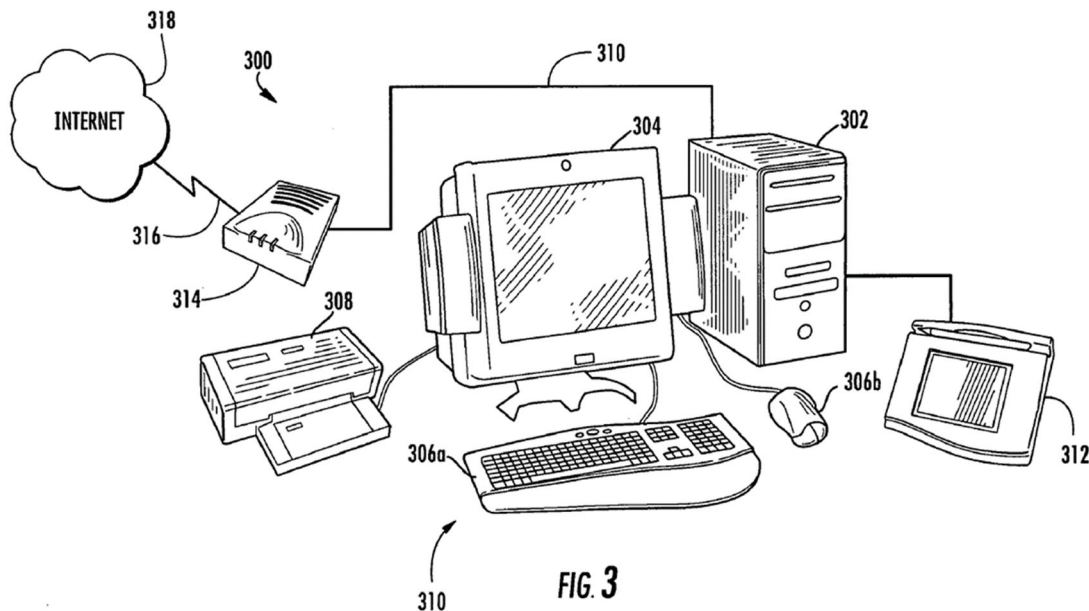
1. Independent Claim 1

107. It is my opinion that Marshall discloses or renders obvious each and

every limitation of independent claim 1 for the reasons set forth below.

a. Element 1[pre]: “A system, comprising:”

108. To the extent the preamble of claim 1 is limiting, it is disclosed or rendered obvious by Marshall. For example, Marshall discloses “**systems** and methods for recording, maintaining, and reporting tips and gratuities, optionally including details such as employee, task performed, and shift.” (Ex. 1004, Abstract.²) Marshall’s exemplary system 300 is shown in Figure 3 below.



(*Id.*, Fig. 3.)

b. Element 1[a]: “a gratuity management system, comprising:”

² All emphases added unless otherwise noted.

109. It is my opinion that Marshall discloses or renders obvious element 1[a]. As discussed in element 1[pre], Marshall discloses “**systems and methods for recording, maintaining, and reporting tips and gratuities**” (*Id.*, Abstract.) Marshall’s Figure 3 depicts “an exemplary embodiment of a simplistic **system** for implementing the systems and methods of the present invention.” (*Id.*, ¶ 97.)

- c. **Element 1[a.1]: “a server coupled to a computer network and accessible by a plurality of clients, the server being configurable to independently execute gratuity distribution rules on a client-by-client basis; and”**

110. It is my opinion that Marshall discloses or renders obvious element 1[a.1].

111. Initially, I note that the “client” recited in claim 1 of the ’050 patent could be, for example, a restaurant. (Ex. 1001, 5:15–19 (stating that “the gratuity management system 100 receives gratuity distribution rules, such as from a client (e.g. a restaurant), that are used to determine the allocation of gratuities for the client’s business”). Marshall refers to entities that employ persons that receive gratuities as “employers.” (*See, e.g.*, Ex. 1004, ¶ 10). Thus, the “employer” of Marshall is equivalent to the “client” used in the ’050 patent, e.g., a restaurant.

112. In referring to Figure 3, Marshall discloses that “[p]rocessing unit 302 may be a standard PC or **server** as is known in the art.” (Ex. 1004, ¶ 98.) Marshall further discloses that because the processing unit 302 of system 300 is connected to

the Internet 318, it “allows the systems [i.e., system 300 and its processing unit 302] ... to be implemented in a **Web-based manner**.” (*Id.*, ¶ 102; *see also id.*, ¶ 97.) This means that Marshall’s system 300 and its processing unit 302 (i.e., “the server”) may be “a **Web server** or similar apparatus that **interacts with one or more users via an Internet connection**[,] such as Internet connection 316 between the Web server and **the user’s local processing device or dumb terminal** (e.g., a thin client, a thick client, etc.).” (*Id.*, ¶ 102) Further, a POSITA would have understood that Marshall’s web-based system may independently interface with multiple clients (e.g., restaurant businesses)—i.e., for “a plurality of clients.” Marshall explains:

In Web-based embodiments of the present invention, such enabling may include initiating a connection between a local processing unit or dumb terminal and the Web-based system via an Internet connection. A user may wish to enable the system once a user has received tipout information and/or tip and/or gratuity declarations from the service provider(s) to allow the user to record and/or generate reports for such information in a manner similar to that described above with respect to steps 122 and 124 of FIG. 1.

(*Id.*, ¶ 106.)

113. Further, Marshall discloses a “multi-employer” embodiment. Consider, e.g., Figure 27 and the associated description in ¶¶ 385–392. Marshall discloses: “In addition, in some aspects of the present invention, the individualized

system is equipped with the ability to record data associated with multiple employers.” (*Id.*, ¶ 385.) Marshall further discloses: “Allowing co-worker and employer data to be defined in a single function is beneficial in a multi-employer individualized system since each of the entered co-workers should be associated with a specific one or more of the multiple employers.” (*Id.*, ¶ 386.) It is clear that a single employer could be as small as a single restaurant and that multiple employers spans multiple restaurants. The only way that the system of Figure 27 in Marshall can be operable is for it to be configured to maintain data for multiple restaurants or, in the language of the ’050 patent, multiple “clients.” (*See, e.g.*, Ex. 1001, 5:17 (providing “restaurant” as example of “client”).) Thus, one additional reason for the web-based implementation found in Marshall becomes clear—so that users from multiple restaurants can access the system.

114. Therefore, Marshall discloses “a server coupled to a computer network and accessible by a plurality of clients[,]” as would be understood by a POSITA.

115. Marshall further discloses that processing unit 302 executes a software program in order to perform the recited operations. For example, Marshall discloses:

In yet another aspect of the present invention, a system for managing tips is provided. **This system includes at least one software program... configured to accept at least one primary peripheral tip data** selected from the group consisting of non-cash sales data, cash

sales data, non-cash tips, non-cash gratuities, data regarding hours worked by at least one employee, meal period data, task data, and combinations thereof; **at least one processing unit for executing the software program**

(*Id.*, ¶ 32.)

116. Later, Marshall indicates that the processes shown in Figures 4 through 25 “are implemented as software” with the software identified as a Gratuity Reporting and Tip Allocation Software, also referred to as GrataSoft. (*Id.*, ¶ 105.) For instance, process 400 depicted in Figure 4 is an overview of Marshall’s GrataSoft embodiment. (*Id.*, ¶ 106.)

117. In referring to process 400, Marshall describes certain default settings of GrataSoft that a user (e.g., a restaurant business) may configure. According to Marshall, GrataSoft is (to use the language of claim 1 of the ’050 patent) “configurable to independently execute gratuity distribution rules on a client-by-client basis.” For example, in the system default function 430k (which includes “establishment information defaults, system setting defaults, and IS [interface system] interface defaults” (*id.*, ¶ 126)), a user may configure whether “the system **automatically attributes tips** to all employees participating in the ATIP program[,]” whether “the system will **automatically increase the tips and/or gratuities** declared by the employee to meet IRS Form 8027 criteria[,]” or whether

“the system will **automatically increase the tips and/or gratuities** declared by the employee to meet TRDA criteria or to achieve an acceptable difference between credit card and cash tip and/or gratuity percentages ...” (*id.*, ¶ 127). A POSITA would have understood that all of the aforementioned automated processes constitute “**gratuity distribution rules** on a client-by-client basis” executed by Marshall’s server via its GrataSoft system. In addition to expressly disclosing gratuity distribution rules, Marshall contemplates individual “employers” and hence works on a “client-by-client” basis (since the “employer” of Marshall is essentially the same as the “client” of the ‘050 Patent). This understanding is consistent with the description and use of the term “gratuity distribution rules” in the ‘050 patent. For example a POSITA would have ascertained from the ‘050 patent that “gratuity distribution rules” determine the allocation of gratuities for the client’s business (*e.g.*, Ex. 1001, 5:14–19), which Marshall’s GrataSoft embodiment is configured to perform as discussed above.

118. Accordingly, Marshall discloses or renders obvious element 1[a.1].

d. Element 1[a.2]: “a database, accessible by the server; and”

119. It is my opinion that Marshall discloses or renders obvious element 1[a.2].

120. For example, in discussing system 300, Marshall states that “any form

of processing unit capable of executing an algorithm and **storing data** may be substituted in accordance with the present invention.” (Ex. 1004, ¶ 98.) In other words, Marshall indicates the presence of at least one storing device connected to the recited server (e.g., processing unit 302) and used by the server to access and store information. Indeed, Marshall discloses that its GrataSoft system, which operates on web-based system 300, is configured to store the received and modified information. For example, in referring to Figures 5A and 5B, which are described as flow diagrams of “an exemplary embodiment of a process for entering tip information and peripheral tip information into a system such as the exemplary GrataSoft system and/or attributing tips to an employee” (*id.*, ¶ 129), Marshall discloses that variables, such as “date, mealPeriod, and employeeID are initialized to the current date, to the first meal period (e.g., breakfast, lunch, dinner, etc.) of the initialized date, and to the first employee identification number as such numbers **are stored** in the GrataSoft system.” (*Id.*, ¶ 130.) And later, in referring to step 564 in Figure 5B, Marshall discloses:

Process 500 then proceeds to 564, at which the total attributed tips (as calculated at 562) is **saved**. This data is **stored** in conjunction with its respective date, mealPeriod, and employeeID variables **in the form of a database or the like such as a Microsoft® Access® database using methods known in the art. However, alternate methods of saving**

sales data may be substituted (e.g., via registers, memory locations, etc.).

(*Id.*, ¶ 141.) Elsewhere, Marshall explains that additional information may be saved in the database such as “data [] written to the CashTips&GratuityReceived and/or GratuityReceived variables ... in conjunction with respective date, mealPeriod, and employeeID variables in the form of a database or the like[.]” (*Id.*, ¶ 144.) Marshall expressly discloses that one source of data (the Aloha POS data) “may be local or remote to the server, although if such file folder is remotely located, it must be configured as a mapped drive on the local server. For example, in one aspect of the present invention, the file folder is located remotely and it is configured as a mapped drive on the local server via an Internet connection such as those discussed above in greater detail with respect to FIG. 3.” (*Id.*, ¶ 110.) That is, Marshall expressly discloses that databases can be local or remote (and thus accessible by a server). Additional evidence of “a database, accessible by the server” can be found in paragraphs 118, 164, 171, and 181.

121. Accordingly, Marshall discloses or renders obvious element 1[a.2].

- e. **Element 1[b]: “a plurality of client business systems in electronic communication with the server of the gratuity management system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising:”**

122. It is my opinion that Marshall discloses or renders obvious element

1[b].

123. As discussed above in connection with element 1[a.1], Marshall discloses or renders obvious “a server coupled to a computer network and accessible by **a plurality of clients.**” A POSITA would have understood that each client (i.e., each restaurant) would have its own client business system, such as POS systems and payroll systems, to track sales, payroll, and employee information. And because Marshall’s system 300 running the GrataSoft software is a “gratuity management system” configured to interface with the sub-components of a client business system,³ Marshall discloses or renders obvious “a plurality of client business systems in electronic communication with the server of the gratuity management system, each of the client business systems corresponding to one of the plurality of clients.”

124. To the extent not expressly disclosed, it would have been obvious to a POSITA at the time of the ’050 patent filing to implement the Marshall system in any number of ways. For instance, a POSITA would have understood that the local

³Ex. 1004, Abstract (“In another aspect, [the disclosed system] interfaces to third-party systems such as POS systems, payroll systems, and the like are provided to further minimize system administration time and data accuracy.”); *see also id.*, ¶¶ 107–09.

restaurant is a logical place to keep employee timekeeping and POS functions, both because of the knowledge of the art and because of the observation that these operations are, by their nature, local. Between Marshall's express disclosure of a Web-based portal and the knowledge that locally available features can be mapped to software running on a remote server, a POSITA would have understood the value of running a separate, remote gratuity management system that drew on records from local timekeeping and POS systems. For example, doing so would enable a chain of restaurants to manage gratuities in a consistent manner across all units of the chain. A POSITA would have recognized that such an implementation would be one among numerous equally straightforward methods of architecting a distributed system to manage a chain of restaurants, and select this combination (local POS and timekeeping, remote gratuity management) from among several well known and routine embodiments.

125. Accordingly, Marshall discloses or renders obvious element 1[b].

f. Element 1[b.1]: “at least one point of sale server; and”

126. It is my opinion that Marshall discloses or renders obvious element 1[b.1].

127. Marshall recognizes that it is customary for client business systems to have POS systems to collect critical business information. For example, Marshall

states, “In one aspect of the present invention, processing of non-cash transactions at 106 occurs via a POS system. A POS system, as is known in the art, captures data at the time and place of the sale (e.g., at the cash registers).” (Ex. 1004, ¶ 70.)

128. In discussing Figure 1 (“a flow diagram of an exemplary process for managing tips and gratuities in accordance with the present invention”⁴), Marshall further discloses:

A POS system, as is known in the art, captures data at the time and place of the sale (e.g., at the cash registers). Many POS systems **include computers or specialized terminals that are co-located** with cash registers, bar code readers, optical scanners, magnetic stripe readers, and the like such that information may be automatically captured by the computer **or specialized terminal** from the co-located equipment. Furthermore, **many POS systems are networked or otherwise linked together** such that data from each collection point is transferred to **one central location** for analysis, reporting, and the like.

(*Id.*, ¶ 70.) A POSITA would have understood that the recited **specialized terminal** and/or the **central location**, as described in Marshall, correspond to the claimed “point of sale server.” In other words, a POSITA would have understood that a POS system, an integral part of a “client business system”, includes “at least one point of sale server,” as this would have been a common practice for a business client having

⁴ Ex. 1004, ¶ 68.

multiple POS devices or other systems operating within its client business system. (See, e.g., the discussion in section IV above.) Indeed, the use of one or more servers (e.g., “at least one point of sale server”) to keep track of customer payments, payroll, and time and attendance was extremely common in the art at the time of the ’050 patent, as I explained above in the technical background section.

129. Accordingly, Marshall discloses or renders obvious “each client business system comprising: at least one point of sale server.”

g. Element 1[b.2]: “a gratuity sync client application installed on the respective client business system;”

130. It is my opinion that Marshall discloses or renders obvious element 1[b.2] for the following reasons.

131. With respect to Figure 1, Marshall discloses:

At 104, one or more service providers begin his or her shift. In one aspect of the present invention, the start of the shift includes “clocking in” via an employee time clock, an interfaced system (“IS”), or the like. **Interfaced systems may include, but are not limited to, point-of-sale (“POS”) systems, electronic cash register systems, timeclock programs, time and attendance systems, payroll processing systems, and other similar systems as are known in the art.** Such systems record an employee’s starting and ending work hours for the purposes of calculating total hourly wages based upon the quantity of hours worked.

(Ex. 1004, ¶ 69.) Elsewhere, with respect to Figure 4, Marshall refers to the Aloha POS, payroll processing system, and time and attendance system as **interface systems (IS)** to which the GrataSoft system **can communicate**. (*Id.*, ¶ 127.)

132. A POSITA would have understood from the above that Marshall's interface system, which is essentially a software platform within the client business system, corresponds to the "gratuity sync client application" of the '050 patent. According to Marshall, this interface system (e.g., the "gratuity sync client application") can include one or more sub-components or sub-modules—such as POS systems, electronic cash register systems, timeclock programs, time and attendance systems, payroll processing systems, and the like. (*See, e.g., id.*, ¶¶ 100, 111.) These sub-components or sub-modules would then collect information related to their respective operations. For example, the POS system would collect sales and gratuity information, the time and attendance system would collect working hour information for each employee, etc. (*See, e.g., id.*, ¶ 112.) The interface system would then aggregate all the information collected by each individual sub-system and store the aggregated information to a centralized location (e.g., the "point of sale server") within the client business system. (*See, e.g., id.*, ¶ 111.)

133. Based on the above, a POSITA would have recognized that the interface system (i.e., "a gratuity sync client application") is essential for controlling

and facilitating the operation of the entire client business system and provides an interface linkage between the client business system and the GrataSoft system running on system 300 (e.g., collectively, “the gratuity management system”). Further, this interface system would be installed **on** the client business system.

134. An exemplary interface system or sub-module of the interface system is the Aloha POS. Marshall explains: “In our exemplary embodiment, one such IS [interface system] is an Aloha POS in the form of software” (Ex. 1004, ¶ 108.) “When a POS or similar type of system is interfaced to a system or process of the present invention such as the exemplary GrataSoft embodiment,” employee and sales information can be uploaded from the Aloha POS to the GrataSoft system so that “the same information is present on both systems.” (*Id.*, ¶ 109.) A POSITA would have realized the advantages of locating POS, timekeeping, and payroll functions locally and **locating gratuity management remotely**. In such a system, there would need to be a mechanism for transmitting the essential information, such as tips received, from the local system to the remote system.

135. A POSITA would have understood that a gratuity management system, such as the GrataSoft system disclosed in Marshall, could be deployed locally in a single restaurant or remotely as a cloud-based service. As explained above, cloud-based implementations of software (the so-called “software as a service” or “SaaS”)

model was extremely well known at the time of the '050 patent. (*See*, Section IV.C., *supra*.) A POSITA would have recognized the value of moving gratuity-management functions to a central cloud. For example, a chain of restaurants would choose to move gratuity management to a cloud implementation for the convenience of administering gratuities in a consistent manner across all restaurants in the chain. Once the change was made, a POSITA would have also recognized that the local, in-restaurant POS and/or other components of the client business system would need to communicate with the remote gratuity-management server via interface software. The software that manages the interface would function as “a gratuity sync application” and would synchronize the information gleaned locally from the restaurant (e.g. payment information and employee hours) with information computed at the server (e.g. gratuity distributions).

136. Accordingly, Marshall discloses or renders obvious “a gratuity sync client application installed on the respective client business system.”

- h. Element 1[c]: “wherein the gratuity sync client application on each client business system is configured to**
 - i. extract transaction information and employee information from the client business system and**
 - ii. to initiate transfer of the extracted information to the gratuity management system;”**

137. It is my opinion that Marshall discloses or renders obvious each and

every limitation of element 1[c]—i.e., sub-elements 1[c](i) and 1[c](ii).

138. With respect to sub-element 1[c](i), Marshall explains that the Aloha POS system (one exemplary component or form of the interface system, i.e., the “gratuity sync client application”) collects, organizes, and saves data from the client business system into files in a .DBF or dBase file structure, which are subsequently made accessible to the GrataSoft system. (Ex. 1004, ¶ 108.) Specifically, Marshall discloses:

The Aloha POS saves data in .DBF, or dBase, file structures. **This data is transactional data that is stored in a small set of tables.** For example, **payments** may be stored in a first PAYMENT.DBF file, item **sales** may be stored in a second ITEMSALES.DBF file, and **staff time** may be stored in a third STAFFTIME.DBF file. The Aloha POS also incorporates .DBF files for configuration files such as files containing **task codes, rates, identification information, and employee information** such as name, address, social security number, etc.

(*Id.*) In other words, the Aloha POS (i.e., the “gratuity sync client application”) collects (“extracts”) the data (“transaction information and employee information”) from the client business system, classifies the data, and stores the data into appropriate files. Marshall further explains that these Aloha POS files may reside on a remote server: “The Aloha file folder may be local or remote to the server, although if such file folder is remotely located, it must be configured as a mapped

drive on the local server. For example, in one aspect of the present invention, the file folder is located remotely and it is configured as a mapped drive on the local server via an Internet connection such as those discussed above in greater detail with respect to FIG. 3.” (*Id.*, ¶ 110.) Marshall further discloses that its system may interface with time functions and attendance functions. “In one aspect of the present invention, the start of the shift includes ‘clocking in’ via an employee time clock, an interfaced system (‘IS’), or the like. Interfaced systems may include, but are not limited to, point-of-sale (‘POS’) systems, electronic cash register systems, timeclock programs, time and attendance systems, payroll processing systems, and other similar systems as are known in the art.” (*Id.*, ¶ 69.) In other words, one of the functions of its central system is the collection (“extraction”) of employee time data.

139. Marshall’s disclosure is consistent with the specification of the ’050 patent, which states: “In an embodiment, the interface component 206 extracts transaction and employee information and creates a computer-readable file containing at least a portion of the transaction information and the employee information for use by the gratuity management system.” (Ex. 1001, 7:57–61.) Accordingly, Marshall discloses or renders obvious sub-element (i) which recites “extract transaction information and employee information from the client business system.”

140. With respect to sub-element 1[c](ii), Marshall discloses or renders obvious that “the gratuity sync client application on each client business system is configured to ... initiate transfer of the extracted information to the gratuity management system.” Marshall discloses that the Aloha POS (i.e., the “the gratuity sync client application”) initiates transfer of the data from the point of sale system to the GrataSoft system running on system 300 (e.g., collectively, “the gratuity management system”) by collecting the data from the client business system, classifying the data, and storing the data into appropriate files, as discussed above. (See ¶ 138, *supra*.)

141. Marshall further discloses that once the files have been created, they are uploaded by the Aloha POS application to the GrataSoft system:

When a POS or similar type of system is interfaced to a system or process of the present invention such as the exemplary GrataSoft embodiment, **employee information may be loaded directly from .DBF or similar files into the present invention**, which avoids the need for re-entering employee information that has already been entered in the POS system. **Similarly, job codes may be loaded directly from such systems** to identify data such as clock in time, clock out time, hourly wage, total hours worked, task worked, etc. Additionally, **non-cash sales, cash sales, gratuities, etc. may be loaded directly from such systems** to identify and calculate gross sales information. Although specific items of information have been

identified for transfer from the Aloha POS system to the present invention, the systems and methods of the present invention may be programmed to load any information available in the IS, regardless of whether the IS is an Aloha POS system, another brand of POS system, or a non-POS system, without departing from the scope of the present invention.

(Ex. 1004, ¶ 109.)

142. Marshall discloses that the Aloha POS (i.e., the “gratuity sync application”) “initiate[s] transfer of the extracted information to the gratuity management system” by directing the GrataSoft system to the proper file location to download the necessary information over the Internet:

For example, in one aspect of the present invention, the file folder is located remotely and it is configured as a mapped drive on the local server via an Internet connection such as those discussed above in greater detail with respect to FIG. 3. Once the exemplary GrataSoft embodiment of the present invention has been pointed to the correct file location, it may simply query the database information as is known in the art.

(*Id.*, ¶ 110.)

143. To the extent that “the gratuity sync client application on each client business system is configured to ... initiate transfer of the extracted information to the gratuity management system” is not expressly disclosed by Marshall, a POSITA

would have understood that there are two ways to effect the transfer of data over a network—for the server to request it or for the client to send it. Having the client write the file is an instance of the claimed “gratuity sync client application is configured to ... initiate transfer.” Indeed, Marshall expressly recognizes that alternate methods of transfer are contemplated for the disclosed invention: “[A]lternate methods of downloading or transferring data such as sales data may be substituted without departing from the scope of the present invention.” (*Id.*)

144. For at least these reasons, Marshall discloses or renders obvious each and every limitation of element 1[c].

- i. **Element 1[d]: “wherein the gratuity management system is a cloud computing system remote from the plurality of client business systems and configured to**
 - i. **receive the extracted transaction information and employee information from the plurality of client business systems and**
 - ii. **to store the received extracted information in the database; and”**

145. It is my opinion that Marshall discloses or renders obvious each and every limitation of element 1[d]—i.e., sub-elements 1[d](i) and 1[d](ii).

146. First, Marshall discloses that its GrataSoft system running on system 300 (i.e., “the gratuity management system”) is **remote** from the client business systems on which the POS systems are running:

Although the present invention has been discussed herein as **an independent system** capable of interfacing to **third-party systems such as POS systems, time and attendance systems, etc.**, the systems and methods of the present invention may also be implemented as an integral component of such systems, or the functions and features of such systems may be added to the systems and methods of the present invention, without departing from the scope hereof.

(Ex. 1004, ¶ 400.)

147. For example, Marshall discloses that the Aloha file folder, which contains employee and transaction data collected from a client business system, can be remotely located with respect to the GrataSoft system running on system 300 (i.e., “the gratuity management system”) and for this reason, the Aloha file folder must be configured as a mapped drive on the server of the GrataSoft system. (*Id.*, ¶ 110.) Marshall further explains that other types of communication protocols may be used when the client business system and the GrataSoft are remote to each other:

However, alternate methods of downloading or transferring data such as sales data may be substituted without departing from the scope of the present invention. For example, in one aspect of the present invention, mapping is performed via **Web mapping utilizing a Universal Naming Convention (“UNC”) server and data transfer is performed via uploading and downloading via HyperText Transfer Protocol (“HTTP”), Extensible Markup Language (“XML”), and/or HTML as is known in the art.**

(*Id.*)

148. The above portion from Marshall indicates to a POSITA that system 300, on which the GrataSoft system operates, can be a cloud computing system because the communication protocols described by Marshall (HTTP, XML, HTML) support a cloud-based infrastructure—and did so before the September 2012 priority date of the '050 patent. In addition, Marshall expressly contemplates support for multiple “employers” (i.e., restaurants or “clients,” as claimed in the '050 patent). (*Id.*, Fig. 27, ¶¶ 385–93.) In addition, cloud computing solutions were well known and commonly used in the art by 2012, as discussed in Section IV.C above.

149. Indeed, during the prosecution of the '050 patent, the Examiner recognized that Marshall discloses cloud computing rejecting some of the originally-filed claims: “With respect to the processor comprising a ‘cloud computing system,’ **Marshall shows that it is well known for processing resources/processors/servers to be embodied as/include:** a single system, a multi system (co- located or distributed), **cloud computing system**, or a combination of the above” (Ex. 1008, p. 215.)

150. Therefore, Marshall discloses or renders obvious “wherein the gratuity management system is a cloud computing system remote from the plurality of client business systems.”

151. As discussed for sub-element 1[c](ii) above, Marshall discloses that, once the information from the client business system are extracted and saved into appropriate file structures, they are **uploaded** to the GrataSoft system. (See ¶¶ 141–44, *supra*, for a discussion on Marshall (Ex. 1004, ¶ 109).) Accordingly, Marshall discloses or renders obvious “receive the extracted transaction information and employee information from the plurality of client business systems.”

152. As discussed in element 1[a.2], the server of the GrataSoft system is capable of **storing data** to one or more databases communicatively coupled to the server. (See, e.g., Section VI.B.1.d.) And because the server of the GrataSoft system “receive[s] the extracted transaction information and employee information from the plurality of client business systems” (see above), it then follows that the extracted information is **stored** in the database(s) to be used by the GrataSoft system. Marshall discloses:

In some embodiments of the present invention, the data received from the IS may be independently stored as a data file of the exemplary GrataSoft system.

(Ex. 1004, ¶ 232.) Accordingly, Marshall discloses or renders obvious “wherein the gratuity management system is ... configured to: ... store the received extracted information in the database.

153. Based on the above, Marshall discloses or renders obvious each and

every limitation of element 1[d].

- j. Element 1[e]: “wherein the gratuity management system is further configured to**
 - i. execute, independently for each client, gratuity distribution rules for allocating gratuities among at least a portion of the employees and**
 - ii. to determine a gratuity allocation based on at least the received extracted transaction information, the received extracted employee information, and the gratuity distribution rules and**
 - iii. return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules.”**

154. It is my opinion that Marshall discloses or renders obvious each and every limitation of element 1[e]—i.e., sub-elements 1[e](i), 1[e](ii), and 1[e](iii).

155. Regarding sub-element 1[e](i) (reciting “wherein the gratuity management system is further configured to execute, independently for each client, gratuity distribution rules for allocating gratuities among at least a portion of the employees”), Marshall discloses that its GrataSoft system is configured to “independently execute gratuity distribution rules on a client-by-client basis,” as discussed above in element 1[a.1]. (*See* Section VI.B.1.c., *supra*.)

156. Additionally, Marshall explains in Figures 5A and 5B how a client may

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use the GrataSoft system to enter tip information, peripheral tip information, and/or **allow** the GrataSoft system to automatically **allocate** tips to an employee according to predetermined gratuity distribution rules. For example, in referring to annotated Figure 5A shown below, “at [step] 539 [highlighted in orange], the user [e.g., the business client] **is prompted to determine whether she would like to attribute tips** to the current employees for the current date and meal period. If yes, process 500 proceeds to 550 as depicted in FIG. 5B.” (Ex. 1004, ¶ 139.)

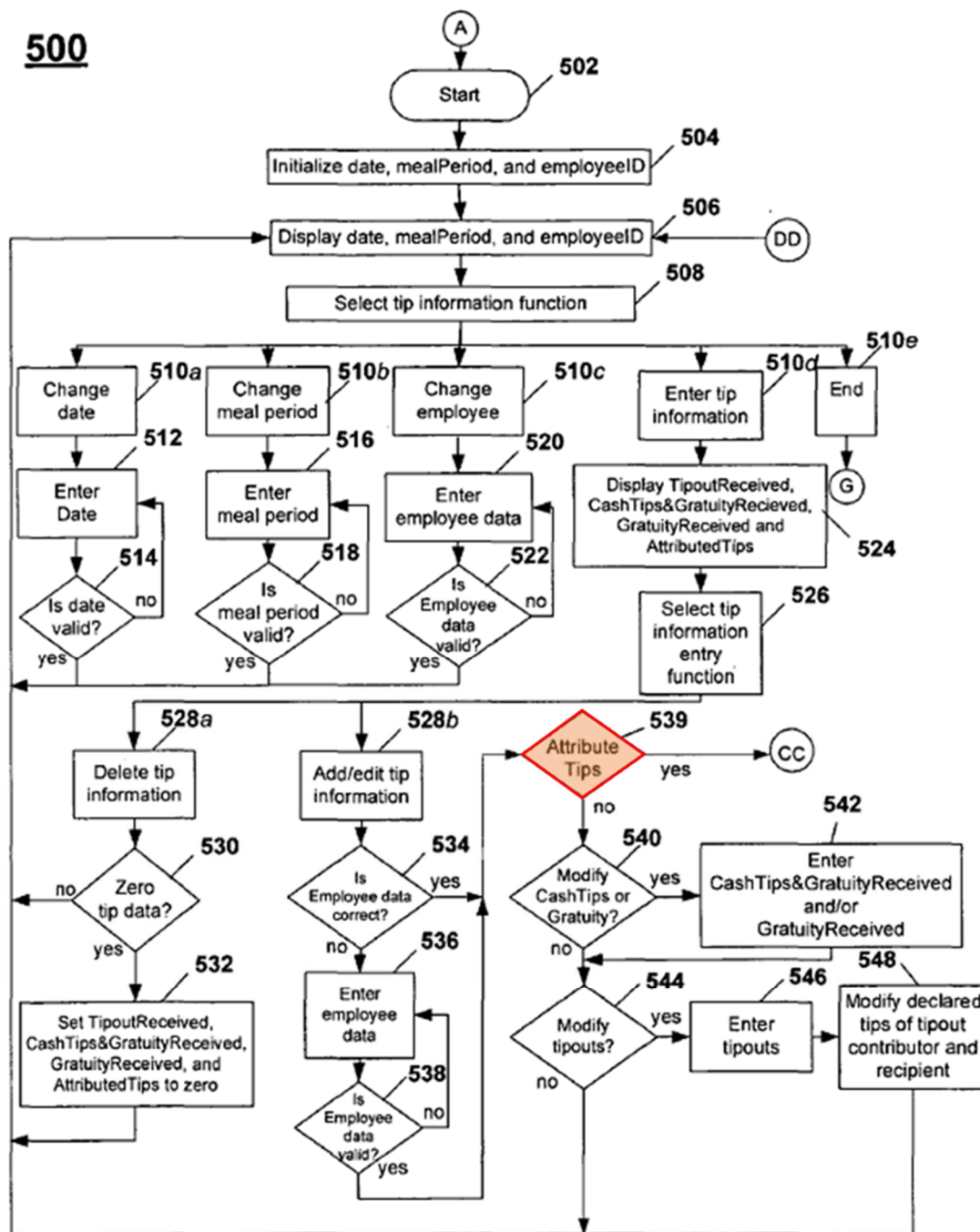


FIG. 5A

(*Id.*, Figure 5A (annotations added).) With respect to Figure 5B, which depicts one method of attributing tips by the GrataSoft system, Marshall discloses:

For example, in some embodiments, tips are attributed to each employee based upon the number of hours worked by each employee divided by the total number of hours worked by all employees during a particular shift, date, etc. In other embodiments, tips are attributed to each employee based upon the total sales of each employee divided by the total sales of all employees for a particular shift, date, etc. Or, in yet other embodiments, tips are attributed to a first subset of employees (e.g., servers) based upon **a first method** (e.g., hours worked by the employee versus hours worked by all employees) and tips are attributed to a second subset of employees (e.g., bartenders) based upon **a second method** (e.g., sales of each employee versus sales of all employees). That is, a **combination of attribution methods** may be used **for different subsets of employees**. Although the example provided herein includes two subsets, any number of subsets and any number of methods may be used without departing from the scope of the present invention.

(*Id.*, ¶ 142.)

157. Accordingly, Marshall discloses that the GrataSoft system is configured to “execute ... gratuity distribution rules for allocating gratuities among at least a portion of the employees.” And because the GrataSoft system is available to more than one business (*see id.*, Fig. 27), with each client (restaurant) being able to make independent gratuity allocation choices based on their needs, Marshall discloses or renders obvious sub-element 1[e](i).

158. Marshall also discloses or renders obvious sub-element 1[e](ii), which recites “wherein the gratuity management system is further configured to ... determine a gratuity allocation based on at least the received extracted transaction information, the received extracted employee information, and the gratuity distribution rules.” As discussed above with respect to element 1[d], the GrataSoft system receives and stores the extracted transaction and employee information from files initially stored locally on the client business systems. (*See* Section VI.B.1.i., *supra*.) This practice avoids the need for re-entering employee information that has already been entered in the POS system (*See* Ex. 1004, ¶ 109) and the timekeeping system (*id.*, ¶ 69), and, thus, minimizes system administration time and data accuracy (*id.*, Abstract).

159. Subsequently, the GrataSoft system “determine[s] a gratuity allocation based on at least the received extracted transaction information, the received extracted employee information, and the gratuity distribution rules” (i.e., sub-element 1[e](ii)) as I will explain in detail below in reference to the processes described in Figures 5A and 5B shown below.

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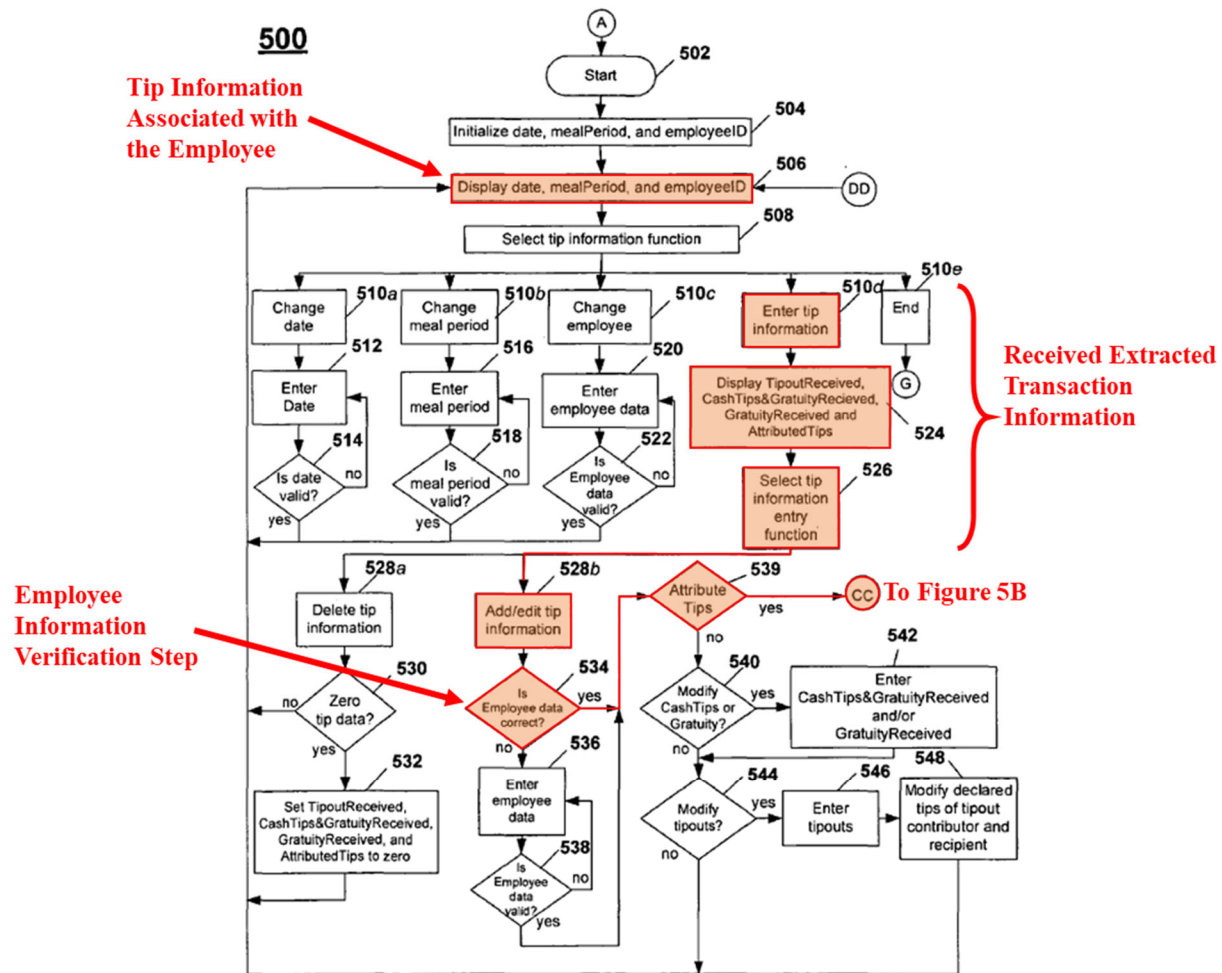


FIG. 5A

(Ex. 1004, Fig. 5A (annotations added).)

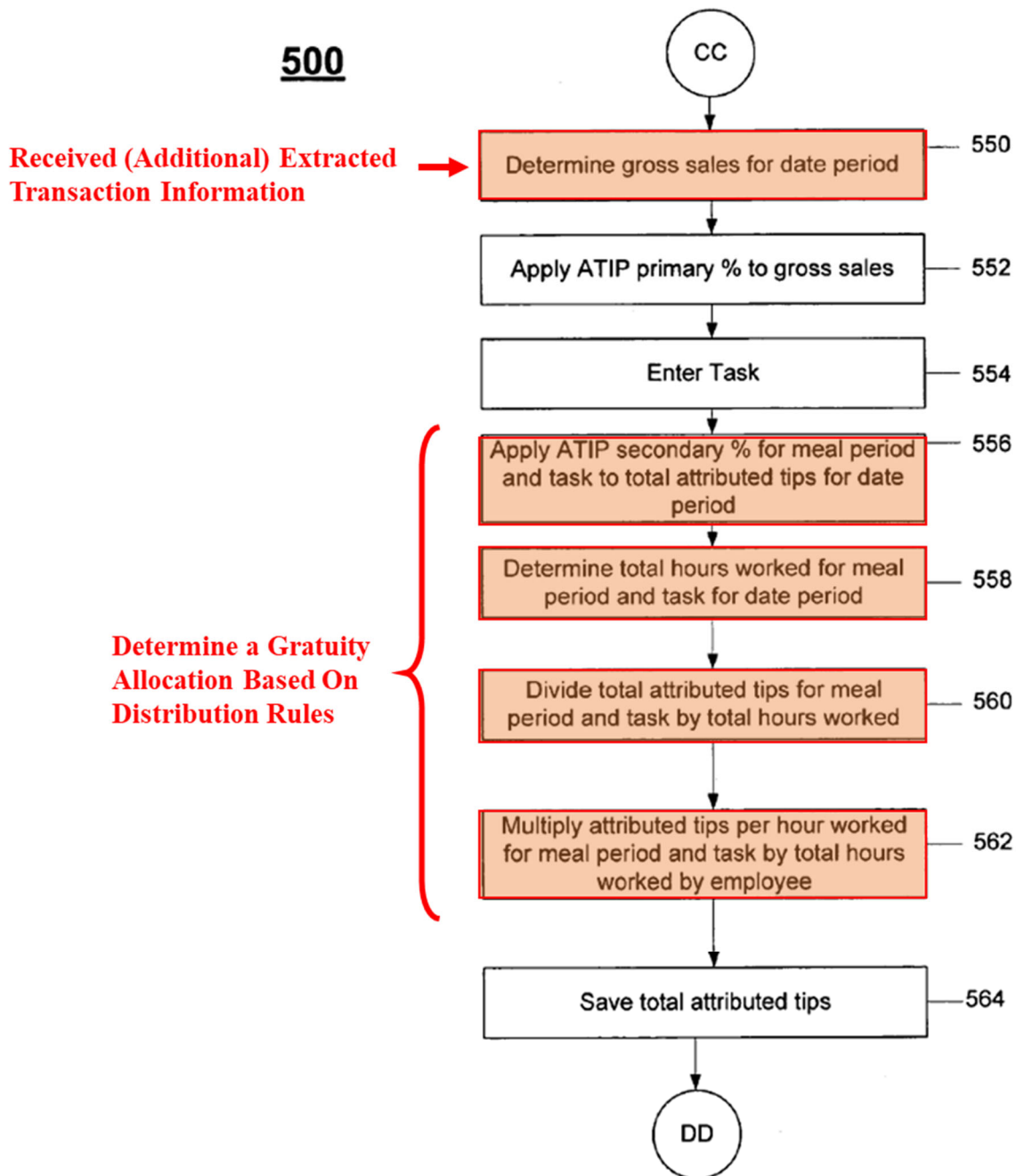


FIG. 5B

(*Id.*, Fig. 5B(annotations added).)

160. At step 506 of Figure 5A, “the **tip information** associated with the

date, mealPeriod, and **employeeID** variables are displayed to the user via a user interface” (*Id.*, ¶ 131.) “If at 508, the user has selected enter tip information function 510d, process 500 proceeds to 510d at which a process to enter tip information begins.” (*Id.*, ¶ 135.) At step 524, “the data associated with the TipoutReceived, CashTips&GratuifyReceived, GratuifyReceived, and AttributedTips variables are displayed to the user.” (*Id.*) A POSITA would have understood that at least the information provided at steps 506 and 527 correspond to “received extracted transaction information” and “received extracted employee information,” which, as explained earlier, have been uploaded to the GrataSoft system from the client business system.

161. At step 526, the user may select a tip information entry function—e.g., whether to delete or add/edit the stored trip information. (*Id.*, ¶ 136.) If the user elects to proceed with the add/edit function at 528b, the GrataSoft system prompts the user to **verify the employee information** (e.g., the “the received extracted employee information”). (*Id.*, ¶ 138.) Once the employee information is verified, the process proceeds to step 539, which is a tip attribution step. (*Id.*) Subsequently, the process transitions to Figure 5B and step 550 where additional “extracted transaction information” is inputted, such as gross sales information for a predetermined period. (*Id.*, ¶ 139.) In the particular example of Figure 5B, the

GrataSoft system uses a set of predetermined distribution rules along with a blend of transaction and employee information in steps 556–562 to “determine a gratuity allocation” at step 564. (*Id.*, ¶¶ 141–42.) As discussed above in connection to ¶ 142 of Marshall (*see* ¶ 156, *supra*), the distribution rules defined by steps 556–562 are by no means exhaustive, and the GrataSoft system may use a different combination of rules to arrive to a gratuity allocation at step 564. In view of the above, Marshall discloses or renders obvious sub-element 1[e](ii).

162. It is my opinion that Marshall also discloses or renders obvious sub-element 1[e](iii), which recites “wherein the gratuity management system is further configured to ... return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules.”

163. Marshall’s GrataSoft system is “designed to automatically generate desired reports with little or no input from a user.” (Ex 1004, ¶ 78.) According to Marshall, “[n]umerous reports may be generated in a variety of formats including, but not limited to, activity summary reports, tip declaration problem reports, staff training history reports, and IRS reports such as TRAC statements, IRS Form 8027, and IRS Publication 1244 reports including IRS forms 4070A and 4070.” (*Id.*) As discussed above, GrataSoft is also configured to “allocat[e] gratuities among at least

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a portion of the employees” (see ¶¶ 15–57, *supra*) and thus, this information should be automatically included in the generated forms. A partial view of Figure 12 is provided below as an example of a generated form (e.g., a activity summary report) from Marshall’s GrataSoft system. (*Id.*, ¶ 224.)

1200

1204

1208

1212

1206

1214

1210

1202

ACTIVITY SUMMARY REPORT - PERIOD: [02/05/06 - 02/18/06] [GRATUIT Y ON]

Printed: 02/23/2006 at 09:54:43

GRATA ver 3.01

1224a

1222

1220

1218

1224b

EMP NUMBER	EMPLOYEE NAME	NON CASH SALES WITH TIP	NON CASH TIPS	CASH SALES	CASH TIPS	GROSS s/s GRAT s/s	Gr Tips Grat	+Tip +Grat	-Tip -Grat	[DECL] [GRAT]	IRS Alloc
154	Nario Gold	3576.90	708.24 19.80%	1260.50	83.76 6.64%	4837.40 768.35	792.00 138.30	0.00 0.00	-157.00 0.00	635.00* 138.30	
171	Donnie Mills	5610.86	1020.96 18.20%	2188.68	274.27 12.53%	7799.54 397.80	1295.23 71.60	0.00 0.00	-139.00 0.00	1156.23 71.60	
518	Earl Merritt	0.00	0.00 ***%	0.00	0.00 ***%	0.00 0.00	0.00 0.00	416.00 0.00	0.00 0.00	416.00 0.00	
1399	Adin Hatcher	0.00	0.00 ***%	0.00	0.00 ***%	0.00 0.00	0.00 0.00	130.00 0.00	0.00 0.00	130.00 0.00	
1786	Jen Rucker	0.00	0.00 ***%	0.00	0.00 ***%	0.00 0.00	0.00 0.00	652.00 0.00	0.00 0.00	652.00 0.00	
1830	John Prewitt	1266.40	232.62 18.37%	319.65	24.07 7.53%	1586.05 0.00	256.69 0.00	0.00 0.00	-55.00 0.00	201.69 0.00	
1 940	Adam Harding	2182.50	396.64 18.17%	819.45	104.44 12.75%	3001.95 188.45	501.08 33.92	0.00 0.00	-98.00 0.00	403.08 33.92	
3140	Philip Howse	0.00	0.00 ***%	0.00	0.00 ***%	0.00 0.00	0.00 0.00	55.00 0.00	0.00 0.00	55.00 0.00	
488	Lauren Polascak	4924.20	886.28 18.00%	1893.66	279.82 14.78	6817.86 0.00	1166.10 0.00	0.00 0.00	-105.00 0.00	1061.10 0.00	

(*Id.*, Fig. 12 (annotations added).) In the above partial view of Figure 12, tip and gratuity information is highlighted with red squares. A POSITA would have understood from Marshall’s disclosure that allocated gratuities, along with additional information, **may also** be included in such report. Indeed, Marshall

discloses:

However, other fields including but not limited to name and/or location of the establishment, employee hours, employee hourly rates, TRDA information, and ATIP information **may be substituted without departing from the scope of the present invention.**

(*Id.*, ¶ 224.)

The detail level of this report is chosen by the user during the report printing process. ... In the depicted embodiment of the activity summary report shown in FIG. 12, the detail level has been selected to include non-cash and cash sales, non-cash and cash tips and gratuities, gross sales, gross tips, gross gratuities, tipout amounts, and non-cash and cash tips and gratuities as a percentage of non-cash and cash sales, respectively. The information is provided for all employees who worked during the selected date range as defined in date range field 1206.

(*Id.*, ¶ 225.)

However, in some aspects of the present invention, **the detail level may also be affected by the status of system defaults** such as TRDA, ATIP, **Allocation Enabled**, Autocorrect, Gratuity Paid as Wages, and Tips Paid as wages. For example, if Gratuities Paid as Wages is set to “off”, gratuities are included with tips (i.e., they are not broken out as a separate category). Therefore, column headers 1212 such as Grat Sls, Grat, +Grat, and –Grat are omitted from the report as well as the data associated therewith. Similarly, if the TRDA system default is set to

“on”, TRDA indicators are added to the report to indicate which employees are participating in the TRDA agreement and **whether any tips have been added** to the employee’s declared tips to ensure that the TRDA requirements are met. **Any tip adjustments** (i.e., the amount that the employee’s declared tips have been increased to avoid under-reporting of same) **may be declared in an independent column to facilitate reporting of such tip adjustments separate from declared tips to the taxing authority, payroll company, etc.** Or, if the ATIP system default is set to “on”, ATIP indicators are added to the report to indicate which employees are participating in the ATIP program.

(*Id.*, ¶ 226.)

164. Additionally, Marshall discloses that these forms, when generated, are reported back to the user via “the client business system.” For example, in Figure 1, Marshall discloses that the generated reports are distributed to the service provider/business establishment: “Process 100 [of Figure 1] then proceeds to 126. At 126, **some or all reports generated at 124 are distributed to one or more service providers.**” (*Id.*, ¶ 80; *see also id.*, ¶¶ 80–83.) That is, a POSITA would have understood that the report in Figure 12 of Marshall could be generated by a single restaurant and viewed by its management. A POSITA would have understood, that since the user interacts with the GrataSoft system via the client business system, such forms would be reported back from the GrataSoft system to the user **via** the client’s business system. And because the GrataSoft system

allocates gratuities **automatically** based in-part on the “gratuity distribution rules” as discussed above, the client business system would not be burdened with such calculation. A POSITA would have also understood that the report illustrated in Figure 12 is automatically generated and does not involve any calculation on the part of managers or employees.

165. Therefore, Marshall discloses or renders obvious “wherein the gratuity management system is further configured to ... return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules” as recited in sub-element 1[e](iii).

166. Based on the above, it is my opinion that Marshall discloses or renders obvious each and every limitation of element 1[e].

2. Claim 2: “wherein the gratuity sync client is further configured to format the extracted transaction and employee information into an XML file before communicating the extracted information to the gratuity management server.”

167. Claim 2 depends from claim 1, which Marshall discloses or renders obvious as discussed above. It is my opinion that Marshall also discloses or renders obvious claim 2.

168. As discussed in connection to sub-element 1[c](ii), the Aloha POS (which is a component or form of an interface system; i.e., “the gratuity sync client”)

collects, organizes, and stores data from the client business system into files in a .DBF or dBase file structure, which are subsequently made accessible to the GrataSoft system. (See ¶¶ 140–43, *supra*.) However, Marshall discloses that **alternative** file formats may be used—such as XML formats for communicating the extracted information to the GrataSoft system, which collectively with system 300 forms “the gratuity management system.” (See Ex. 1004, ¶ 110.) For example, when discussing the types of communication protocols that may be used when the client business system and the GrataSoft system are remote to one another (*see* Section VI.B.1.i, *supra*), Marshall discloses:

However, alternate methods of downloading or transferring data such as sales data may be substituted without departing from the scope of the present invention. For example, in one aspect of the present invention, mapping is performed via Web mapping utilizing a Universal Naming Convention (“UNC”) server **and data transfer is performed via uploading and downloading via HyperText Transfer Protocol (“HTTP”), Extensible Markup Language (“XML”), and/or HTML as is known in the art.**

(Ex. 1004, ¶ 110.) Accordingly, a POSITA would have understood that the Aloha POS system (e.g., the “gratuity sync client”) “is further configured to format the extracted transaction and employee information into an XML file before communicating the extracted information to” the GrataSoft system (i.e., “the gratuity

management server”).

169. Therefore, Marshall discloses or renders obvious claim 2.

3. Claim 3: “wherein the gratuity sync client application is installed on the point of sale server of the respective client business system.”

170. Claim 3 depends from claim 1, which Marshall discloses or renders obvious as discussed above. It is my opinion that Marshall also discloses or renders obvious claim 3.

171. As discussed in element 1[b.1], client business systems include point of sale servers in which information collected by the POS system (or other local systems of the client business system) can be conveniently stored. (Section VI.B.1.f., *supra*.) Later, as I explained in the analysis presented for element 1[b.2], Marshall discloses, that the POS system is operated and controlled via an interface application (IS) platform (e.g., a “gratuity sync client application”), such as an Aloha POS, which allows the client business system to interface with the GrataSoft system (i.e., the “gratuity management system”). (Section VI.B.1.g., *supra*.) Also, as I explained above, having the gratuity calculations performed at a central server enables a system, for example, a chain of restaurants to manage gratuities uniformly across all restaurants while keeping the POS functions local to each restaurant. (¶ 135, *supra*.)

172. A POSITA would have understood from Marshall's disclosure, in conjunction with his/her own knowledge of the art, that the Aloha POS (part of the interface system, i.e., the "gratuity sync client application") is installed **on the point of sale server** where **all** the transaction and employee information is stored. Advantageously, this arrangement would allow the interface system to have **direct** access to the stored transaction and employee information without the need to rely on external networks, which makes this option safer and reliable, not to mention extremely simple and straightforward to implement. That is, a POSITA would have understood the benefits of a local POS system (e.g., keeping transaction, payment, and time and attendance functions local) and, given the motivation for an externally managed gratuity system, understand the need for the POS system (i.e., the system with the relevant data) to send the data to the external gratuity server.

173. Accordingly, a POSITA would have understood that Marshall discloses or renders obvious "wherein the gratuity sync client application is installed on the point of sale server of the respective client business system."

4. Independent Claim 8

174. It is my opinion that Marshall discloses or renders obvious each and every limitation of independent claim 8 as discussed below.

**a. Element 8

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[pre]
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: “A system for providing payment management services to a plurality of clients, comprising:”**

175. To the extent the preamble of claim 8 is limiting, it is disclosed or rendered obvious by Marshall.

176. A POSITA would have understood, based on the context of the '050 patent, that “payment management services” refer to services that allow an employer (e.g., a restaurant) to manage financial transactions relating to the services it provides to patrons, including, for example, managing payments to employees in the form of managing tip and/or gratuity allocation as part of the payroll. As discussed in connection to the preamble of claim 1, Marshall discloses such a system.

177. For example, Marshall discloses “**systems and methods for recording, maintaining, and reporting tips and gratuities**, optionally including details such as employee, task performed, and shift.” (Ex. 1004, Abstract.) Specifically, Marshall’s system automatically generates reports that include a plethora of information—such as, but not limited to, non-cash and cash sales, non-cash and cash tips and gratuities, gross sales, gross tips, gross gratuities, tipout amounts, and non-cash and cash tips and gratuities as a percentage of non-cash and cash sales, and the like. (Ex. 1004, ¶ 225; *see also* ¶¶ 162–65, *supra.*) According to Marshall, the generated forms can be used as a reporting tool to various tax authorities (e.g., the IRS). (Ex. 1004, ¶ 24.) Accordingly, Marshall discloses “A system for providing

payment management services,” consistent with the POSITA’s understanding of the
’050 patent.

178. In addition, and as discussed in element 1[a.1], Marshall’s system is a **web-based system** that may independently interface with **multiple clients** (i.e., a plurality of clients). (*See, e.g.,* Section VI.B.1.c., *supra.*)

179. Accordingly, it is my opinion that Marshall discloses or renders obvious the preamble of claim 8.

- b. **Element 8[a]: “a payment management computer system having a server and a database and being accessible by a plurality of clients, the server being configurable by each client of the plurality of clients via a web portal to execute payment distribution rules independently on a client-by-client basis; and”**

180. It is my opinion that Marshall discloses or renders obvious element 8[a].

181. The limitations of claim 8[a] are substantially similar to those collectively recited in elements 1[a], 1[a.1], and 1[a.2], as shown in the table below.

Element 8[a]	Elements of claim 1
a payment management computer system having a server and a database and being accessible by a plurality of clients, the server being configurable	1[a]: a gratuity management system, comprising: 1[a.1]: a server coupled to a computer network and accessible by a plurality of clients, the server being configurable

by each client of the plurality of clients via a web portal to execute payment distribution rules independently on a client-by-client basis; and	to independently execute gratuity distribution rules on a client-by-client basis; and 1[a.2]: a database , accessible by the server; and
--	--

182. The main difference between elements 8[a] and 1[a] is that element 8[a] recites “**a payment management computer system**” while element 1[a] recites “**a gratuity management system.**” However, a POSITA would have understood that in the context of the ’050 patent, these two systems are similar, if not equivalent, in terms of functionality. Therefore, and for at least the same reasons Marshall discloses or renders obvious elements 1[a], 1[a.1], and 1[a.2], Marshall also discloses the corresponding limitations of element 8[a] as identified above with red and blue text. That is to say, Marshall’s system 300 shown in Figure 3 corresponds to the “payment management computer system” recited in element 8[a].

183. Marshall also discloses or renders obvious the additional limitation of element 8[a] reciting “the server being configurable **by each client of the plurality of clients via a web portal,**” for the following reasons. For example, and as discussed in connection to element 1[d], system 300 is **remote** from the client business systems—e.g., it can be a cloud-based system—that supports **multiple** clients (*i.e.*, restaurants). (See ¶¶ 146–50, *supra*; see also, e.g., Ex. 1004, ¶ 102.)

Accordingly, a POSITA would have understood that the clients could communicate with remote system 300 via “a web-portal”—e.g., a dedicated website. Indeed, Marshall discloses that users (e.g., clients and their employees) may gain access to the system from virtually anywhere via web programming tools, web-browsers, and the like.

Connection of system 300 to Internet 318 allows the systems and methods of the present invention to be implemented **in a Web-based manner**. For example, the systems and methods of the present invention may **be executed via a Web server or similar apparatus that interacts with one or more users via an Internet** connection such as Internet connection 316 between the Web server and the user's local processing device or dumb terminal (e.g., a thin client, a thick client, etc.). **Such web-based implementations may be programmed via a web programming tool such as the FUNCKy.com programming tool or the like. Such interaction may include receiving input from a user and/or providing output (e.g., reports) to a user via the Internet connection.**

(Ex. 1004, ¶ 102.)

In some aspects of the present invention, **the Web-based systems and methods of the present invention may be accessed via any Web browser in communication with the Internet regardless of whether such Web browser resides on a non-portable device (e.g., a desktop PC) or a portable device such as a laptop, PDA, Smartphone,**

cellular phone, or the like. This capability allows users with the required user rights to access the systems and methods of the present invention at the business establishment, from home, or on the go (i.e., via a portable device). This feature may allow users of an individualized system (i.e., systems intended for personal use by a single employee), as described in further detail below, to download information from an IS or a business establishment's tip and gratuity management system to his or her home computer.

(*Id.*, ¶ 103.) And because it is the clients' employees who input information and change the default settings of the system,⁵ it follows that **the clients configure** web-based system 300 according to their needs. Thus, Marshall discloses “the server being configurable **by each client of the plurality of clients via a web portal.**”

184. Further, and as explained above in section 1[a.1] in connection with the “multi-employer” feature, Marshall is expressly drawn to embodiments where one central system can manage multiple restaurants. To the extent not expressly disclosed, a POSITA would have understood that a system that can manage multiple restaurants would normally be located remotely from at least most (if not all) of the restaurants. In such an architecture, each restaurant would need access to the server. A POSITA would further understand that a web portal would be a logical, easily

⁵ See ¶¶ 117–18, *supra*; see also Ex. 1004 at ¶¶ 126–27 (discussing system default function 430k).

implementable system for permitting such access. Such a system would be well within the skill of a POSITA.

185. Accordingly, Marshall discloses or renders obvious element 8[a].

- c. **Element 8[b]: “a plurality of client business systems in electronic communication with the payment management computer system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising:”**

186. It is my opinion that Marshall discloses or renders obvious element 8[b] for the following reasons.

187. Aside from the recitation of “the payment management computer system” (as opposed to “the server of the gratuity management system”), element 8[b] is identical to element 1[b] as shown below.

Element 8[b]	Element 1[b]
a plurality of client business systems in electronic communication with the payment management computer system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising	a plurality of client business systems in electronic communication with the server of the gratuity management system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising:

And because, the “payment management computer system” of claim 8 is equivalent to the “server of the gratuity management system,” as discussed above, Marshall

discloses or renders obvious element 8[b] for at least the same reasons Marshall discloses or renders obvious claim 1[b].

d. Element 8[b.1]: “at least one point of sale server; and”

188. It is my opinion that Marshall discloses or renders obvious element 8[b.1] for the following reasons.

189. Element 8[b.1] is identical to element 1[b.1]. Accordingly, Marshall discloses or renders obvious element 8[b.1] for at least the same reasons Marshall discloses or renders obvious element 1[b.1].

e. Element 8[b.2]: “an interface component installed on the respective client business system;”

190. It is my opinion that Marshall discloses or renders obvious element 8[b.2] for the following reasons.

191. Element 8[b.2] is substantially similar to element 1[b.2] as shown in the table below.

Element 8[b.2]	Element 1[b.2]
an interface component installed on the respective client business system	a gratuity sync client application installed on the respective client business system

A POSITA would have understood that the “interface component” recited in element 8[b.2] corresponds to the “gratuity sync client application” of element 1[b.2] because the gratuity sync client application is merely an interface component that allows the

client business system to interact with the payment management computer system. And because Marshall discloses or renders obvious element 1[b.2], as discussed above, Marshall also discloses or renders obvious element 8[b.2] for at least the same reasons.

- f. Element 8[c]: “wherein the interface component on each client business system is configured to**
 - i. extract at least one of transaction information and employee information from the client business system and**
 - ii. to initiate transfer of the extracted information to the payment management computer system;”**

192. It is my opinion that Marshall discloses or renders obvious element 8[c] for the following reasons.

193. Element 8[c] is substantially similar to element 1[c], which Marshall discloses or renders obvious as discussed above.

Element 8[c]	Element 1[c]
wherein the interface component on each client business system is configured to i. extract at least one of transaction information and employee information from the client business system and ii. to initiate transfer of the extracted information to the payment management computer system;	wherein the gratuity sync client application on each client business system is configured to i. extract transaction information and employee information from the client business system and ii. to initiate transfer of the extracted information to the gratuity management system;

And because the “interface component” recited in element 8[b.2] corresponds to the “gratuity sync client application” of element 1[b.2], Marshall discloses or renders obvious element 8[c] for at least the same reasons Marshall discloses or renders obvious element 1[c].

- g. **Element 8[d]: “wherein the payment management computer system is a cloud computing system remote from the plurality of client business systems and configured to**
 - i. **receive the extracted information from the plurality of client business systems and**
 - ii. **to store the received extracted information in the database; and”**

194. It is my opinion that Marshall discloses or renders obvious element 8[d] for the following reasons.

195. Element 8[d] is substantially similar to element 1[d] as shown in the

table below.

Element 8[d]	Element 1[d]
wherein the payment management computer system is a cloud computing system remote from the plurality of client business systems and configured to i. receive the extracted information from the plurality of client business systems and ii. to store the received extracted information in the database; and	wherein the gratuity management system is a cloud computing system remote from the plurality of client business systems and configured to i. receive the extracted transaction information and employee information from the plurality of client business systems and ii. to store the received extracted information in the database; and

And because “the payment management computer system” recited in element 8[d] is equivalent to, or corresponds to, “the gratuity management system” recited in claim 1[d], the limitations of element 1[d] encompass the limitations of element [8d].

196. Accordingly, it is my opinion that Marshall discloses or renders obvious element 8[d] for at least the same reasons Marshall discloses or renders obvious element 1[d].

- h. **Element 8[e]: “wherein the payment management system is further configured to**
 - i. **execute, independently for each client, payment distribution rules based on at least the received extracted information and the independently configured payment distribution rules to generate payment information and**

- ii. **return the payment information to the interface component of respective client business systems, without requiring the respective client business systems to execute the payment distribution rules.”**

197. It is my opinion that Marshall discloses or renders obvious element 8[e] for the following reasons.

198. Element 8[e] is substantially similar to element 1[e], which Marshall discloses or renders obvious as discussed above. The similarities between elements 8[e] and 1[e] are discussed below.

Element 8[e]	Element 1[e]
wherein the payment management system is further configured to	wherein the gratuity management system is further configured to
i. execute, independently for each client , payment distribution rules based on at least the received extracted information and the independently configured payment distribution rules to generate payment information and	i. execute, independently for each client , gratuity distribution rules for allocating gratuities among at least a portion of the employees and ii. to determine a gratuity allocation based on at least the received extracted transaction information , the received extracted employee information, and the gratuity distribution rules and
ii. return the payment information to the interface component of respective client business systems , without requiring the respective client business systems to execute the payment distribution rules.	iii. return the gratuity allocation to the gratuity sync client application of each respective client business system , without requiring the client business systems to execute the gratuity distribution rules.

As discussed earlier, “the payment management system” recited in claim 8 is equivalent to, or corresponds to, the “gratuity management system” recited in claim 1, as would be understood by a POSITA. This is because the gratuity management system **is** a payment management system.

199. In the same context, a POSITA would have understood that the “payment distribution rules” and the “payment information” recited in sub-element

8[e](i) are also equivalent to, or correspond to, respective “gratuity distribution rules” and “gratuity allocation” recited in element 1[e]. This is because the “payment distribution rules” can include “gratuity distribution rules,” and the “payment information” can include a “gratuity allocation.”

200. Based on the above, the payment management system of element 8[e] is configured to generate payment information (e.g., determine a gratuity allocation) by executing payment distribution rules (e.g., by executing gratuity distribution rules for allocating gratuities) based at least on (i) the received extracted information and (ii) the independently configured payment distribution rules (e.g., based on at least (i) the received extracted transaction information, the received extracted employee information (collectively, the extracted information), and (ii) the gratuity distribution rules). In other words, sub-element 8[e](i) is equivalent to or comparable to sub-elements 1[e](ii) and 1[e](iii). Put another way, elements 1[e](ii) and 1[e](iii) encompass sub-element 8[e](i). And because Marshall discloses or renders obvious sub-elements 1[e](ii) and 1[e](iii), it follows that Marshall also discloses or renders obvious sub-element 8[e](i) for at least the same reasons.

201. Lastly, and as discussed above in connection to element 8[b.2], “the interface component” in sub-element 8[e](ii) is equivalent to, or corresponds to, “the gratuity sync client application” in sub-element 1[e](iii). Accordingly, sub-element

1[e](iii) encompasses sub-element 8[e](ii). And because Marshall discloses or renders obvious sub-element 1[e](iii) as discussed above, Marshall also discloses or renders obvious sub-element 8[e](ii).

202. Thus, Marshall discloses or renders obvious element 8[e] for at least the same reasons Marshall discloses or renders obvious element 1[e].

203. For at least the reasons set forth above, Marshall discloses or renders obvious each and every limitation of claim 8.

5. Claim 10: “wherein the payment distribution rules comprise gratuity allocation rules.”

204. Claim 10 depends from claim 8, which Marshall discloses or renders obvious as discussed above. It is also my opinion that Marshall also discloses or renders obvious claim 10.

205. As discussed above for sub-element 8[e](i), a POSITA would have understood that the “payment distribution rules” recited in claim 8[e] can include “gratuity distribution rules” recited in element 1[e], which **are equivalent to** the “gratuity allocation rules” recited in claim 10.

206. Accordingly, Marshall discloses or renders obvious “wherein the payment distribution rules comprise gratuity allocation rules.”

C. Ground 2: Marshall in View of Webb Discloses or Renders Obvious Claims 4–7, 9, 11–13

1. Motivation to Combine Marshall and Webb

207. In my opinion, a POSITA would have been motivated to combine the teachings of Marshall and Webb to produce a combined system.

208. First, both Marshall and Webb are drawn to the same field of art—i.e., methods and systems for tracking employee and sales information in the hospitality business. For example, Marshall asserts “Disclosed are systems and methods for recording, maintaining, and reporting tips and gratuities, optionally including details such as employee, task performed, and shift. ... In another aspect, interfaces to third-party systems such as POS systems, payroll systems, and the like are provided to further minimize system administration time and data accuracy. In another aspect, Web-based systems are provided.” (Ex. 1004, Abstract.) In the same spirit, Webb discloses that “The computerized time clock system includes a personal computer via which employee, job and schedule records may be assembled and maintained. A computerized time clock communicates with the personal computer and received employee and scheduling data therefrom, in order to validate and record time-in and timeout transactions executed by employees.” (Ex. 1006, Abstract.)

209. Second, both Marshall and Web describe similar and compatible systems. For example, Marshall expressly discloses interfaces between a remote gratuity allocation system and a local POS system and a local time and attendance

system (Ex. 1004, ¶¶ 108, 69, respectively), while Webb expressly discloses a nearly identical set of features, including a personal computer terminal acting as a time and attendance server connected directly to (e.g., interfaced with) cash registers (an early POS system). (Ex. 1006, 24:51–60.) Compare, e.g., the time and attendance system of Marshall (referred to as a “time clock,” “timeclock program,” and “time and attendance system” (*see* Ex. 1004, ¶ 69)) to the system of Webb (a timeclock 10 connected to personal computer 20 (*see* Ex. 1006, Figs. 1A and 1B)). Webb expressly discloses a timeclock 10 connected to a personal computer 20 (Ex. 1006, Figs. 1A and 1B, 3:41–49). The personal computer 20 stores files locally and interfaces with a larger computer system. (*Id.*, 4:7–11). Webb was written in 1988, and so a POSITA would have understood Webb’s system (especially computer 20) to disclose something akin to a server, inasmuch as it interfaces with other hardware, has local storage, and interfaces with other computers. Webb expressly discloses that its computer and timeclock are used to track and store employee hours (*see id.*, 5:10–35), and so it functions as a time and attendance server.

210. And because Marshall’s and Webb’s systems are so similar, modifications to the system of Marshall to implement selected teachings of Webb would be a straightforward matter. For example, Marshall discloses that its GrataSoft system (i.e., “the remote gratuity management system”) interfaces with

local interface systems, such as a POS system and a time and attendance server. (See, e.g., Ex. 1004, ¶¶ 69 and 108.) And Webb discloses that a POS system (e.g., the cash register 30) is communicatively coupled to a time and attendance server (e.g., the personal computer 20). (Ex. 1006, Figs. 1A and 1B.) In other words, a POSITA would have envisioned, based on Marshall's disclosure, that a remote gratuity management system can interface with a local (i.e., in-restaurant) POS system and a time attendance server, and that the POS system can further communicate and exchange information locally with the time and attendance server as taught by Webb. That is to say, the arrangement of elements in Webb would have been a straightforward way to implement the system of Marshall, which would ultimately allow Marshall's POS system and time attendance server to exchange information within the interface system environment in a beneficial manner. For example, one would have realized that having the POS system acting as an information collection hub communicatively coupled to other systems in the restaurant, such as a time and attendance server, would have greatly simplified Marshall's system configuration as evidenced by the exemplary Aloha POS system of Marshall, which is tasked with collecting information and storing the information into files. (Ex. 1004, ¶ 108).

211. Third, a hybrid architecture as disclosed by Marshall, with one or more

servers in-restaurant and one or more remotely, would have been both desirable and easy to implement. For example, consider a chain restaurant with clearly defined tip allocation policies. Some functions of the restaurant, such as some sort of point of sale system, clearly need to be located at the restaurant (i.e., locally)—it is the place where the consumer wields a credit card, for example. A time and attendance server could be deployed locally as well to enable employees to log hours easily. However, a POSITA would have been motivated to move some functions, such as tip allocation, to a central server so that the allocation policies can be enforced consistently across restaurants located in different parts of the city, state, country, etc. The restaurant could also benefit from an economy of scale that a data center can provide by adopting a cloud-based implementation of this feature. (Ex. 1011, p. 25.) Already from 2009 it was well established that “[b]y providing services at the scale of a data center, it’s possible to provide operations, business continuity, and security more efficiently than can be done when providing these services a rack at a time. For this reason, the unit cost for cloud-based services is often lower than the cost if the services were provided directly by the organization itself.” (*Id.*) In other words, it was known that cloud computing allows centralized data security, easy access to information, and business continuity. Webb adds details to this architecture by demonstrating that the time and attendance server can be connected

to the POS server. By doing so, only one of the servers (the POS server in the case of Marshall) needs to connect to the outside world and can aggregate data from other local servers.

212. Such a cloud-based adoption would be nothing more than the combination of prior-art elements (local servers and remote servers) to yield predictable results. Indeed, it would have been a simple substitution of one server for another, with the only difference being the geographic location. Allocation of computing tasks to servers and networks was well known by 2012, and the proper place to locate such servers, given constraints of restaurants, locations, management styles, cost, etc., would have been the mere application of a known technique to yield predictable results. Additionally, there were a small, finite number of possible and predictable solutions (POS server, payroll server, time and attendance server, gratuity allocation functions, each to be located locally or remotely) and almost any architecture would have had a reasonable chance of success. Webb adds an important detail—connecting the time and attendance server to the POS server—thereby reducing the number of predictable solutions a POSITA would need to try. The modifications would have been readily implementable with very high confidence of success. For all of the reasons explained above, this migration to a central server would have been a routine activity for a POSITA in 2012.

213. Based on the above, it is my opinion that a POSITA would be motivated to combine the teachings of Marshall and Webb to produce the system of the '050 patent.

2. Claim 4: “wherein the respective client business system comprises additional devices which are connected to and accessible by the gratuity sync client application.”

214. Claim 4 depends from claim 1, which Marshall discloses or renders obvious as discussed above. It is my opinion that Marshall also discloses or renders obvious claim 4. To the extent Marshall alone does not disclose or render obvious claim 4, Marshall in view of Webb does.

215. As discussed in element 1[b.2] of Ground 1, a POSITA would have understood that Marshall’s interface system, which is a software platform within the client business system, comprises one or more hardware systems—such as POS systems, electronic cash register systems, timeclock programs, time and attendance systems, payroll processing systems, and the like. (Ex. 1004, ¶ 69.) Each hardware system would be configured to collect and process information related to their respective operations. For example, the POS system would collect sales and gratuity information, the time and attendance system would collect working hour information for each employee, etc. The interface system software would then aggregate all the information collected by each individual hardware system and save the aggregated

information to a centralized location within the client business system. (*See* Section VI.B.1.g, *supra*.)

216. Additionally, as explained above, networks of interconnected devices or systems within a client business ecosystem were well understood in the art. For example, the Agilysys product offering, explained above in Section IV.D above, included three different systems (InfoGenesis, Eatec, and TMx) that managed point of sale, inventory management, and time and attendance, respectively. Additionally, Webb discloses interconnected restaurant systems—specifically, a point of sale system and time and attendance system. (*See, e.g.*, VI.A.3 (citing Ex. 1006, Figs. 1A and 1B).) In the “Counting on Computers” book, an interconnected restaurant system is shown in a book published in 1980. (Ex. 1020, p. 116 fig. 38.) In other words, having **an interconnected** set of devices or systems to manage a restaurant was well known in the art by September 2012. A POSITA would have recognized that there would be a large number of equally easily implemented combinations of systems. Further, it would have been understood that these interconnected systems would be able to communicate with one another, strongly suggesting the these interconnected systems are also in communication with the interface system of the client business system.

217. Each of these sub-systems comprises a “device” (e.g., a computer with

associated software) that is “connected to” and “accessible by” the interface system (i.e., the “gratuity sync client application”). Accordingly, Marshall discloses or renders obvious “wherein the respective client business system comprises additional devices which are connected to and accessible by the gratuity sync client application.”

218. Further, Webb reinforces this understanding because it discloses a specific implementation in which a point of sale system (the “electronic cash register”; *see* Ex. 1006, 24:52–60) **interfaces** with a personal computer operating as a separate time and attendance system. The time and attendance system tracks employee hours and payroll while the point of sale system tracks sales and transactions. A POSITA would be motivated to combine the teaching of Webb with those of Marshall because Webb expressly discloses a particular arrangement of components (a point of sale system connected to a separate time and attendance system) that a POSITA would find practical and readily implementable in Marshall.

219. Accordingly, a POSITA would have understood, based on the combined disclosures of Marshall and Webb, that a client business system includes interconnected components or “devices,” each having its own respective software component as part of, and accessible by, the interface system (i.e., the “gratuity sync client application”) within the client business system.

220. For at least these reasons, Marshall alone or in combination with Web discloses or renders obvious claim 4.

3. Claim 5: “wherein at least one of the additional devices comprises a time and attendance server.”

221. Claim 5 depends from claim 4, which Marshall, alone or in combination with Webb, discloses or renders obvious as discussed above. It is my opinion that Marshall, either alone or in combination with Webb, discloses or renders obvious the additional limitation of claim 5.

222. As discussed above in connection to claim 4, Marshall discloses a number of “additional devices which are connected to and accessible by the gratuity sync client application.” Marshall discloses that the additional devices contemplated for use in its disclosed system include “time and attendance systems”:

Interfaced systems may include, but are not limited to, point-of-sale (“POS”) systems, electronic cash register systems, timeclock programs, **time and attendance systems**, payroll processing systems, and other similar systems as are known in the art. Such systems record an employee’s starting and ending work hours for the purposes of calculating total hourly wages based upon the quantity of hours worked.

(Ex. 1004, ¶ 69.)

223. In light of this disclosure, it is my opinion that Marshall expressly discloses that “at least one of the additional devices comprises a time and attendance

server.” To the extent it is found that Marshall does not expressly disclose a “time and attendance server,” it would nevertheless have been obvious in light of Webb. In particular, a POSITA would understand that each of the interface systems listed above, including the “time and attendance system,” could operate on a separate computer (i.e., a server). It would thus have been obvious to implement the “time and attendance system” discussed in Marshall on a server, as was done in Webb. Specifically, Webb implemented a complete time and attendance system using a dedicated timeclock that interfaced to a dedicated personal computer. (Ex. 1006, 1:42–48.) A POSITA would readily grasp that Webb’s personal computer is, in fact, a time and attendance server for reasons explained above.

224. Accordingly, Marshall, either alone or in combination with Webb discloses or renders obvious “wherein at least one of the additional devices comprises a time and attendance server,” as recited in claim 5.

4. Claim 6: “wherein the employee information extracted from the respective client business system comprises employees’ working hours.”

225. Claim 6 depends from claim 5, which Marshall, either alone or in combination with Webb, discloses or renders obvious as discussed above. It is my opinion that Marshall, either alone in combination with Webb, also discloses or renders obvious claim 6.

226. Marshall expressly discloses that “the employee information extracted from the respective client business system comprises employees’ working hours.”

For example, Marshall states:

Briefly stated, in one aspect of the present invention, a method for managing tips is provided. **This method includes ... receiving at least one primary peripheral tip data selected from the group consisting of non-cash sales data, cash sales data, non-cash tips, credit card gratuities, data regarding hours worked by at least one employee, meal period data, task data, and combinations thereof, and generating at least one report** analyzing at least one first declared value and at least one second declared value **in relation to at least one primary peripheral tip data.**

(Ex. 1004, ¶ 29.)

In yet another aspect of the present invention, a system for managing tips is provided. **This system includes ... at least one software program** [e.g., the GrataSoft software] **configured to accept at least one primary peripheral tip data selected from the group consisting of non-cash sales data, cash sales data, non-cash tips, non-cash gratuities, data regarding hours worked by at least one employee, meal period data, task data, and combinations thereof; at least one processing unit for executing the software program; and at least one user interface coupled to the at least one processing unit for entering** at least one first declared value, at least one second declared value, and **at least one primary peripheral tip data for manipulation**

by the at least one software program, wherein the processing unit generates at least one report analyzing at least one first declared value and at least one second declared value **in relation to at least one primary peripheral tip data.**

(*Id.*, ¶ 32.)

227. With respect to the above peripheral tip data, which includes data regarding hours worked by at least one employee uploaded from the client business system⁶, Marshall explains that the peripheral tip information is entered into its GrataSoft system according to step 558 of method 500 shown in Figs. 5A and 5B.

Marshall explains:

Turning next to FIGS. 5A and 5B, illustrated is a flow diagram of an exemplary embodiment of a process **for entering tip information and peripheral tip information into a system such as the exemplary**

⁶ See, e.g., Section VI.B.1.i.; *see also* Ex. 1004 at ¶ 127 (“IS interface system defaults include enable interface to IS system, poll sales on startup (i.e., download and/or update sales data from an IS automatically upon startup of the GrataSoft system), update data during execution of payroll export function 430/ (i.e., **download any updated sales data from IS data files that may impact sales, tips, hours worked, etc. ...**), . . . as well as entry fields in which the location of files, file folders, and the like may be entered to allow the exemplary GrataSoft system to access data from, or provide data to, ISs such as an Aloha POS, a payroll processing system, a time and attendance system, etc.”).

GrataSoft system and/or attributing tips to an employee via such system.

(*Id.*, ¶129.)

Process 500 then proceeds to 558, at which **the total hours worked** for the current meal period, current task, and current date are determined. Next, at 560, **the total tips attributed for the current meal period and the current task (as calculated at 556) is divided by the total hours worked (as determined at 558)**, thereby providing the total attributed tips per hour for the current meal period, for the current task during the current date. Process 500 then proceeds to 562, at which the total attributed tips per hour (as calculated at 560) is multiplied **by the total number of hours worked by the current employee** for the current meal period for the current task during the current date.

(*Id.*, ¶ 141.)

228. Webb provides additional support and demonstrates that collecting and storing employee information, such as employees' working hours, in client business systems was a common and well known practice prior to the filing of the '050 patent. Indeed, Webb discloses using its time and attendance system to track employee hours. For example, Figures 6A, 6B, 7A, and 7B and their descriptive portions in columns 9–12 describe the clock-in and clock-out process. As noted above, this information is transferred to the personal computer on a regular basis. Thus personal computer 20 of Webb functions as a time and attendance server. Further, as

explained above, Webb expressly discloses that its time and attendance server can interface with a point of sale system. (*See, e.g.,* ¶ 218, *supra.*) In other words, the system of Webb, like the system of Marshall, discloses that data, such as employee data and sales records, can pass between a time and attendance server and a point of sale system (i.e., between different devices within the client business system).

229. Accordingly, Marshall, either alone or in combination with Webb, discloses or renders obvious “wherein the employee information extracted from the respective client business system comprises employees’ working hours.”

5. Claim 7: “wherein at least one of the additional devices comprises a payroll system, and the gratuity sync client application communicates the returned gratuity allocations to the payroll system.”

230. Claim 7 depends from claim 4, which Marshall, either alone or in combination with Webb, discloses or renders obvious as discussed above. It is my opinion that Marshall, either alone or in combination with Webb, also discloses or renders obvious claim 7.

231. As discussed in claims 4–6, Marshall, in combination with Webb, discloses that sub-components of its interface system include, for example, a payroll processing system as part of a time and attendance system. A POSITA would have understood that these systems are not mere software components but necessarily include respective hardware components making them functional “devices.” (*See,*

e.g., Section VI.C.2; *see also* Ex. 1004, ¶ 69.) Marshall, in combination with Webb, discloses that its GrataSoft system interfaces with the **time and attendance system**, via the interface system (i.e., “the gratuity sync client application”) as would be understood by a POSITA, “to transmit payroll data, as well as data regarding tips and/or gratuities to be paid as wages, to the time and attendance system.” (Ex. 1004, ¶ 347.) Marshall explains:

Turning next to FIG. 25, illustrated is a flow diagram of an exemplary embodiment of a process **for exporting payroll data from a system such as the exemplary GrataSoft system**. In some embodiments of the present invention in which a time and attendance system (e.g., a Datamatics TC-1 time and attendance system) is utilized to pay employees, **the GrataSoft system includes a function such as payroll export function 430/ to transmit payroll data, as well as data regarding tips and/or gratuities to be paid as wages, to the time and attendance system. Such a function allows the systems and methods of the present invention to transmit tip and/or gratuities that are to be paid as wages, as discussed elsewhere herein, along with, or distinct from, transmission of each employee’s hours worked. Such transmission allows the time and attendance software to seamlessly pay each employee for the hours worked as well as the tips and gratuities received that the employee and/or employer designate to be paid as wages.** Furthermore, this function facilitates an employer’s compliance with taxing authority regulations such as the IRS that

require tips and/or gratuities to be paid as wages.

(*Id.*)

232. Additionally, Webb discloses that the POS system can interface directly to the time and attendance server and that its time and attendance server can also carry out payroll functions, as explained above. (*See, e.g.,* ¶ 218, *supra.*)

233. That is, a POSITA would have understood that, although Marshall **separately** identifies a payroll processing system and a time and attendance system, it is the **time and attendance system** that corresponds to the '050 patent's "payroll system" because it is **the time and attendance software** responsible for paying each employee for the hours worked as well as the tips and gratuities received that the employee and/or employer designate to be paid as wages. Webb further underscores this understanding by expressly disclosing a time and attendance system with payroll functions.

234. Webb, for example, expressly discloses that its time and attendance server (its personal computer) handles both hour-tracking and payroll functions. *See, e.g.,* Pay Period File 58, discussed throughout the specification. The pay period file includes fields such as time in, time out, and tips. (Ex. 1006, 8:11–38.) It would have been clear to a POSITA that an actual payroll calculation could be performed at that point, inasmuch as all of the information is present to calculate wages, as

contemplated by Marshall.

235. Further, to the extent not expressly disclosed by Marshall or Webb, a POSITA would have understood that functions, such as payroll management, were routinely carried out in the art of the era by time and attendance systems, such as the one disclosed in Webb and the TMx system sold by Agilysys. (See Ex. 1018.) In other words, this requirement (tracking employee working hours) was well understood and a POSITA would know of many ways to gather and use the data for paying wages or making payments to employees.

236. Accordingly, Marshall, in combination with Webb, discloses or renders obvious “wherein at least one of the additional devices comprises a payroll system, and the gratuity sync client application communicates the returned gratuity allocations to the payroll system.”

6. **Claim 9: “wherein the respective client business system comprises a payroll system in communication with the interface component, such that the payroll system prepares payrolls without requiring the client business system to execute the payment distribution rules.”**

237. Claim 9 depends from claim 8, which Marshall discloses or renders obvious as discussed above in Ground 1. It is my opinion, that Marshall, in combination with Webb, discloses or renders obvious claim 9 for the following reasons.

238. As discussed in connection to claims 4–7 above, Marshall in view of Webb discloses that Marshall’s interface system (i.e., the “interface component” of claim 8) includes at least a time and attendance system, which corresponds to the “payroll system” of the ’050 patent. And because the time and attendance system (i.e., the “payroll system”) is part of the interface system (which is in turn an integral part of the client business system), it follows that the “client business system comprises a payroll system in communication with the interface component.” Webb further supports this understanding, because it expressly discloses a time and attendance server that carries out payroll functions interfacing with a point of sale system—i.e., Webb discloses interconnected client business system components via a common interface system.

239. Additionally, and as discussed in claim 7, the GrataSoft system (the “payment management system” of claim 8) interfaces with the **time and attendance system** “to transmit payroll data, as well as data regarding tips and/or gratuities to be paid as wages, to the time and attendance system.” (Ex. 1004, ¶ 347.) In other words, the **preparation** of the payroll data is performed **exclusively** by the GrataSoft system, which **is remote** to the client business system and the time and attendance system. Additionally, it is the GrataSoft system that prepares the payroll data (e.g., “the payment information” of claim 8 in Ground 1) **based** on “the payment

distribution rules” and **not** the client business system as discussed in element 8[e] of Ground 1.

240. And because it is the time and attendance system (e.g., “the payroll system”) that “pay[s] each employee for the hours worked as well as the tips and gratuities received that the employee and/or employer designate to be paid as wages” (Ex. 1004, ¶ 347; Section VI.C.6., *supra*), it is the time and attendance system that “prepares payrolls without requiring the client business system to execute the payment distribution rules.”

241. Accordingly, Marshall, in combination with Webb, discloses “wherein the respective client business system comprises a payroll system in communication with the interface component, such that the payroll system prepares payrolls without requiring the client business system to execute the payment distribution rules.”

7. Claim 11: “wherein the respective client business system comprises additional devices which are connected to and accessible by the point of sale server.”

242. Claim 11 depends from claim 8, which Marshall discloses or renders obvious as discussed above. It is also my opinion, that Marshall, either alone or in combination with Webb, discloses or renders obvious claim 11.

243. Claim 11 is similar to claim 4 as shown below.

Claim 11	Claim 4
wherein the respective client business	wherein the respective client business

system comprises additional devices which are connected to and accessible by the point of sale server	system comprises additional devices which are connected to and accessible by the gratuity sync client application
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244. The main difference between claims 11 and 4 is that claim 11 requires that the additional devices are connected to and accessible by the “point of sale server” as opposed to the “gratuity sync client application” of claim 4.

245. Claim 3 of the '050 patent recites that “the gratuity sync client application is installed on the point of sale server of the respective client business system.” Given this claim language, a POSITA would understand “the point of sale server” of claim 11 and “the gratuity sync client application” of claim 4 to be equivalent. Therefore, claims 11 and 4 cover the same claim scope.

246. Accordingly, it is my opinion that Marshall, alone or in combination with Webb, discloses or renders obvious claim 11 for at least the same reasons Marshall, either alone or in combination with Webb, discloses or renders obvious claim 4.

8. Claim 12: “wherein at least one of the additional devices comprises a time and attendance server.”

247. Claim 12 depends from claim 11, which Marshall, either alone or in combination with Webb, discloses or renders obvious as discussed above. The additional limitation of claim 12 is identical to the limitation of claim 5, which Marshall, alone or in combination with Webb, discloses or renders obvious.

248. Accordingly, Marshall, either alone or in combination with Webb, discloses or renders obvious claim 12 for at least the same reasons Marshall, either alone or in combination with Webb, discloses or renders obvious claim 5.

9. Claim 13: “wherein the employee information extracted from the respective client business system comprises employees’ working hours.”

249. Claim 13 depends from claim 12, which Marshall, either alone or in combination with Webb, discloses or renders obvious as discussed above. It is also my opinion, that Marshall, alone or in combination with Webb, also discloses or renders obvious claim 13 because claim 13 is **identical** to claim 6, which Marshall, either alone or in combination with Webb, discloses or renders obvious.

250. Accordingly, Marshall, alone or in combination with Webb, discloses or renders obvious claim 13 for at least the same reasons Marshall, either alone in combination with Webb, discloses or renders obvious claim 6.

D. Ground 3: Phillips in view of Marshall Discloses or Renders Obvious Claims 1–3, 8, 10

1. Motivation to Combine Phillips and Marshall

251. In my opinion, a POSITA would have been motivated to combine the teachings of Phillips and Marshall to produce a combined system.

252. First, both Phillips and Marshall are drawn to the same field of art, such as computerized systems for managing gratuities. For example, Phillips’ discloses

“[a]pparatus and methods ... to improve the administration of tip monitoring, collection, and distribution, and related reporting needs (such as for U.S. tax reporting). POS systems and employee prepaid debit cards can be used to make the distribution process ‘cash-less.’” (Ex. 1005, Abstract.) Meanwhile, Marshall discloses “systems and methods for recording, maintaining, and reporting tips and gratuities, optionally including details such as employee, task performed, and shift ..., interfaces to third-party systems such as POS systems, payroll systems, and the like ... [and] Web-based systems” (Ex. 1004, Abstract.)

253. Second, a POSITA would have looked into the detailed description of Marshall to further enhance the functionality of Phillips’ system by applying known techniques to known devices (methods, or products) ready for improvement to yield predictable results. For example, Marshall, like Phillips, discloses that client business systems, such as restaurants, may utilize **remote** systems for their tip allocation needs. Marshall, unlike Phillips, discloses additional details about (i) the **nature** of the connection between the client business system and the remote tip allocation system, (i) the **interface system** used for their communication, and (ii) **the file formats** that can be communicated.

254. With respect to the nature of the connection, Marshall discloses an embodiment where the gratuity allocation server resides remotely in a Web-based

architecture. (Ex. 1004, ¶¶ 102–103, 106, and 400.) A hybrid architecture, as disclosed by Marshall, with one or more servers in-restaurant and one or more remotely, would be a minor modification for the system disclosed by Phillips. This entails combining prior-art elements (local servers and remote servers) in a way that yields predictable results. Indeed, it is a simple substitution of one server for another, with the only difference being the geographic location. Allocation of computing tasks to servers and networks was an extremely well known technique by 2012, and the proper place to locate such servers, given constraints of restaurants, locations, management styles, cost, etc., would have been the mere application of a known technique to yield predictable results. There is a small, finite number of possible and predictable solutions (POS server, payroll server, time and attendance server, gratuity allocation functions, each to be located locally or remotely) and almost any architecture would have had a reasonable chance of success. The modifications would have been readily implementable with very high confidence of success.

255. For example, consider a chain restaurant with clearly defined tip allocation policies. Some functions of the restaurant, such as some sort of point of sale system, clearly need to be located at the restaurant—it is the place where the consumer wields a credit card, for example. A time and attendance server could be deployed locally as well to enable employees to log hours easily. However, a

POSITA would have been motivated to move some functions, such as tip or gratuity allocation, to a central server so that the allocation policies can be enforced consistently across all restaurants. The restaurant could also benefit from an economy of scale that a data center can provide by adopting a cloud-based implementation of this feature. (Ex. 1011, p. 25.) Already from 2009 it was well established that “[b]y providing services at the scale of a data center, it’s possible to provide operations, business continuity, and security more efficiently than can be done when providing these services a rack at a time. For this reason, the unit cost for cloud-based services is often lower than the cost if the services were provided directly by the organization itself.” (*Id.*) In other words, it was known that cloud computing allows centralized data security, easy access to information, and business continuity. For all of the reasons explained above, this migration to a central remote, web-based / cloud-based server would have been a routine activity for a POSITA in 2012.

256. With respect to the interface system, Marshall discloses that an interface system may be used to communicate critical information between the client business system and the remote tip/gratuity allocation system. (Ex. 1004, ¶ 127). This interface system can include “point-of-sale (“POS”) systems [as in Phillips], electronic cash register systems, timeclock programs, time and attendance systems,

payroll processing systems, and other similar systems as are known in the art.” (*Id.*, ¶ 69.) An exemplary interface system offered by Marshall is the Aloha POS system, which would be effortlessly implemented to Phillips’ POS system 20 (*see, e.g.*, Ex. 1005, ¶ 33) to yield predictable results. A POSITA would have also recognized that such combination would have been a mere substitution of one known element (i.e., the POS system 20) for another (i.e., the Aloha POS) to obtain predictable results (i.e., a proper communication path between two systems remote to each other).

257. With respect to the file formats, Marshall discloses that the interface system (e.g., the Aloha POS system) can collect and store transaction and employee information in a digital file format. (Ex. 1004, ¶ 108.) Although Phillips does not expressly state that the collected information by its POS system 20 is transmitted to its remote processor 10 in the form of one or more digital files (*see, e.g.*, Ex. 1005, ¶ 34), a POSITA would have understood this to be so based on Marshall’s disclosure. Indeed, Marshall informs a POSITA that, for example, the Aloha POS system is capable of storing the information in different types of formats, including XML format. (Ex. 1004, ¶ 110.) Accordingly, a POSITA would have been inclined to substitute Phillips’ POS system 20 with, for example, Marshall’s Aloha POS system to ensure that Phillips’ system not only can collect the necessary information, but also store the collected information in any desirable file format. This again will

constitute a simple substitution of one known element for another to obtain predictable results. Further, such substitution would improve the functionality of Phillips' system.

258. It is clear from the above that the modifications to the system of Phillips to implement the selected teachings of Marshall would be a straightforward matter with a high expectation of success, as explained above.

259. For at least these reasons, it is my opinion that a POSITA would be motivated to combine Phillips with Marshall.

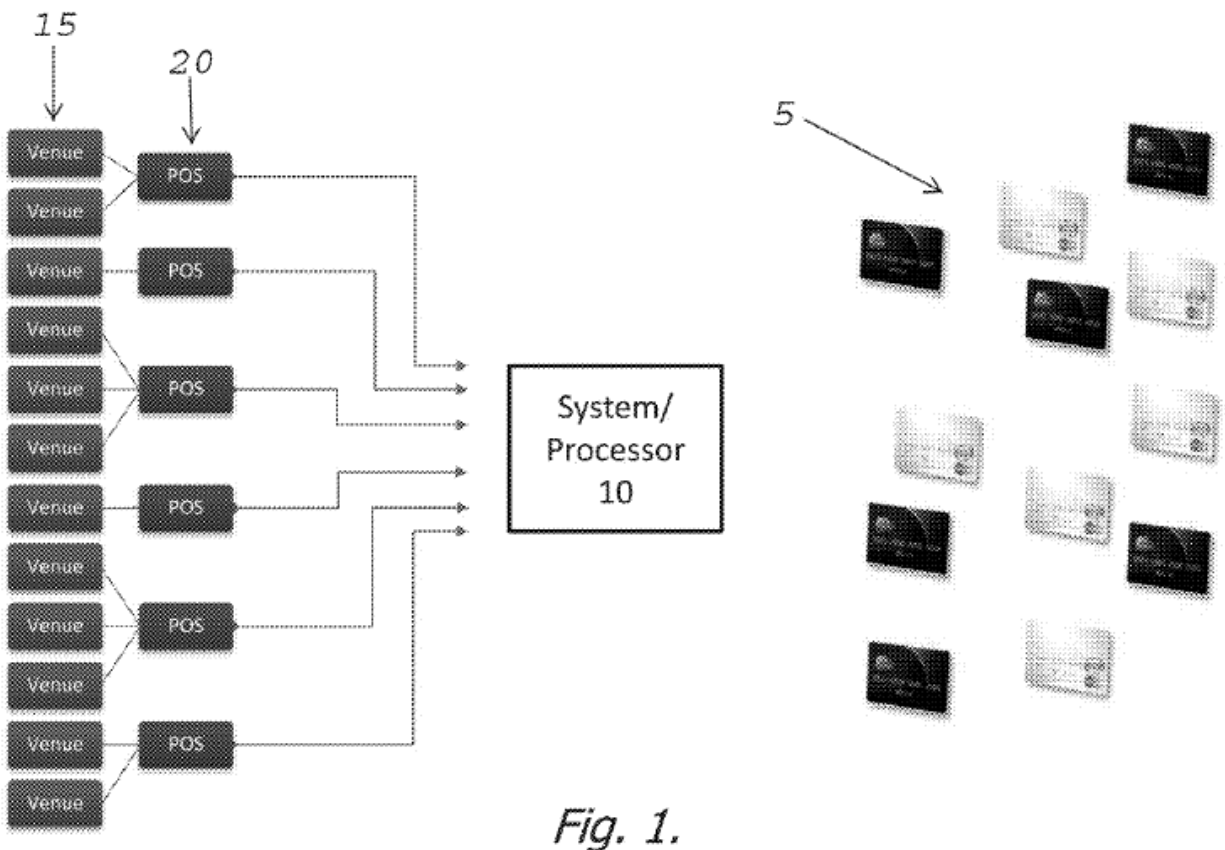
2. Independent Claim 1

260. It is my opinion that Phillips in view of Marshall discloses or renders obvious each and every limitation of independent claim 1 for the reasons set forth below.

a. Element 1[pre]: "A system, comprising:"

261. To the extent the preamble of claim 1 is limiting, it is disclosed or rendered obvious by Phillips in view of Marshall.

262. For example, Phillips discloses the system shown below in Figure 1:



(Ex. 1005, Fig. 1.) As Phillips explains, “FIG. 1 illustrates a basic structure/system, with one or more venues 15 (restaurants/other businesses) shown on the left, each using multiple POS systems 20.” (*Id.*, ¶ 33.)

263. As discussed above in Ground 1, Marshall also discloses a system.

b. Element 1[a]: “a gratuity management system, comprising:”

264. It is my opinion that Phillips in view of Marshall further discloses or renders obvious element 1[a].

265. Phillips discloses a gratuity management system. For example, Phillips is titled “**Gratuity Processing System Apparatus and Related Methods.**” (Ex.

1005, face page.) And the Abstract states: “Apparatus and methods are disclosed to improve the administration of tip monitoring, collection, and distribution, and related reporting needs (such as for U.S. tax reporting).” (*Id.*, Abstract.)

266. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious a gratuity management system.

- c. **Element 1[a.1]: “a server coupled to a computer network and accessible by a plurality of clients, the server being configurable to independently execute gratuity distribution rules on a client-by-client basis; and”**

267. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 1[a.1].

268. Phillips discloses or renders obvious “a server coupled to a computer network and accessible by a plurality of clients.” For example, in Figures 1, 2a, and 2b of Phillips, there is disclosed a central processing system 10, which a POSITA would understand to be a computer “server.” As can be seen in the referenced figures, the server 10 is connected to multiple venues 15 (or restaurants). As I explained in Ground 1, a POSITA would have understood each such restaurant to be a “client” in the context of the ’050 patent. (Ex. 1001, 5:15–19.) Phillips further explains that information may be uploaded to the server 10 from each of the POS systems 20 connected to the venues 15: “As illustrated in FIG. 2a, at the end of the work shift (or at any other convenient or useful interval), the tip totals 25 or other

information/data are **uploaded from the POS system(s) 20 to a central processing system 10.**” (Ex. 1005, ¶ 34.) A POSITA would understand that uploading information from the POS systems to the central processing system 10 requires that all of the devices be coupled to a computer network. Accordingly, Phillips discloses “a server coupled to a computer network and accessible by a plurality of clients.”

269. Phillips also discloses or renders obvious “the server being configurable to independently execute gratuity distribution rules on a client-by-client basis.” For instance, Phillips discloses that “tip-outs can ... be automatically calculated and distributed to other employees at this time **depending on location** or corporate level business rules set within the system.” (*Id.*) In other words, each restaurant or client in Phillips may have its own gratuity distribution rules that vary from rules used by other clients. (*Id.*; *see also id.*, ¶ 68 (“Next, the system of the invention preferably calculates the tips owed to each member of each team/group, based on the rules and data that have been input. Certain embodiments can include other steps in these processes, such as providing a step where the tip payments can be adjusted (based on manager or server preference or other factors).”).)

270. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious element 1[a.1].

d. **Element 1[a.2]: “a database, accessible by the server; and”**

271. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 1[a.2].

272. Phillips states, “As illustrated in FIG. 2a, at the end of the work shift (or at any other convenient or useful interval), the tip totals 25 or other information/data are uploaded from the POS system(s) 20 to a central processing system 10.” (Ex. 1005, ¶ 34.) In order for central processing system 10 (i.e., the “server”) to store uploaded data, a POSITA would have understood that the server 10 must have access to a database in which to store data. Phillips also discloses that “embodiments of the invention can provide extensive reporting and **data extraction functionalities**. In addition to allowing easy selection of criteria for data to be included in the report, embodiments can generate reports in separate windows, can **export the data into multiple formats**, etc., can distribute same via email or otherwise, and can have many other helpful functionalities.” (*Id.*, ¶ 44.) A POSITA would have known that databases allow for data extraction functionalities and for exporting of data.

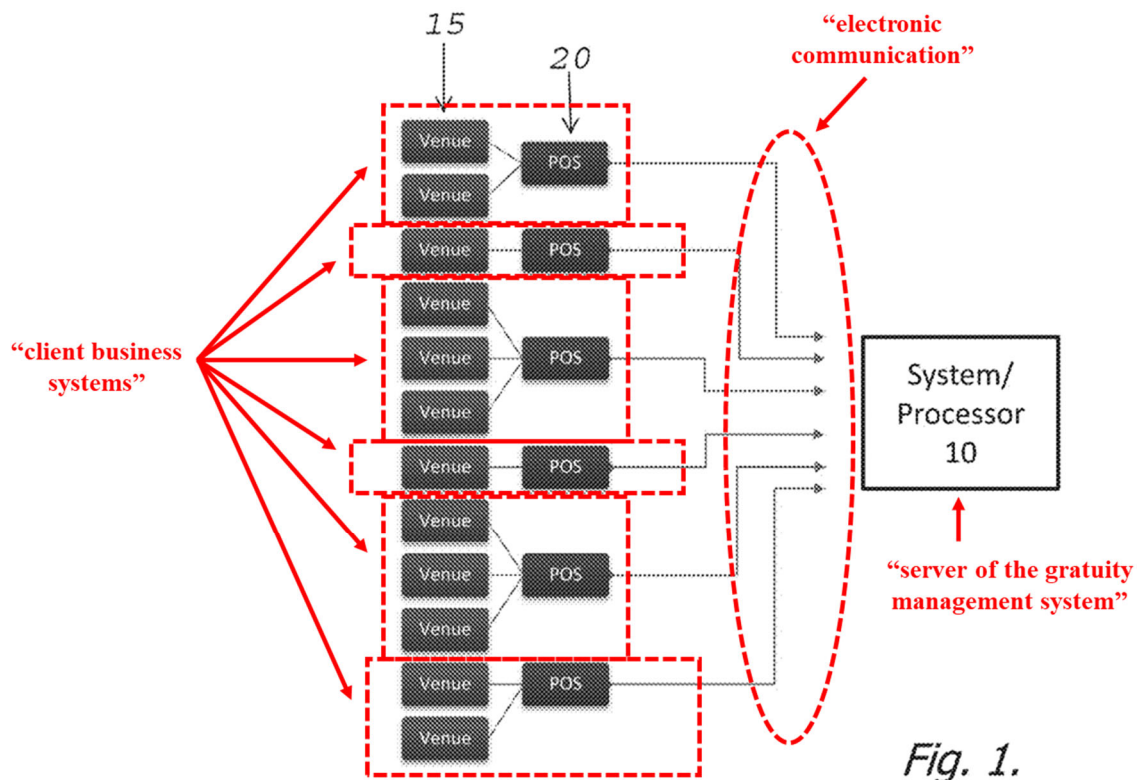
273. To the extent this limitation is found not to be disclosed by Phillips, using a database to store and extract information would have been obvious to a POSITA before September 2012, as databases had been used in computer systems for decades by that time.

274. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious “a database, accessible by the server .”

- e. **Element 1[b]: “a plurality of client business systems in electronic communication with the server of the gratuity management system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising:”**

275. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 1[b].

276. Phillips discloses “a plurality of client business systems in electronic communication with the server of the gratuity management system” in the form of multiple venues 15 being connected to a central processor 10 via POS systems 20. (See, e.g., Ex. 1005, Figs. 1, 2a, 2b.) A POSITA would have understood that each POS system 20 connected to one or more venues 15 forms a “client business system” “in electronic communication with the server of the gratuity management system,” as shown schematically in annotated Figure 1 below.



(Ex. 1005, Fig. 1 (annotations added).) As discussed above, in order for data to be transferred from the venues (and their respective POS systems 20) to the server 10, a network connection is required. A POSITA would have understood that a network connection is a form of “electronic communication.”

277. For the reasons discussed above in Ground 1, Marshall also discloses or renders obvious element 1[b].

f. Element 1[b.1]: “at least one point of sale server; and”

278. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 1[b.1].

279. Phillips discloses that a venue 15 may have its own POS system 20, or

multiple venues 15 may share a POS system 20 as shown in Figure 1 below.

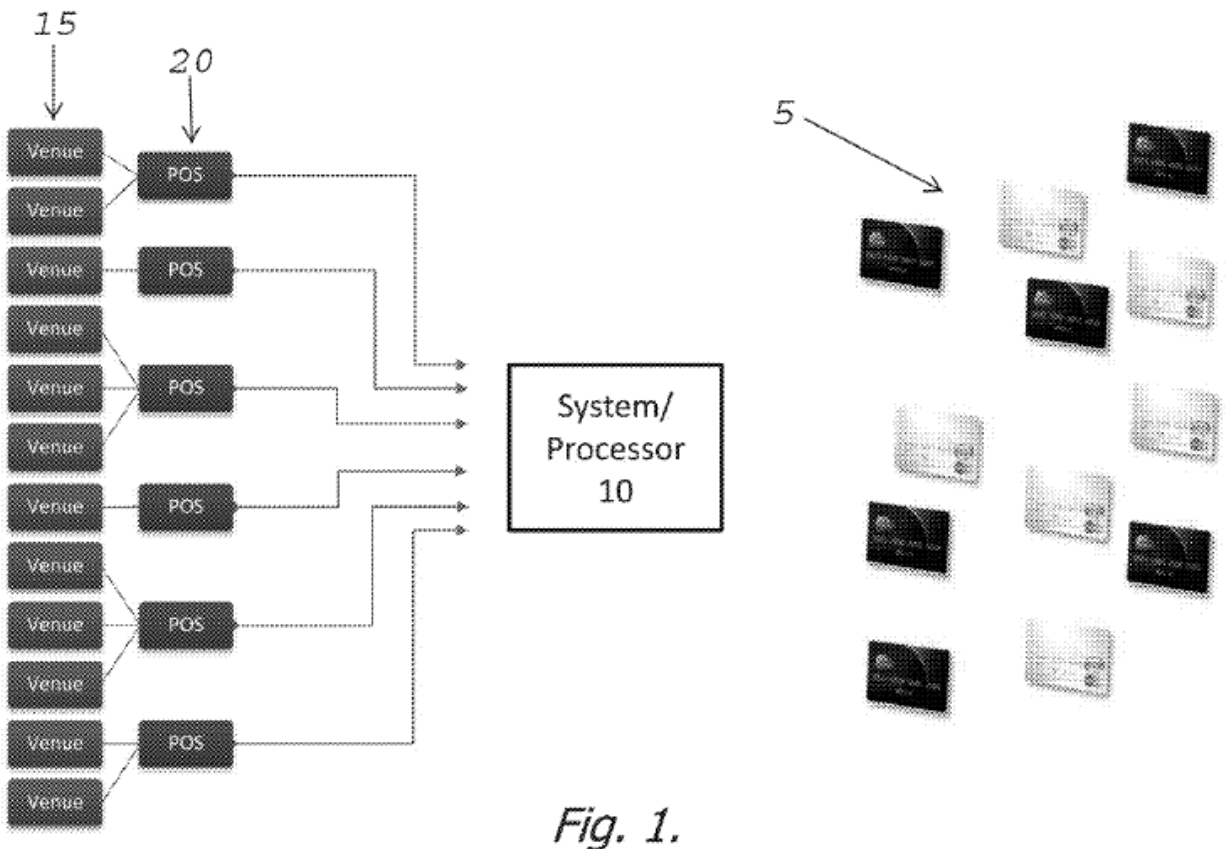


Fig. 1.

(Ex. 1005, Fig. 1.) Accordingly, a POSITA would have understood that the POS system 20, which is part of the client business system associated with one or more restaurants, **is or corresponds to** “at least one point of sale server.”

280. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious “each client business system comprising: at least one point of sale server.”

- g. **Element 1[b.2]: “a gratuity sync client application installed on the respective client business system;”**

281. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 1[b.2].

282. Phillips shows in Figure 1 that each client business system includes one or more venues 15 connected to a POS system 20. (Ex. 1005, Fig. 1.) Each POS system 20 collects information and communicates it to the central processor/system 10 (i.e., the “gratuity management system”). (*Id.*) In order for the POS system to perform its various functions, it has to contain software to perform those functions, which a POSITA would understand to be the “gratuity sync client application” installed at each client business system. And, as I discuss further below, the software of the POS systems 20 performs the functions recited in claim 1 as being performed by “gratuity sync client application.” (*See* ¶ 287, *infra.*)

283. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious “a gratuity sync client application installed on the respective client business system.”

- h. Element 1[c]: “wherein the gratuity sync client application on each client business system is configured to**
 - i. extract transaction information and employee information from the client business system and**
 - ii. to initiate transfer of the extracted information to the gratuity management system;”**

284. It is my opinion that Phillips in view of Marshall discloses or renders

obvious each and every limitation of element 1[c]—i.e., sub-elements 1[c](i) and 1[c](ii).

285. With respect to sub-element 1[c](i), Phillips discloses:

As illustrated in FIG. 2a, at the end of the work shift (or at any other convenient or useful interval), **the tip totals 25 or other information/data are uploaded from the POS system(s) 20 to a central processing system 10.** As shown in FIG. 2b, **upon receipt of that tip data 25, the central processor/system 10 preferably uses that information to either instantly “load” the appropriate tip amounts onto each relevant employee’s prepaid debit card 5 (or other similar prepaid/fundable/re-loadable card), or confirm or adjust tip amounts if necessary before being “loaded” onto the card 5.**

(Ex. 1005, ¶ 34.)

286. The tip totals 25 constitute “transaction information” (consistent with the POSITA’s understanding of the ’050 patent)⁷ that is extracted by the POS system in Phillips. A POSITA would have understood that the extraction of transaction information and the expressly disclosed uploading step (“the tip totals 25 or other information/data are uploaded from the POS system(s) 20 to a central processing

⁷ “Each **transaction information** associated with the sales records **may include** the type of transaction (e.g., cash or credit card), the amount of the transaction, and **the amount of a gratuity associated with the transaction.**” (Ex. 1001, 4:28–31.)

system 10”) must be performed by software on the POS system, i.e., the “gratuity sync client application.” Phillips expressly discloses the upload, and, to the extent it does not, a POSITA would have understood that some software would be necessary to carry out this upload. This software would function as the claimed “gratuity sync client application.”

287. The POS system 20 of Phillips must also extract and transmit employee information (such as in the form of a person’s name or a user ID number) in order for the system to know which employee receives how much tip. (*See, e.g.*, Ex. 1005, ¶¶ 57–60.) A POSITA would have also understood that the extraction of employee information must be performed by software on the POS system, i.e., the “gratuity sync client application.”

288. With respect to sub-element 1[c](ii), as noted above, Phillips discloses that “the tip totals 25 or other information/data **are uploaded from the POS system(s) 20 to a central processing system 10.**” (Ex. 1005, ¶ 34.) In other words the POS system **initiates** the transfer of information to the central processing system (the “gratuity management system”). Again, a POSITA would have understood that initiating transfer of data must be performed by software on the POS system, i.e., the “gratuity sync client application.”

289. To the extent that “the gratuity sync client application on each client

business system is configured to ... initiate transfer of the extracted information to the gratuity management system” is found to not be expressly disclosed by Phillips, it would have been obvious to do so. As I discussed above, a POSITA would have understood that there are two ways to effect the transfer of data over a network—for the server to request it or for the client to send it. Having the POS system initiate transfer would have been obvious to a POSITA.

290. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious element 1[c].

- i. **Element 1[d]: “wherein the gratuity management system is a cloud computing system remote from the plurality of client business systems and configured to**
 - i. **receive the extracted transaction information and employee information from the plurality of client business systems and**
 - ii. **to store the received extracted information in the database; and”**

291. It is my opinion that Phillips in view of Marshall discloses or renders obvious each and every limitation of element 1[d]—i.e., sub-elements 1[d](i) and 1[d](ii).

292. As discussed above, Phillips discloses that the central processor 10 (the “gratuity management system”) is remote from the venues 15 that are using various POS systems 20 (collectively the “plurality of client business systems”). (*See, e.g.,*

Ex. 1005, Figs. 1, 2a, 2b, ¶ 34.)

293. It would have been obvious to a POSITA to implement the remote gratuity management system disclosed in Phillips as a “cloud computing system” because the benefits of cloud-based systems were well known in the art before the September 2012 priority date of the ’050 patent. (Section IV.C *supra*, discussing the Agilysys product offering included subscription-based and SaaS-based restaurant management services in 2011–2012.)

294. In fact, as I noted above, Marshall discloses or renders obvious using a cloud-based gratuity management system years before September 2012, including through its discussion of HTTP, XML, and HTML, all of which were well known to support a cloud-based infrastructure. (Ex. 1004, ¶ 110.) During the prosecution of the ’050 patent, the Examiner recognized that cloud computing systems were well known when discussing the originally filed claims that were later canceled by the Applicant: “With respect to the processor comprising a ‘cloud computing system,’ **Marshall shows that it is well known for processing resources/processors/servers to be embodied as/include:** a single system, a multi system (co- located or distributed), **cloud computing system**, or a combination of the above” (Ex. 1008, p. 215.) A POSITA would have looked to the disclosure of Marshall (and to well known principles in the art) when considering whether and

how to modify Phillips, as they both directly address computerized systems for managing gratuities, and would have understood the benefits of using a cloud-based infrastructure.

295. As discussed for sub-element 1[c](ii) above, Phillips discloses that tips data and other information are uploaded from the POS systems (“client business systems”) to the central processor 10 (“gratuity management system”). (*See, e.g.*, Ex. 1005, ¶ 34.) Accordingly, Phillips discloses or renders obvious “receive the extracted transaction information and employee information from the plurality of client business systems.”

296. As discussed in element 1[a.2], Phillips discloses or renders obvious that the central processor 10 (“gratuity management system”) receives and stores data in a database. (*See, e.g.*, Section VI.D.2.d, *supra.*) And because central processor 10 of Phillips “receive[s] the extracted transaction information and employee information from the plurality of client business systems” (as discussed directly above), it follows that the extracted information is **stored** in the database(s) used by the central processor 10.

297. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious element 1[d].

298. Based on the above, Phillips in view of Marshall discloses or renders

obvious each and every limitation of element 1[d].

- j. Element 1[e]: “wherein the gratuity management system is further configured to**
 - i. execute, independently for each client, gratuity distribution rules for allocating gratuities among at least a portion of the employees and**
 - ii. to determine a gratuity allocation based on at least the received extracted transaction information, the received extracted employee information, and the gratuity distribution rules and**
 - iii. return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules.”**

299. It is my opinion that Phillips in view of Marshall discloses or renders obvious each and every limitation of element 1[e]—i.e., sub-elements 1[e](i), 1[e](ii), and 1[e](iii).

300. Regarding sub-element 1[e](i) (reciting “wherein the gratuity management system is further configured to execute, independently for each client, gratuity distribution rules for allocating gratuities among at least a portion of the employees”), Phillips discloses the central processor 10 is configured to “independently execute gratuity distribution rules on a client-by-client basis,” as discussed above in element 1[a.1].

301. Additionally, Phillips discloses that its gratuity management can be performed among groups of employees. For example, Phillips states: “If the restaurant or other business does its tip-sharing within groups within a shift (rather than among all of the employees who work a given shift), the invention preferably includes parameters to input and track sub-groups of the employees, sometimes referred to as ‘teams’ that share tips with other members of their team.” (Ex. 1005, ¶ 66.) Accordingly, Phillips discloses that its system is configured to “execute ... gratuity distribution rules for allocating gratuities among at least a portion of the employees.”

302. Phillips also discloses or renders obvious sub-element 1[e](ii), which recites “wherein the gratuity management system is further configured to ... determine a gratuity allocation based on at least the received extracted transaction information, the received extracted employee information, and the gratuity distribution rules.” As discussed above with respect to element 1[d], the central processor 10 of Phillips receives and stores the extracted transaction and employee information that is communicated from various POS systems 20 on client business systems. (See Section VI.D.2.i., *supra*.) Once the extracted information is received by the central processor 10, central processor 10 “independently execute[s] gratuity distribution rules on a client-by-client basis,” as discussed in element 1[a.1].

303. With respect to element 1[e](iii) which recites “return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules,” Phillips discloses in referring to Figure 3 that “the tip funds [30] can be further segregated and disbursed to each venue 15 (or each property or other metric), as illustrated by the separate location/property Tip Accounts 45 in FIG. 3.” (Ex. 1005, ¶ 35.) And because each venue communicates with processor 10 via the software loaded to its POS system 20 (i.e., the “gratuity sync client application”), as discussed in element 1[b.2], Phillips discloses or renders obvious element 1[e](iii).

304. Marshall also discloses or renders obvious element 1[e](iii) as discussed in Ground 1.

305. Therefore, Phillips in view of Marshall discloses or renders obvious “wherein the gratuity management system is further configured to ... return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules” as recited in sub-element 1[e](iii).

306. Based on the above, it is my opinion that Phillips in view of Marshall discloses or renders obvious each and every limitation of element 1[e].

3. Claim 2: “wherein the gratuity sync client is further configured to format the extracted transaction and employee

information into an XML file before communicating the extracted information to the gratuity management server.”

307. Claim 2 depends from claim 1, which Phillips in view of Marshall discloses or renders obvious as discussed above. It is my opinion that Phillips in view of Marshall also discloses or renders obvious claim 2.

308. As discussed above in element 1[c], Phillips discloses that “the tip totals 25 or other information/data are uploaded from the POS system(s) 20 to a central processing system 10.” (Ex. 1005, ¶ 34.) In other words, the operating software of Phillips’ POS system (e.g., “the gratuity sync client”) prepares and initiates the transfer of data to the central processing system 10. Although Phillips does not expressly state that the collected data are transmitted from the POS systems 20 in the form of one or more digital files, a POSITA would have understood this to be so, as this would have been the only way to transmit digital information between two computer devices—e.g., the POS systems 20 and the system/processor 10. A POSITA would have been further informed by Marshall, that the transmitted digital files could be stored in different formats, including an XML file format as discussed above for Ground 1.

309. Accordingly, a POSITA would have understood that Phillips in view of Marshall discloses or renders obvious claim 2.

4. Claim 3: “wherein the gratuity sync client application is installed on the point of sale server of the respective client business system.”

310. Claim 3 depends from claim 1, which Phillips in view of Marshall discloses or renders obvious as discussed above. It is my opinion that Phillips in combination with Marshall discloses or renders obvious claim 3.

311. As discussed in elements 1[b], each POS system 20 shown in Figure 1 of Phillips belongs to a respective client business system. In addition, each POS system 20 is or corresponds to the claimed “point of sale server” (*see* Section VI.D.2.f., *supra*) operated by a software (e.g., “the gratuity sync client”; *see* Section VI.D.2.g., *supra*), which a POSITA would have understood to be installed on the POS system 20 itself (i.e., on “the point of sale server”).

312. Separately, Marshall also discloses or renders obvious claim 3 as discussed in Ground 1.

313. Accordingly, a POSITA would have understood that Phillips in view of Marshall discloses or renders obvious “wherein the gratuity sync client application is installed on the point of sale server of the respective client business system.”

5. Independent Claim 8

314. It is my opinion that Phillips in view of Marshall discloses or renders obvious each and every limitation of independent claim 8 as discussed below.

a. Element 8[pre]: “A system for providing payment management services to a plurality of clients, comprising:”

315. To the extent the preamble of claim 8 is limiting, it is disclosed or rendered obvious by Phillips in view of Marshall.

316. As I discussed above in Ground 1, a POSITA would have understood that “payment management services” refer to services that allow an employer (e.g., a restaurant) to manage financial transactions relating to the services it provides to patrons, including, for example, managing payments to employees in the form of managing tip and/or gratuity allocation as part of the payroll. As discussed in connection to the preamble of claim 1, Phillips discloses such a system. And Phillips discloses that its system provides services to a plurality of clients, i.e., venues 15. (*See, e.g.*, Ex. 1005, Figs. 1, 2a, 2b.) Accordingly, Phillips discloses or renders obvious the preamble of claim 8.

317. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious a system for providing payment management services to a plurality of clients.

b. Element 8[a]: “a payment management computer system having a server and a database and being accessible by a plurality of clients, the server being configurable by each client of the plurality of clients via a web portal to execute payment distribution rules independently on a client-by-client basis; and”

318. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[a].

319. The limitations of claim 8[a] are substantially similar to those collectively recited in elements 1[a], 1[a.1], and 1[a.2], as shown in the table below.

Element 8[a]	Elements of claim 1
a payment management computer system having a server and a database and being accessible by a plurality of clients, the server being configurable by each client of the plurality of clients via a web portal to execute payment distribution rules independently on a client-by-client basis; and	1[a]: a gratuity management system, comprising: 1[a.1]: a server coupled to a computer network and accessible by a plurality of clients, the server being configurable to independently execute gratuity distribution rules on a client-by-client basis; and 1[a.2]: a database, accessible by the server

320. The main difference between elements 8[a] and 1[a] is that element 8[a] recites “**a payment management computer** system” while element 1[a] recites “**a gratuity management** system.” However, a POSITA would have understood that in the context of the ’050 patent, these two systems are similar, if not equivalent, in terms of functionality. Therefore, and for at least the same reasons Phillips in view of Marshall discloses or renders obvious elements 1[a], 1[a.1], and 1[a.2], Phillips

in view of Marshall also discloses the corresponding limitations of element 8[a] as identified above with red and blue text.

321. Phillips in view of Marshall also discloses or renders obvious the additional limitation “the server being configurable **by each client of the plurality of clients via a web portal.**” Phillips states:

The platform of the invention preferably allows employers to manage, issue, and fund tips onto an employee’s prepaid debit card 5 in real time. Embodiments of the invention preferably do one or more of the following: ...

Browser based software application/interface.

(Ex. 1005, ¶¶ 73, 77.)

322. A “browser based software application/interface” is the same as a “web portal” as would be understood by a POSITA. In the excerpt above, Phillips discloses that multiple restaurant owners (“clients”) can configure the system to manage their employees’ tips, among other things. Accordingly, Phillips discloses or renders obvious element 8[a].

323. For the reasons discussed in Ground 1, Marshall also discloses or renders obvious element 8[a].

- c. **Element 8[b]: “a plurality of client business systems in electronic communication with the payment management computer system, each of the client business systems**

corresponding to one of the plurality of clients, each client business system comprising:”

324. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[b].

325. Aside from the recitation of “the payment management computer system” (as opposed to “the server of the gratuity management system”), element 8[b] is identical to element 1[b] as shown below.

Element 8[b]	Element 1[b]
a plurality of client business systems in electronic communication with the payment management computer system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising	a plurality of client business systems in electronic communication with the server of the gratuity management system, each of the client business systems corresponding to one of the plurality of clients, each client business system comprising:

And because the “payment management computer system” of claim 8 is equivalent to the “server of the gratuity management system,” as discussed above, Phillips in view of Marshall discloses or renders obvious element 8[b] for at least the same reasons Phillips in view of Marshall discloses or renders obvious element 1[b].

d. Element 8[b.1]: “at least one point of sale server; and”

326. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[b.1].

327. Element 8[b.1] is identical to element 1[b.1]. Accordingly, Phillips in view of Marshall discloses or renders obvious element 8[b.1] for at least the same reasons Phillips in view of Marshall discloses or renders obvious element 1[b.1].

e. Element 8[b.2]: “an interface component installed on the respective client business system;”

328. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[b.2].

329. Element 8[b.2] is substantially similar to element 1[b.2] as shown in the table below.

Element 8[b.2]	Element 1[b.2]
an interface component installed on the respective client business system	a gratuity sync client application installed on the respective client business system

330. A POSITA would have understood that the “interface component” recited in element 8[b.2] corresponds to the “gratuity sync client application” of element 1[b.2] because the gratuity sync client application is merely an interface component that allows the client business system to interact with the payment management computer system. And because Phillips in view of Marshall discloses or renders obvious element 1[b.2], as discussed above, Phillips in view of Marshall also discloses or renders obvious element 8[b.2] for at least the same reasons.

f. Element 8[c]: “wherein the interface component on each client business system is configured to

- i. extract at least one of transaction information and employee information from the client business system and**
- ii. to initiate transfer of the extracted information to the payment management computer system;”**

331. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[c].

332. Element 8[c] is substantially similar to element 1[c], which Phillips in view of Marshall discloses or renders obvious as discussed above.

Element 8[c]	Element 1[c]
wherein the interface component on each client business system is configured to i. extract at least one of transaction information and employee information from the client business system and ii. to initiate transfer of the extracted information to the payment management computer system;	wherein the gratuity sync client application on each client business system is configured to i. extract transaction information and employee information from the client business system and ii. to initiate transfer of the extracted information to the gratuity management system;

And because the “interface component” recited in element 8[b.2] corresponds to the “gratuity sync client application” of element 1[b.2], Phillips in view of Marshall discloses or renders obvious element 8[c] for at least the same reasons Phillips in

view of Marshall discloses or renders obvious element 1[c].

- g. Element 8[d]: “wherein the payment management computer system is a cloud computing system remote from the plurality of client business systems and configured to**
 - i. receive the extracted information from the plurality of client business systems and**
 - ii. to store the received extracted information in the database; and”**

333. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[d].

334. Element 8[d] is substantially similar to element 1[d] as shown in the table below.

Element 8[d]	Element 1[d]
wherein the payment management computer system is a cloud computing system remote from the plurality of client business systems and configured to i. receive the extracted information from the plurality of client business systems and ii. to store the received extracted information in the database; and	wherein the gratuity management system is a cloud computing system remote from the plurality of client business systems and configured to i. receive the extracted transaction information and employee information from the plurality of client business systems and ii. to store the received extracted information in the database; and

And because “the payment management computer system” recited in element 8[d] is equivalent to, or corresponds to, “the gratuity management system” recited in

claim 1[d], the limitations of element 1[d] encompass the limitations of element 8[d].

335. Accordingly, it is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[d] for at least the same reasons Phillips in view of Marshall discloses or renders obvious element 1[d].

- h. Element 8[e]: “wherein the payment management system is further configured to**
 - i. execute, independently for each client, payment distribution rules based on at least the received extracted information and the independently configured payment distribution rules to generate payment information and**
 - ii. return the payment information to the interface component of respective client business systems, without requiring the respective client business systems to execute the payment distribution rules.”**

336. It is my opinion that Phillips in view of Marshall discloses or renders obvious element 8[e].

337. Element 8[e] is substantially similar to element 1[e], which Phillips in view of Marshall discloses or renders obvious as discussed above. The similarities between elements 8[e] and 1[e] are discussed below.

Element 8[e]	Element 1[e]
wherein the payment management system is further configured to	wherein the gratuity management system is further configured to
i. execute, independently for each client, payment distribution rules based on at least the received extracted information and the independently configured payment distribution rules to generate payment information and	i. execute, independently for each client, gratuity distribution rules for allocating gratuities among at least a portion of the employees and ii. to determine a gratuity allocation based on at least the received extracted transaction information, the received extracted employee information, and the gratuity distribution rules and
ii. return the payment information to the interface component of respective client business systems, without requiring the respective client business systems to execute the payment distribution rules.	iii. return the gratuity allocation to the gratuity sync client application of each respective client business system, without requiring the client business systems to execute the gratuity distribution rules.

As discussed earlier, “the payment management system” recited in claim 8 is equivalent to, or corresponds to, the “gratuity management system” recited in claim 1, as would be understood by a POSITA. This is because the gratuity management system **is** a payment management system.

338. In the same context, a POSITA would have understood that the “payment distribution rules” and the “payment information” recited in sub-element

8[e](i) are also equivalent to, or correspond to, respective “gratuity distribution rules” and “gratuity allocation” recited in element 1[e]. This is because the “payment distribution rules” can include “gratuity distribution rules,” and the “payment information” can include a “gratuity allocation.”

339. Based on the above, the payment management system of element 8[e] is configured to generate payment information (e.g., determine a gratuity allocation) by executing payment distribution rules (e.g., by executing gratuity distribution rules for allocating gratuities) based at least on (i) the received extracted information and (ii) the independently configured payment distribution rules (e.g., based on at least (i) the received extracted transaction information, the received extracted employee information (collectively, the extracted information), and (ii) the gratuity distribution rules). In other words, sub-element 8[e](i) is equivalent to or comparable to sub-elements 1[e](ii) and 1[e](iii). Put another way, elements 1[e](ii) and 1[e](iii) encompass sub-element 8[e](i). And because Phillips in view of Marshall discloses or renders obvious sub-elements 1[e](ii) and 1[e](iii), it follows that Phillips in view of Marshall also discloses or renders obvious sub-element 8[e](i) for at least the same reasons.

340. Lastly, and as discussed above in connection to element 8[b.2], “the interface component” in sub-element 8[e](ii) is equivalent to, or corresponds to, “the

gratuity sync client application” in sub-element 1[e](iii). Accordingly, sub-element 1[e](iii) encompasses sub-element 8[e](ii). And because Phillips in view of Marshall discloses or renders obvious sub-element 1[e](iii) as discussed above, Phillips in view of Marshall also discloses or renders obvious sub-element 8[e](ii).

341. Thus, Phillips in view of Marshall discloses or renders obvious element 8[e] for at least the same reasons Phillips in view of Marshall discloses or renders obvious element 1[e].

342. For at least the reasons set forth above, Phillips in view of Marshall discloses or renders obvious each and every limitation of claim 8.

6. Claim 10: “wherein the payment distribution rules comprise gratuity allocation rules.”

343. Claim 10 depends from claim 8, which Phillips in view of Marshall discloses or renders obvious as discussed above. It is also my opinion, that Phillips in view of Marshall also discloses or renders obvious claim 10.

344. As discussed above for sub-element 8[e](i), which Phillips in view of Marshall discloses or renders obvious, a POSITA would have understood that the “payment distribution rules” recited in claim 8[e] can include “gratuity distribution rules” recited in element 1[e], which **are equivalent to** “gratuity allocation rules.”

345. Accordingly, Phillips in view of Marshall discloses or renders obvious “wherein the payment distribution rules comprise gratuity allocation rules.”

E. Ground 4: Phillips in view of Marshall and Webb Discloses or Renders Obvious Claims 4–7, 9, 11–13

1. Motivation to Combine Phillips, Marshall, and Webb

346. In my opinion, a POSITA would have been motivated to combine the teachings of Phillips, Marshall, and Webb to produce a combined system.

347. First, Phillips, Marshall, and Webb are all drawn to computerized systems for managing gratuities. For example, Phillips discloses “[a]pparatus and methods ... to improve the administration of tip monitoring, collection, and distribution, and related reporting needs (such as for U.S. tax reporting). POS systems and employee prepaid debit cards can be used to make the distribution process ‘cash-less.’” (Ex. 1005, Abstract). Marshall discloses “systems and methods for recording, maintaining, and reporting tips and gratuities, optionally including details such as employee, task performed, and shift ..., interfaces to third-party systems such as POS systems, payroll systems, and the like ... [and] Web-based systems” (Ex. 1004, Abstract.) And Webb discloses a computerized time clock system where “[t]he computerized time clock system includes a personal computer via which employee, job and schedule records may be assembled and maintained. A computerized time clock communicates with the personal computer and received employee and scheduling data therefrom, in order to validate and record time-in and timeout transactions executed by employees.” (Ex. 1006,

Abstract.)

348. Importantly, Marshall expressly discloses interfaces between a remote gratuity allocation system and a local POS system and a local time and attendance system. (Ex. 1004, at ¶¶ 108 and 69, respectively). Phillips expressly discloses a nearly identical set of features with venues connected to POS systems, which in turn communicate information collected from the venues to a system/processor. (Ex. 1005, Figs. 1, 2a, 2b.) Meanwhile Webb discloses a nearly identical set of features, including a personal computer terminal acting as a time and attendance server connected directly to (e.g., interfaced with) cash registers (an early POS system). (Ex. 1006, 24:51–60.)

349. Based on the similarities of these systems, a POSITA would have considered the modifications to the system of Phillips—e.g., by implementing selective teachings from Marshall and Webb—to be a straightforward matter. For example, Phillips discloses individual restaurants with POS servers, whereas Marshall discloses restaurants with both POS servers and additional systems, such as time and attendance systems. Webb further discloses that the local POS system can interface with co-located time and attendance systems, and that payroll functions can be mapped to the time and attendance system. That is, Marshall in combination with Webb **supply important details** about the internal information technology (IT)

structure of a local restaurant, significantly enhancing it by adding time and attendance and payroll functions.

350. This combination entails combining prior-art elements (local servers and remote servers, internal systems, etc.) in a way that yields predictable results. Indeed, it is a simple substitution of one server for another, with the only difference being the geographic location. Allocation of computing tasks to servers and networks was an extremely well known technique by 2012, and the proper place to locate such servers, given constraints of restaurants, locations, management styles, cost, etc., would have been the mere application of a known technique to yield predictable results. There were a small, finite number of possible and predictable solutions (POS server, payroll server, time and attendance server, gratuity allocation functions, each to be located locally or remotely) and almost any architecture would have had a reasonable chance of success. The modifications would have been readily implementable with very high confidence of success.

351. For example, consider a chain restaurant with clearly defined tip allocation policies. Some functions of the restaurant, such as some sort of point of sale system, clearly need to be located at the restaurant—it is the place where the consumer wields a credit card, for example. A time and attendance server could be deployed locally as well to enable employees to log hours easily. However, a

POSITA would have been motivated to move some functions, such as tip allocation, to a central server so that the allocation policies can be enforced consistently across all restaurants. The restaurant could also benefit from an economy of scale that a data center can provide by adopting a cloud-based implementation of this feature. (Ex. 1011, p. 25.) Already from 2009 it was well established that “[b]y providing services at the scale of a data center, it’s possible to provide operations, business continuity, and security more efficiently than can be done when providing these services a rack at a time. For this reason, the unit cost for cloud-based services is often lower than the cost if the services were provided directly by the organization itself.” (*Id.*) In other words, it was known that cloud computing allows centralized data security, easy access to information, and business continuity. For all of the reasons explained above, this migration to a central server would have been a routine activity for a POSITA in 2012.

352. Additionally, a POSITA would be motivated to combine Phillips with Marshall and Webb for the reasons discussed individually in sections C.1 and D.1 of Grounds 2 and 3, respectively.

353. For at least these reasons, it is my opinion that POSITA would have been motivated to combine the teachings of Phillips, Marshall, and Webb to produce the system of the ’050 patent.

2. Claim 4: “wherein the respective client business system comprises additional devices which are connected to and accessible by the gratuity sync client application.”

354. Claim 4 depends from claim 1, which Phillips in view of Marshall discloses or renders obvious as discussed above. It is my opinion that Phillips in view of Marshall and Webb also discloses or renders obvious claim 4.

355. Phillips discloses that its client business systems include at least a POS system 20 connected to one or more venues 15 where each POS system 20 collects information and communicates it to the central processor/system 10 (i.e., the “gratuity management system”). (See Sections VI.D.2.e and VI.D.2.g, *supra*; see also, Ex. 1005, ¶ 34 and Figs. 1, 2a, 2b.) Marshall further informs a POSITA and discloses that a client business system can include **additional** devices (i.e., in addition to a POS system) interconnected with one another, as evidenced by Webb, while these additional devices accessible by its interface system (i.e., the “gratuity sync client application”). (See Section VI.C.2., *supra*.) Further, a POSITA would have known based on his/her own knowledge of the art that having **an interconnected** set of devices or systems (plural) to manage restaurants was well known and established in the restaurant business well before the filing of the ’050 patent. (See Sections VI.C.2. and VI.D., *supra*.)

356. Accordingly, it is my opinion that Phillips in view of Marshall and

Webb discloses or renders obvious “wherein the respective client business system comprises additional devices which are connected to and accessible by the gratuity sync client application.”

3. Claim 5: “wherein at least one of the additional devices comprises a time and attendance server.”

357. Claim 5 depends from claim 4, which Phillips in view of Marshall and Webb discloses or renders obvious as discussed above. It is my opinion that Phillips in view of Marshall and Webb also discloses or renders obvious the additional limitation of claim 5.

358. As discussed above in claim 4, Phillips discloses that its client business systems include at least one POS system 20. (*See* Section VI.E.2., *supra*.) A POSITA would have known from Marshall and Webb that it is common practice for client business systems in restaurant settings to include additional “devices” or systems for additional operational functionality and flexibility. Indeed, Marshall discloses that client business systems may include, in addition to one or more POS systems, “electronic cash register systems, timeclock programs, **time and attendance systems**, payroll processing systems, and other similar systems ... known in the art.” (*See* Section VI.C.3., *supra*; *see also* Ex. 1004 at ¶ 69.) Webb further implements a complete **time and attendance system** using a dedicated timeclock that interfaced to a dedicated personal computer. A POSITA would

readily grasp that Webb's personal computer is, in fact, **a time and attendance server**. (See Section VI.C.3., *supra*.) Therefore, a POSITA would have known based on Phillips, Marshall, and Webb that business systems are equipped with additional devices or systems (i.e., in addition to a POS system), including, but not limited to, a time and attendance server. (*Id.*)

359. Accordingly, Phillips in view of Marshall and Webb discloses or renders obvious "wherein at least one of the additional devices comprises a time and attendance server," as recited in claim 5.

4. Claim 6: "wherein the employee information extracted from the respective client business system comprises employees' working hours."

360. Claim 6 depends from claim 5, which Phillips in view of Marshall and Webb discloses or renders obvious as discussed above. It is my opinion that Phillips in view of Marshall and Webb also discloses or renders obvious claim 6.

361. As discussed in sub-element 1[e](iii) of Ground 3, Phillips discloses that its gratuity management can be performed among groups of employees. Phillips explains:

The invention preferably allows a similar approach for setting up "shifts" and/or "teams" of employees, which can be useful in tip-sharing calculations and otherwise. For example, in certain embodiments of the invention, the concept of a "shift" can reflect that

a given downstream employee or group of such employees may work with several servers throughout a given work day. In certain embodiments, creating a “shift” can involve inputting the following information:

Shift Name

Start date/time and End date/time of the shift

Identifying the employees that will be part of this shift (both servers and downstream employees).

(Ex. 1004, ¶¶ 62–65.) Thus, the employee information collected for the purposes of tip allocation between shifts or team of employees includes Start date/time and End date/time of the shift, which represents the “employees’ working hours.”

362. Similarly, Marshall and Webb also disclose or render obvious claim 6 as discussed in Ground 2. (*See* Section VI.C.4., *supra*.)

363. Accordingly, Phillips in view of Marshall and Webb discloses or renders obvious “wherein the employee information extracted from the respective client business system comprises employees’ working hours.”

5. Claim 7: “wherein at least one of the additional devices comprises a payroll system, and the gratuity sync client application communicates the returned gratuity allocations to the payroll system.”

364. Claim 7 depends from claim 4, which Phillips in view of Marshall and Webb discloses or renders obvious as discussed above. It is my opinion that Phillips

in view of Marshall and Webb also discloses or renders obvious claim 7.

365. As discussed in claim 5 above, although Phillips' client business system is limited to one or more POS systems, a POSITA would have known from Marshall and Webb that it is common practice for client business systems in restaurant settings to include additional "devices" or systems for additional operational functionality and flexibility.

366. In my analysis of claim 7 in Ground 2, I talked about Marshall disclosing a time and attendance system in its client and business system that corresponds to the '050 patent's "payroll system" because it is the time and attendance software responsible for paying each employee for the hours worked as well as the tips and gratuities received that the employee and/or employer designate to be paid as wages. (*See* Section VI.C.5., *supra*.) In addition, I discussed how Marshall's GrataSoft system transmits the payroll data **back** to the client business system to the time and attendance system **via** its interface system (i.e., "the gratuity sync client application"). (*Id.*) Like Marshall, Webb expressly discloses that its time and attendance server (its personal computer) handles both hour-tracking and **payroll functions**; and that it would have been clear to a POSITA that an actual payroll calculation could be performed at that point, inasmuch as all of the information is present to calculate wages, as contemplated by Marshall. (*Id.*) In

other words, a POSITA would have been well informed at the time of the filing of the '050 patent that functions, such as payroll management, were routinely carried out in the art of the era by time and attendance systems (i.e., “a payroll system”), such as the one disclosed in Webb and Marshall.

367. Thus, based on the above, a POSITA would have known, based on the disclosure from Phillips, Marshall, and Webb, that business systems are equipped with additional devices or systems (i.e., in addition to a POS system) such as a system tasked to distribute wages to employees (e.g., “a payroll system”), and further that the gratuity sync client of the client business system would communicate the returned gratuity allocations from a remote gratuity management system to the payroll system.

368. Accordingly, Phillips in view of Marshall and Webb discloses or renders obvious “wherein at least one of the additional devices comprises a payroll system, and the gratuity sync client application communicates the returned gratuity allocations to the payroll system.”

6. **Claim 9: “wherein the respective client business system comprises a payroll system in communication with the interface component, such that the payroll system prepares payrolls without requiring the client business system to execute the payment distribution rules.”**

369. Claim 9 depends from claim 8, which Phillips in view of Marshall

discloses or renders obvious as discussed above. It is my opinion, that Phillips in view of Marshall and Webb discloses or renders obvious claim 9 for the following reasons.

370. As discussed above in connection to claim 7, a POSITA would have known, based on the combined disclosures from Phillips, Marshall, and Webb, that business systems are equipped with additional devices or systems (i.e., in addition to a POS system) such as “a payroll system,” and further that the gratuity sync client (in this instance “the interface component”⁸) of the client business system would communicate the returned gratuity allocations (in this instance “the payment information”⁹) from a remote gratuity management system (in this instance “the payment management computer system”¹⁰) to the payroll system. Therefore, Phillips in view of Marshall and Webb discloses or renders obvious “wherein the respective client business system comprises a payroll system in communication with the interface component.”

371. Additionally, and as summarized in claim 7 above and discussed in more detail in Ground 2, Marshall’s GrataSoft system (e.g., “the payment

⁸ See Section VI.2.D.g., *supra*.

⁹ See Section VI.2.D.j, *supra*.

¹⁰ See Section VI.2.D.b, *supra*.

management system” of claim 8) interfaces with the **time and attendance system** “to transmit payroll data, as well as data regarding tips and/or gratuities to be paid as wages, to the time and attendance system.” (Ex. 1004, ¶ 347.) In other words, the **preparation** of the payroll data is performed **exclusively** by the GrataSoft system, which **is remote** to the client business system and the time and attendance system. Additionally, it is the GrataSoft system that prepares the payroll data (e.g., “the payment information” of claim 8) **based** on “the payment distribution rules,” and **not** the business client system, as discussed in element 8[e]. (See Section VI.C.6., *supra*.)

372. And because it is the time and attendance system (e.g., “the payroll system”) that “pay[s] each employee for the hours worked as well as the tips and gratuities received that the employee and/or employer designate to be paid as wages” (Ex. 1004, ¶ 347; *see also* Section VI.C.5., *supra*), it is the time and attendance system that “prepares payrolls without requiring the client business system to execute the payment distribution rules.”

373. Accordingly, Phillips in view of Marshall and Webb discloses “wherein the respective client business system comprises a payroll system in communication with the interface component, such that the payroll system prepares payrolls without requiring the client business system to execute the payment distribution rules.”

7. Claim 11: “wherein the respective client business system comprises additional devices which are connected to and accessible by the point of sale server.”

374. Claim 11 depends from claim 8, which Phillips in view of Marshall discloses or renders obvious as discussed above. It is my opinion, that Phillips in view of Marshall and Webb discloses or renders obvious claim 11.

375. Claim 11 is similar to claim 4 as shown below.

Claim 11	Claim 4
wherein the respective client business system comprises additional devices which are connected to and accessible by the point of sale server	wherein the respective client business system comprises additional devices which are connected to and accessible by the gratuity sync client application

376. The main difference between claims 11 and 4 is that claim 11 requires that the additional devices are connected to and accessible by the “point of sale server” as opposed to the “gratuity sync client application” of claim 4.

377. Claim 3 recites that “the gratuity sync client application is installed on the point of sale server of the respective client business system.” Given this claim language, a POSITA would have understood that the “point of sale server” of claim 11 and the “gratuity sync client application” of claim 4 to be equivalent. Therefore, claims 11 and 4 cover the same claim scope.

378. Accordingly, it is my opinion that Phillips in view of Marshall and Webb discloses or renders obvious claim 11 for at least the same reasons Phillips in

view of Marshall and Webb discloses or renders obvious claim 4.

8. Claim 12: “wherein at least one of the additional devices comprises a time and attendance server.”

379. Claim 12 depends from claim 11, which Phillips in view of Marshall and Webb discloses or renders obvious, as discussed above. The additional limitation of claim 12 is identical to the limitation of claim 5, which Phillips in view of Marshall and Webb discloses or renders obvious.

380. Accordingly, Phillips in view of Marshall and Webb discloses or renders obvious claim 12 for at least the same reasons Phillips in view of Marshall and Webb discloses or renders obvious claim 5.

9. Claim 13: “wherein the employee information extracted from the respective client business system comprises employees’ working hours.”

381. Claim 13 depends from claim 12, which Phillips in view of Marshall and Webb discloses or renders obvious, as discussed above. The additional limitation of claim 13 is identical to the limitation of claim 6, which Phillips in view of Marshall and Webb discloses or renders obvious.

382. Accordingly, Phillips in view of Marshall and Webb discloses or renders obvious claim 13 for at least the same reasons Phillips in view of Marshall and Webb discloses or renders obvious claim 6.

VII. NO SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

383. I am unaware of any secondary considerations that may support the patentability of any claims of the '050 patent. I expressly reserve the right to respond to any allegations of secondary considerations that may be asserted by Patent Owner in this proceeding.

VIII. CONCLUSION

384. In my opinion, based on my review of the '050 patent, the materials referenced herein, and my knowledge of what a person of ordinary skill in the art would have known at and before the '050 patent's priority date about the technology at issue, a POSITA would have understood all of the limitations of challenged claims 1–13 to be disclosed or rendered obvious by the prior art for the reasons described above.

385. Accordingly, it is my opinion that challenged claims 1–13 should be found unpatentable.

386. Furthermore, I reserve the right to supplement my opinions in the future to respond to any arguments or positions that the Patent Owner may raise, taking account of new information as it becomes available to me.

387. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be

Declaration of Samuel H. Russ, Ph.D. in Support of
Petition for *Inter Partes* Review of
U.S. Patent No. 9,741,050

true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on September 18, 2023 at Mobile, Alabama.



Dr. Samuel H. Russ