UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STARBUCKS CORPORATION
Petitioner

v.

AMERANTH, INC.
Patent Owner

CASE: CBM2015-00091
Patent No. 6,384,850 B1

CASE: CBM2015-00099
Patent No. No. 6,871,325

**DECLARATION OF ABDELSALAM HELAL, PH.D.
IN SUPPORT OF PETITIONER REPLIES TO PATENT OWNER RESPONSES**

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I. INTRODUCTION

1. My name is Abdelsalam Helal. I am a Professor in the Computer and Information Science and Engineering Department at the University of Florida (1998 – present) and was a Finland Distinguished Professor at Aalto University, Finland (2011 – 2013).

2. I have been engaged by Starbucks Corp. ("Starbucks") to investigate and opine on certain issues relating to U.S. Patent No. 6,384,850 (the "'850 patent") and U.S. Patent No. 6,871,325 (the "'325 patent"), both of which are being asserted against Petitioner Starbucks in a patent infringement lawsuit, *Ameranth, Inc. v. Starbucks Corp.*, No. 13CV1072 DMS (WVG), filed in the U.S. District Court, Southern District of California, on May 6, 2013.

3. I previously provided a declaration in support of Starbucks' Petition for CBM Review on the '850 patent which was filed on March 2, 2015 ("'850 Petition"). My 2015 declaration is Exhibit 1003 in the '850 case (CBM2015-00091). My 2015 declaration provides an explanation of my credentials and experience, a discussion of the technology relevant to the '850 patent, and my opinions with respect to the '850 patent.

4. I also previously provided a declaration in support of Starbucks' Petition for CBM Review of the '325 patent which was filed on March 6, 2015. My 2015 declaration is Exhibit 1003 in the '325 case (CBM2015-00099). My

2015 declaration provides an explanation of my credentials and experience, a discussion of the technology relevant to the ’325 patent, and my opinions with respect to the ’325 patent.

5. I make this declaration to address issues newly raised in the Corrected Patent Owner’s Response in both proceedings (Paper 17 in both the ’91 and ’99 proceedings) and the Declaration of Alfred C. Weaver, Ph.D. (Ex. 2041, “Weaver declaration”).

6. In several instances below, I refer back to my 2015 declarations. Because both declarations were Exhibits 1003 in their respective cases, I will refer to them instead as “Helal ’850 Decl.” and “Helal ’325 Decl.” here for clarity.

7. In several instances below, I refer to arguments made in the Corrected Patent Owner’s Responses. Many of the same arguments are made in both Patent Owner’s Responses for the ’850 and ’325 patents. For brevity, I cite the arguments made in the Corrected Patent Owner’s Response in the ’91 proceeding (on the ’850 patent) if the same argument is repeated in the Patent Owner response in the ’99 proceeding (on the ’325 patent).

8. This declaration is based on the information currently available to me, including the ’850 and ’325 patents, their prosecution histories, and the documents in these CBM cases. Those documents include the prior art references and other exhibits discussed in my 2015 declarations and in this declaration, the Board’s

decisions instituting CBM review (Paper 9 in both the ’91 and ’99 proceedings), the Corrected Patent Owner’s Responses (Paper 17 in both proceedings), the Weaver declaration (Exhibit 2041 in both proceedings) and the exhibits referenced in the Corrected Patent Owner’s Responses and Weaver declaration. I also rely upon my education, experience, and expertise in the relevant technologies and concepts. If additional information becomes available, I reserve the right to continue my investigation and study.

II. SUMMARY OF OPINIONS

9. For purposes of this declaration, I have been asked to provide facts, analysis, and opinions in response to specific arguments and evidence raised by the Patent Owner Response and the Weaver declaration.

A. Opinions Concerning the ’850 Patent

10. In my opinion, as I stated in my 2015 declaration, claims 12-16 of the ’850 patent (the “Challenged Claims”) are obvious in view of the prior art, including Brandt (Ex. 1005), NetHopper (Ex. 1006), Demers (Ex. 1009), and Alonso (Ex. 1012).

11. In particular, the identified prior art discloses or suggests the subject matter of the Challenged Claims of the ’850 patent as follows:

- Claims 12-16 are obvious based on Brandt in view of NetHopper (Helal '850 Decl., ¶¶ 139 - 242);[1]
- Claims 12-16 are obvious based on Brandt in view of Demers and Alonso (Helal '850 Decl., ¶¶ 243 - 265).[2]

I include in the above listing the reference to specific sections of my prior declaration addressing the prior art combinations.

12. In light of all the evidence submitted by the parties in this proceeding as of the date of this declaration, I continue to maintain my opinions discussed in my prior declaration and provide additional remarks and discussion below regarding arguments and evidence raised by the Corrected Patent Owner Response and the Weaver declaration concerning Challenged Claims 12-16 of the '850 patent.

B. Opinions Concerning the '325 Patent

13. In my opinion, as I stated in my 2015 declaration and continue to maintain in this declaration, claims 11-13 and 15 of the '325 patent (the

[1] This Brandt-NetHopper combination was identified as "Ground 9" in the Petition and in my 2015 declaration.

[2] This Brandt-Demers-Alonso combination was identified as "Ground 10" in the Petition and in my 2015 declaration.

"Challenged Claims") are obvious in view of the prior art, including Brandt, NetHopper, Demers, Carter (Ex. 1052), and Rossmann (Ex. 1053).

14. In particular, the identified prior art discloses or suggests the subject matter of the Challenged Claims of the '325 patent as follows:

- Claims 11-13 are obvious based on Brandt in view of NetHopper and Carter (Helal '325 Decl., ¶¶ 139-265);[3]
- Claim 15 is obvious based on Brandt in view of NetHopper, Carter, and Rossmann (Helal '325 Decl., ¶¶ 266-269);[4]
- Claims 11-13 are obvious based on Brandt in view of Demers, Alonso, and Carter (Helal '325 Decl., ¶¶ 270-301);[5]
- Claim 15 is obvious based on Brandt in view of Demers, Alonso, Carter, and Rossmann (Helal '325 Decl., ¶¶ 302-303).[6]

[3] This Brandt-NetHopper-Carter combination was identified as Ground 9 in the Petition and in my 2015 declaration.

[4] This Brandt-NetHopper-Carter-Rossmann combination was identified as Ground 10 in the Petition and in my 2015 declaration.

[5] This Brandt-Demers-Alonso-Carter combination was identified as Ground 11 in the Petition and in my 2015 declaration.

[6] This Brandt-Demers-Alonso-Carter-Rossmann combination was identified as Ground 12 in the Petition and in my 2015 declaration.

I include in the above listing the reference to specific sections of my prior declaration addressing the prior art combinations.

15. In light of all the evidence submitted by the parties in this proceeding as of the date of this declaration, I continue to maintain my opinions discussed in my prior declaration and provide additional remarks and discussion below regarding arguments and evidence raised by the Corrected Patent Owner Response and the Weaver declaration concerning Challenged Claims 11-13 and 15 of the '325 patent.

III. LEVEL OF ORDINARY SKILL IN THE ART

16. As I discussed in my 2015 declarations (Helal '850 Decl., ¶¶ 78-81, Helal '325 Decl., ¶¶ 78-81), it is my opinion that a person having ordinary skill in the art would have had a Bachelor's degree in computer science, computer engineering, or electrical engineering and two years of experience developing web-based software or other software for client/server systems. This person would be familiar with relational databases, handheld computing systems, and basic wireless technologies. This description is approximate and additional programming experience could make up for less education and vice versa.

17. In contrast, Patent Owner and Dr. Weaver suggest that a person of ordinary skill in the art ("POSITA") would have had:

> a Bachelor's degree in either electrical engineering or computer science and ***at least three years of experience in the hospitality market*** in the fields of developing software for wireless networks and devices, developing Internet-based systems or applications, and knowledge or ***an equivalent experience in software development in the hospitality market of at least three years***.

'91 Paper 17 at 3; Ex. 2041, ¶ 21.

18. I disagree with Patent Owner's suggestion that a person of ordinary skill would have had three years of hospitality market-specific experience. Dr. Weaver does not explain why a POSITA would have such experience or what kind of people would have obtained years of hospitality industry-specific experience in 1999. See Ex. 2041, ¶ 21.

19. In 1999, when the '850 patent was filed, the software and systems used in the hospitality industry were not fundamentally different from the software and systems used in other industries and businesses. Take the Challenged Claims of the '850 patent, for example. The claims require a central database, a web server, a web page, and a handheld device. None of these components are unique to applications and systems in the hospitality industry.

20. As I discussed in my 2015 declarations (Helal '850 Decl., ¶¶ 75-77, Helal '850 Decl., ¶¶ 75-77), Kasavana's 1997 book, Managing Computers in the Hospitality Industry, discusses network-based applications, client/server system

configurations, and the use of the Internet and intranets in the hospitality industry. Ex 1033 at 285 - 288.

21. Patent Owner's suggestion that a POSITA would need years of hospitality industry-specific experience is at odds with the specification of the '850 patent. The specification states, for example, that the "present invention uses ***typical hardware elements***," including a "***typical file server platform***" with a Windows-based operating system, "e.g., Windows(R) 95, 98, NT, or CE, networking software (including Web server software) and database software." Ex. 1001 at 5:33-55.

22. The specification of the '850 patent also states that all the software needed to practice the invention is "commonly known":

> The software applications for performing the functions falling within the described invention can be written in any commonly used computer language. The discrete ***programming steps are commonly known*** and thus programming details are not necessary to a full description of the invention.

Ex. 1001 at 11:43-48.

23. Patent Owner has also submitted evidence that the Dallas Improv Comedy Club implementation of its 21st Century Restaurant system ("21CR") was "built using 100 percent Microsoft products." Ex. 2062 at 117.

24. Neither Patent Owner nor Dr. Weaver identifies any evidence or explanation why a POSITA under the standard I endorsed above and in my prior declaration would be unable to implement the claimed system.

IV. CLAIM CONSTRUCTION

25. I understand that claim terms in this proceeding are given the "broadest reasonable construction in light of the specification of the patent in which it appears." Helal '325 Decl., ¶ 39; Helal '325 Decl., ¶ 39.

A. "Hospitality Applications"

26. The Board has at least preliminarily found that the broadest reasonable construction of "hospitality applications" is "applications used to perform services or tasks in the hospitality industry." '91 Paper 9 at 12. The Board also clarified that its construction "includes businesses, such as car rental agencies, that provide services to travelers." '91 Paper 9 at 12. In my opinion, the Board's construction of "hospitality applications" is consistent with the broadest reasonable interpretation of the phrase in view of the specification of the '850 patent.

27. I have also reviewed Dr. Khan's declaration (Ex. 1064) which addresses the narrower interpretation of "hospitality" advanced by Patent Owner. Dr. Khan's declaration and the cited additional evidence further supports the Board's construction of "hospitality applications" because he explains that, by

1999 when the ’850 patent’s application was filed, the hospitality industry was seen as broadly including businesses that cater to travelers. This evidence is consistent with the interpretation I applied in my prior declarations. Helal ’850 Decl., ¶ 155; Helal ’325 Decl., ¶ 160.

28. Based primarily on Dittmer’s glossary definition of “hospitality industry,” Patent Owner argues that hospitality applications must relate to providing food, beverages, or lodging. ’91 Paper 17 at 10. In my opinion, this definition is too narrow and cannot be the broadest reasonable interpretation. The specification of the ’850 and ’325 patents does not indicate that “hospitality applications” are limited to food, beverages, or lodging. In fact, the patent specifications do not even use the terms “lodging” or “hotels.”

29. The ’850 and ’325 patents identify examples of hospitality applications “e.g., reservations, frequent customer[,] ticketing, wait lists, etc.” Ex. 1001 at 4:5-8. The patents do not limit these applications to the restaurant context. Further, “frequent customer” appears to refer to loyalty programs which are widely used in both the retail industry and travel industry (e.g., frequent flyer programs) and are not strongly tied to the restaurant context. Similarly, “ticketing” is not a restaurant-related application and does not fall within the narrow definition from Dittmer that Patent Owner relies upon.

30. In summary, Patent Owner's proposed construction appears to be arbitrary and inconsistent with the specification and claims of the '850 and '325 patents.

B. Other Terms

31. Patent Owner and Dr. Weaver suggest that a large number of claim terms need to be construed. '91 Paper 17 at 2-15; '99 Paper 17 at 3-18; Ex. 2041, ¶¶ 26-51. I understand that claim terms do not require explicit construction where they have an ordinary meaning that is apparent to a POSITA. I also understand that claim terms do not need to be construed where construction is not necessary to resolve the disputes in the case.

1. Wireless Handheld Computing Device

32. In my opinion, no construction other than ordinary meaning is required for this phrase. The meaning of this phrase is clear and there is no dispute that the PDAs disclosed in Brandt, NetHopper, and Demers are wireless handheld computing devices.

2. Central Database

33. I disagree with Patent Owner's proposed construction of "central database." This term need not be construed because the prior art references in this proceeding expressly disclose "databases." The databases identified as the "central databases" in the proposed prior art combinations are network-side or server-side

databases and would be seen as "central" databases. Patent Owner's proposed construction is ambiguous because it requires a "database file structure connected to the system in association with a central server …." The proposed construction includes both of the original terms "database" and "central."

3. Web Page

34. While I do not see why "web page" needs to be construed given Brandt expressly discloses web pages, I do not take issue with the Board's construction, i.e., "a document with associated files for graphics, scripts, and other resources, accessible over the Internet and viewable in a web browser." '91 Paper 9 at 11.

4. Web Server

35. Construction of this term is not necessary because Brandt expressly discloses a "web server" and Patent Owner does not dispute this limitation.

5. Communications Control Module

36. In my opinion, no construction other than ordinary meaning is required for this phrase. The Challenged Claims expressly state that the CCM "is an interface between the hospitality applications and any other communications protocol." Patent Owner's proposed construction repeats that limitation and adds some ambiguity. For example, Patent Owner's construction requires the CCM to be a "layer that sits on top of any communication protocol." This added requirement appears to be taken from the specification. Ex. 1001 at 4:8-13. Patent

Owner's interpretation of "layer" is not clear (see, e.g., '91 Paper 17 at 46). Both the Board and Patent Owner have suggested that the CCM is a centralized / server-side module and the prior art discloses the claimed CCM under that interpretation.

6. Synchronized

37. Construction of this term is also not necessary, but under Patent Owner's proposed construction ("made, or configured to make, consistent"), there can be no dispute that the "synchronized" limitation is met.

7. Application Program Interface

38. Construction of this term is not necessary because Brandt expressly discloses APIs. See, e.g., Ex. 1005, ¶ 22.

8. Outside Applications

39. Construction of this term is also not necessary, but under Patent Owner's construction, there can be no dispute that the limitation is met because Brandt's APIs allow integration with third party applications. See, e.g., Ex. 1005, ¶ 22 ("Each application program will have APIs that allow ***third parties*** to access certain features, to interface the application program with other programs, and to provide access for end-users.").

9. Integration

40. Construction of this term is also not necessary, but under Patent Owner's construction, there can be no dispute that the limitation is met because

Brandt's expressly discloses APIs that allow other applications to "access" features and "interface" with the applications. Ex. 1005, ¶ 22.

10. Single Point of Entry for All Hospitality Applications

41. Construction of this term is also not necessary. There can be no dispute that Patent Owner's construction ("a center of communication for all hospitality applications") is satisfied by the prior art in this proceeding.

11. Automatic

42. Construction of this term is also not necessary. "Automatic" has a well-known meaning and there can be no dispute that the prior art discloses "automatic" communication of information as claimed. Some of Patent Owner's arguments suggest that "automatic" limits the claims to push-style systems. I disagree with that interpretation as discussed below in addressing claims 14 and 15 of the '850 patent.

12. Wherein the communications control module is an interface between the hospitality applications and any other communications protocol

43. This language also does not need to be construed. Patent Owner's proposed construction attempts to read into the claims several limitations from the specification which are clearly not present in the claims (e.g., concurrent use of different protocols, monitoring and routing communications between different devices).

13. Wherein the synchronized data relates to orders; … waitlists; and … reservations

44. These limitations from the Challenged Claims of the ‘’325 patent also need not be construed. The terms “orders,” “waitlists,” and “reservations” have well known meanings. Patent Owner’s attempt to limit these terms to food orders, restaurant waitlists, and restaurant / hotel / event ticketing reservations is not consistent with the broadest reasonable interpretation standard.

V. REBUTTALS TO ARGUMENTS RAISED BY PATENT OWNER / DR. WEAVER

45. I have reviewed the Corrected Patent Owner Responses and Dr. Weaver’s declaration. In the sections that follow, I provide my responses to and opinions about the points raised by Patent Owner and Dr. Weaver.

A. Common Limitations Between Challenged Claims of ’850 Patent & ’325 Patent

1. Hospitality Applications

46. Car rental applications are “hospitality applications” under the Board’s construction of that phrase which I see as consistent with the broadest reasonable interpretation as discussed above. Rental cars companies cater primarily to travelers and are therefore part of the “hospitality industry.”

47. Patent Owner appears to argue that the “hospitality industry” is limited to businesses that provide food, beverages, and lodging. ’91 Paper 17 at 5-11. Even if this narrower view was correct, it is my opinion that the Brandt prior

art would still render hospitality applications (e.g., reservations applications for hotel rooms) obvious.

48. Patent Owner does not dispute that car rentals are at least closely related to the "hospitality industry." In fact Patent Owner argues that the "hospitality industry" is part of the "travel and tourism" industry. '91 Paper 17 at 8-9. Therefore, Patent Owner concedes that Brandt discloses an application which is at least closely related to the hospitality industry.

49. Brandt makes clear that the car rental application is just an example used to illustrate how the system components work and interoperate. Ex. 1005, ¶¶ 40 ("While the steps shown in FIG. 5 have been described and illustrated as being independent and sequential, these various steps are not necessarily sequential and are preferably integrated within the same web transaction, ***as illustrated in the rental car example shown below***."); 76 ("***One example*** of using FlowMark to accomplish a specific task will be presented in detail below."); 78 ("***For example***, if a process model 440 and activity programs 432 implement a rental car work flow process, FlowMark database 438 would be used to store information relating to the rental car process, such as which cars are available, etc.").

50. Brandt explains that the disclosed system is flexible and not limited to any specific application:

> While the steps shown in FIG. 5 have been described and illustrated as being independent and sequential, these various steps are not necessarily sequential and are preferably integrated within the same web transaction, as illustrated in the rental car example shown below. ***The steps may be performed as needed and in any combination or order desired.*** Some software applications may require completion of all of the steps shown while other processes and requests may require only one or two of the steps for completion. ***The actual sequence of steps and the detailed requirements for each step will remain largely a design choice for a specific software application.***

Ex. 1005, ¶ 40.

51. The preferred embodiment in Brandt is built on a workflow management platform, IBM's FlowMark platform. Ex. 1005, ¶ 75. Consistent with Brandt's description, a person of ordinary skill in the art would understand that workflow management platforms can be used to model and automate all sorts of business processes. See Ex. 1005, ¶ 76 (discussing usefulness of FlowMark).

52. Brandt also notes that the invention is not limited to FlowMark:

> While this specific example uses FlowMark to describe the invention, ***the present invention is not limited to FlowMark***. Other software applications may be used in conjunction with the present invention and it is

> anticipated that additional software packages will be so used.

Ex. 1005, ¶ 75. See also Ex. 1005, Fig. 3 and ¶¶ 14-46 (discussing generic non-FlowMark implementation).

53. In addition, Brandt's example car rental reservations application performs steps which are typical for a reservations application. The car rental reservations application collects information from customers such as the preferred type of car, pick-up location, and reservation dates. Ex. 1005, ¶¶ 89-90. The application checks availability of cars to match the reservation request. Ex. 1005, ¶ 89, 102. Assuming an appropriate car is available, the application confirms the reservation to the user. Ex. 1005, ¶¶ 89, 106-107.

54. A person of ordinary skill in the art would recognize and appreciate that a reservations application for hotel rooms would work largely the same way. Instead of a type of car, the user may have the option to specify a King-sized bed or two Queen-sized beds. But aside from some minor differences, the software would have to gather information from the customer, check availability, and provide a confirmation. In fact, at least by 1998, there were web sites such as Expedia and Travelocity that allowed users to reserve both hotel rooms and rental cars. Ex. 1034 (Inkpen, Information Technology for Travel and Tourism) at 196 – 211.

55. A POSITA would also understand that the application building blocks disclosed in Brandt could easily be used to provide an online food ordering application. Customers would choose menu items just like the car rental customers can choose reservation options. See Ex. 1005, ¶¶ 89-90. The application would provide the customer with an order confirmation. See Ex. 1005, ¶ 106. The ordering application could create a work item for the kitchen staff at the restaurant like a reservation request generates a work item for a rental agent. See Ex. 1005, ¶¶ 102, 113.

56. In my opinion, there is nothing about the technical teachings of Brandt that limit their relevance to reservations applications, let alone a reservations application for a rental car. A person of ordinary skill in the art would understand that Brandt's invention could be used in a wide variety of applications including other hospitality applications.

2. Central Database Containing Hospitality Applications and Data

57. I addressed this limitation in my prior declarations. See Helal '850 Decl. at ¶¶ 151-156, 250; Helal '325 Decl. at ¶¶ 156-162, 279-280.

a. Brandt's Disclosures of a Central Database

58. Patent Owner argues that the "material in Brandt cited by the Petition against this element is merely a standard server serving web pages." '91 Paper 17 at 26. Patent Owner also suggests that Brandt only includes a "simplistic reference

to a 'database." '91 Paper 17 at 26. Dr. Weaver offers the same argument. Ex. 2041, ¶ 70.

59. Patent Owner and Dr. Weaver have ignored Brandt's detailed teachings of a central database which were discussed in the Petitions and in my prior declarations. '91 Paper 1 at 48-49; Helal '850 Decl., ¶¶ 151-156; '99 Paper 1 at 48-49; Helal '850 Decl., ¶¶ 156-161. As previously explained, Brandt discloses that applications, e.g., software application 342 in Fig. 3, have associated databases. See Ex. 1005, ¶¶ 26, 28, 65. The preferred FlowMark-based embodiment includes FlowMark database 438. Ex. 1005, ¶ 78 ("FlowMark database 438 is a general purpose database that may be used to store information relating to any process model.").

60. In the car rental example, the FlowMark database includes the key data for the hospitality application such as the availability of particular cars, the details of particular reservation requests, and user account information. Ex. 1005, ¶¶ 78, 101, 102.

61. Brandt also teaches that the FlowMark database 438 is used to facilitate execution of the application itself. For example, new reservation requests trigger the creation of a new "instance of the car rental reservation process model in FlowMark database 438." Ex. 1005, ¶ 99. The database also keeps track of

which activities are running, when they complete, and whether the next activity can be initiated. Ex. 1005, ¶¶ 99, 111.

62. As I noted previously (Helal '850 Decl., ¶ 156; Helal '850 Decl., ¶ 161), it was well known in the art that application databases often included executable code in the form of stored procedures, triggers, and constraints. See, e.g., Ex. 1020 at 8 (Francis, Professional Active Server Pages 2.0 [1998], discussing database stored procedures, triggers, and constraints); Ex. 1081 at at 32-33, 466-505 (Soukup, Inside Microsoft SQL Server 6.5 [1997]).

63. Dr. Weaver states that the Petition relies on "a standard web server serving web pages" to satisfy the central database limitation. Ex. 2041, ¶ 70. Dr. Weaver may be confusing FlowMark database 438 with the separate template library 719 which contains the HTML templates used to dynamically generate the application web pages. A POSITA might also view the template library 719 as a database because it is a centrally stored and organized set of templates used by the applications. Ex. 1005, ¶¶ 54 – 63. A POSITA would appreciate that the templates could even be stored in the same database with the application data. Relational database systems such as Microsoft SQL Server supported Blob (binary large object) data types for storing ASCII text and other types of binary data. See, e.g., Ex. 1081 at 202-203, 508-510 (Soukup, Inside Microsoft SQL Server 6.5

[1997]). Brandt states that the template library can be stored anywhere as long as it is accessible to the gateway. Ex. 1005, ¶ 54.

64. Patent Owner and Dr. Weaver appear to be interpreting "central" some unclear way that is not consistent with its ordinary meaning. See '91 Paper 17 at 26 (suggesting Brandt doesn't "satisfy[] the 'central' aspect of this element); Ex. 2041, ¶ 70 (same argument). A POSITA would understand a "central database" to a be a database that is stored on one computer and accessed by multiple clients, such as a server-side database in a conventional client/server system configuration. Indeed, the '850 patent even equates "central database" with "backoffice server." Ex. 1001 at 2:22-26 (noting that "wireless handheld devices and linked Web sites [are kept] in synch with ***the backoffice server (central database)***"); 11:32-36 (same). As shown in Brandt's Fig. 4, FlowMark database 438 can be located on server-side computer system 340 and would thus be seen as a "central database."

65. Accordingly, I disagree with Patent Owner's and Dr. Weaver's suggestion that Brandt fails to disclose the required central database containing hospitality applications and data.

b. The Central Database in the Brandt-Demers-Alonso Combination

66. Patent Owner argues that Petitioner "attempts to align three separate databases" to satisfy the "central database" limitation. '91 Paper 17 at 25-26. Dr.

Weaver repeats the same argument. Ex. 2041, ¶ 69. This is a mischaracterization of the Brandt-Demers-Alonso combination. A POSITA would easily understand how the database disclosures of the three references fit together.

67. Brandt discloses a central FlowMark database 438 as discussed above. Alonso discloses a central FlowMark database as well: "persistent data resides in a single database server, ObjectStore." Ex. 1012 at 32. Fig. 2 shows the database which is central because it is stored on one computer and accessed by multiple users over a network:

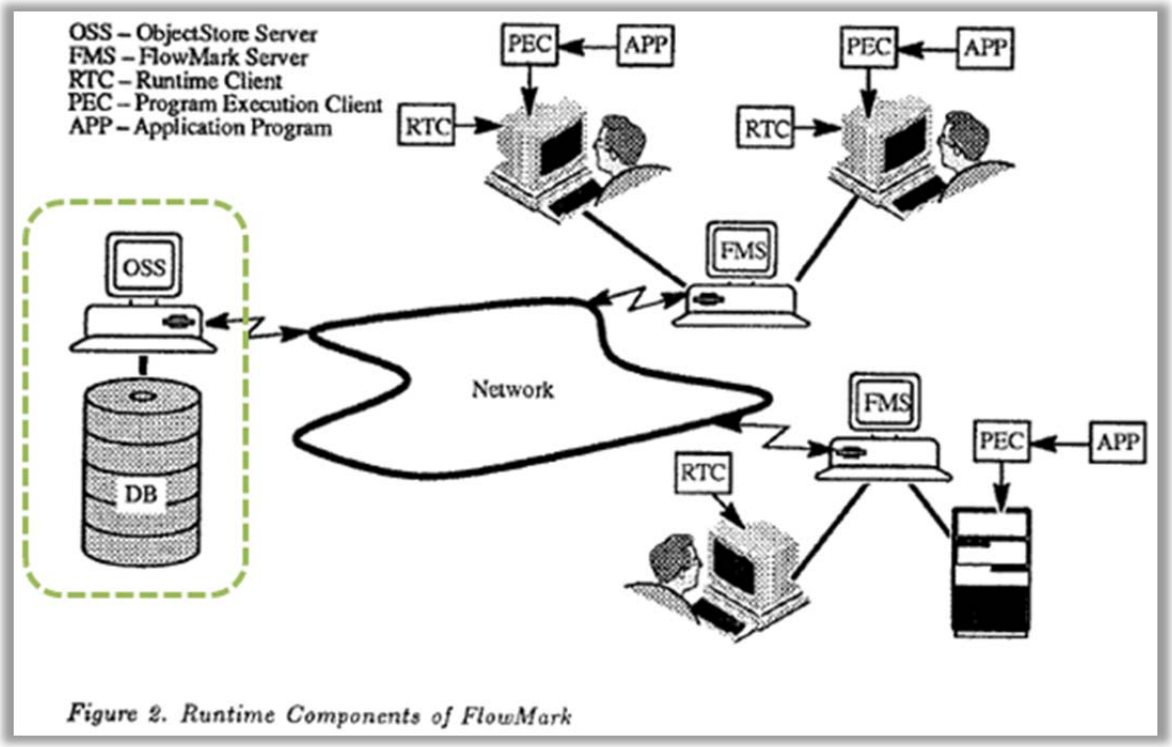


Figure 2. Runtime Components of FlowMark

Ex. 1012 at 32.

68. A POSITA would understand that Alonso's central FlowMark database and Brandt's central FlowMark database refer to the same database

regardless of the type of client that is accessing the data. Indeed, Brandt makes clear that FlowMark database 438 is not exclusively for the web-based clients, but also supports traditional, thick client FlowMark users. See Ex. 1005, ¶ 85 ("In this sense, FlowMark is unaware that a web client is accessing it, and FlowMark operates in the same manner it would as if a dedicated application were performing the requested functions.").

69. Demers is not a FlowMark reference but does disclose that applications on mobile devices may synchronize with a "primary" database that has the responsibility to commit updates from different users to ensure consistency is eventually achieved among the application users. Ex. 1009 at 4-5. A POSITA would understand that the central FlowMark database disclosed in Brandt and Alonso could serve as the "primary" database. As described in both Demers and Alonso, mobile computers would synchronize their local replicas with the central database. Ex. 1009 at 3-5 (discussing synchronization); Ex. 1012 at 34-38 (discussing synchronization).

70. The fact that Demers also discloses replica databases does not mean that there can be no central database. Indeed, the Challenged Claims also require storing hospitality data, not only in the central database but also on the handheld device as disclosed by Demers and Alonso. Demers teaches storing data in replica databases including locally on a mobile device so that users have access to the data

when they are disconnected from the network. In contrast, the '850 and '325 patents do not teach any approach for actually supporting planned disconnections or dealing with temporary network disconnections. This is significant because in 1999 networks, wireless networks especially, were far less reliable than they are today. Although the Challenged Claims require wireless handhelds, the '850 and '325 patents seem to assume network connection of all devices at all times. The Brandt-Demers-Alonso combination not only satisfies the claim limitations, it has the advantage of supporting disconnected operation by users with handheld devices as discussed in both Alonso and Demers.

71. I would also note that even if a given implementation of the Brandt-Demers-Alonso combination did include more than one central database, it could still satisfy the Challenged Claims. Although the Challenged Claims require "a central database," I have been advised by Starbucks' counsel that this limitation does not mean that the claimed system can have only one database. Accordingly, if an implementation included additional central databases to facilitate synchronization, it would still satisfy the claims as long as the databases contained hospitality applications and data and synchronized with the other locations as required by the claims. A POSITA would be comfortable working with multiple databases as it was commonplace for applications with databases to have a separate database to store authentication data (e.g., encrypted passwords). Indeed, Brandt

even discusses the use of a second database with authentication data. Ex. 1005, ¶ 51-53 (discussing FlowMark user library).

72. Patent Owner relies on a 1997 paper by Edwards (Ex. 2034) to suggest that Bayou was inconsistent with the idea of a central database. See '91 Paper 17 at 26. I disagree. In fact, the Edwards paper itself confirms that Bayou did allow for a central database.

73. Edwards explains that Bayou can support a variety of approaches in terms of synchronization requirements. Ex. 1082 at 119 ("Bayou is capable of operating over a range of connectivity parameters, from high-bandwidth and constant connectivity, to low-bandwidth and only occasional or unreliable connectivity, as in the case of mobile users.").

74. Patent Owner's argument appears to be based entirely on the following statement:

> Bayou is a true distributed system—meaning that there is no single centralized location at which data is stored—with weak consistency among replicated data

Ex. 1082 at 119. Patent Owner is taking this sentence out of context. A POSITA would understand that the key term in the phrase "no single centralized location" is "single." The point being made here is not the ***absence*** of a central database, but rather the ***presence*** of distributed replicas.

75. The remainder of the Edwards paper confirms my interpretation. Edwards discusses a "synchronous mode" of operation in which multiple clients connect to and share a single database:

> Applications operating on behalf of different users on different machines can be connected to ***the same replica***, which enables all the application instances connected to that replica to see updates as soon as they occur. In essence, ***the applications can work together in a tightly-integrated, strongly-consistent, synchronized fashion***. The ability of applications to connect to a single replica, and later split apart and communicate with different replicas, can be used to support transitions between synchronous and asynchronous styles of collaboration.

Ex. 1082 at 122.

76. Consistent with the above, Edwards notes that the group calendar application uses a "centralized Bayou server":

> Multiple collaborators can connect to distinct servers for typical asynchronous operation, or connect to the same server for "tighter" synchronous operation.
>
> Users of the group calendar application typically connect to a centralized Bayou server to quickly share operations entered while at the office, therefore diminishing the opportunity for conflicts. But users can connect to local

> servers when disconnected, and still access and modify their calendars.

Ex. 1082 at 127.

77. Based on the excerpts above, a POSTIA would understand that Bayou can support "synchronous" applications which share the same database. A POSITA would understand that replica databases are a special feature of Bayou that allow for disconnected operation but which are not required when clients are connected to the network. When all clients are connected to the network, a Bayou application can function much like a traditional client / server application with a central database.

78. A POSITA would not conclude that Bayou no longer supported "primary" databases simply because the Edwards paper from 1997 does not use the term "primary." In fact, a Bayou paper from December 1998 (after Edwards) discusses synchronous Bayou applications that use shared primary databases:

> [A]n application that supports ***synchronous collaboration*** between a number of users, such as a shared drawing tool, may want all these users to ***access the same replica*** so that they share the exact same database state. Replication may be desired by this application solely for fault-tolerance, that is, so that it can fail-over to a secondary replica in case ***the primary*** fails.

Ex. 1083, Douglas B. Terry et al., *The Case for Non-Transparent Replication:*

Examples from Bayou, IEEE Bulletin on Data Engineering, Vol. 21, No. 4, 12-20 (Dec. 1998), at 16.

79. Accordingly, I disagree with Patent Owner's and Dr. Weaver's suggestion that the combination of Brandt, Demers, and Alonso fail to disclose the required central database containing hospitality applications and data.

3. Web Pages Storing Hospitality Applications and Data

80. I addressed this limitation in my prior declarations. See Helal '850 Decl. at ¶¶ 174 – 183, 254; Helal '325 Decl. at ¶¶ 182-192, 286-287.

81. As I noted in my prior declarations (Helal '850 Decl. at ¶ 254; Helal '850 Decl. at ¶ 286), Brandt's disclosures with respect to the web page limitations are applicable to both prior art grounds. This is because in the Brandt-Demers-Alonso ground, it is the teachings of Brandt that satisfy the web page limitations.

4. Handheld Devices Storing Hospitality Applications and Data

82. I addressed this limitation in my prior declarations. See Helal '850 Decl. at ¶¶ 157 – 163, 252; Helal '325 Decl. at ¶¶ 163-170, 281-283.

83. Patent Owner argues that the Brandt-NetHopper combination fails to disclose applications and data stored on a handheld device because the proposed combination relies on web pages downloaded and cached on a PDA. See '91 Paper 17 at 34-41. Dr. Weaver repeats the same arguments. Ex. 2041, ¶¶ 89-92. I disagree with Patent Owner and Dr. Weaver.

84. As I discussed in my prior declarations, the Brandt-NetHopper combination teaches caching of web pages that include hospitality applications and data on a PDA, i.e., a wireless handheld computing device. Helal '850 Decl., ¶¶ 157 – 163; Helal '325 Decl., ¶¶ 163-170. Brandt discloses that the web pages can store hospitality applications because they can include forms for inputting data, executable Java applets, and executable JavaScript. Ex. 1005, ¶¶ 16 ("Java applets (executable code)"), 90 (web forms), 107 (Javascript). The web pages can also include application data as illustrated by the exemplary car rental reservations application. See, e.g., Ex. 1005, ¶ 107, Figs. 13 & 14 (customer's reservation confirmation number is inserted into dynamically generated confirmation page).

85. NetHopper discloses that web pages can be cached and used while the PDA is disconnected from the network. Ex. 1006 at 14-16. This means Brandt's hospitality applications and data can be stored on the PDA. NetHopper also discloses that cached web pages with forms can be filled out by a user while the PDA is disconnected from the network. Ex. 1006 at 17-18. NetHopper stores that data so that it can be submitted when the user re-connects to the network. Ex. 1006 at 17. This provides another example of application data that is stored locally on the PDA.

86. A POSITA would view filling out web forms on a PDA while the device is disconnected from the network to be using a locally stored native

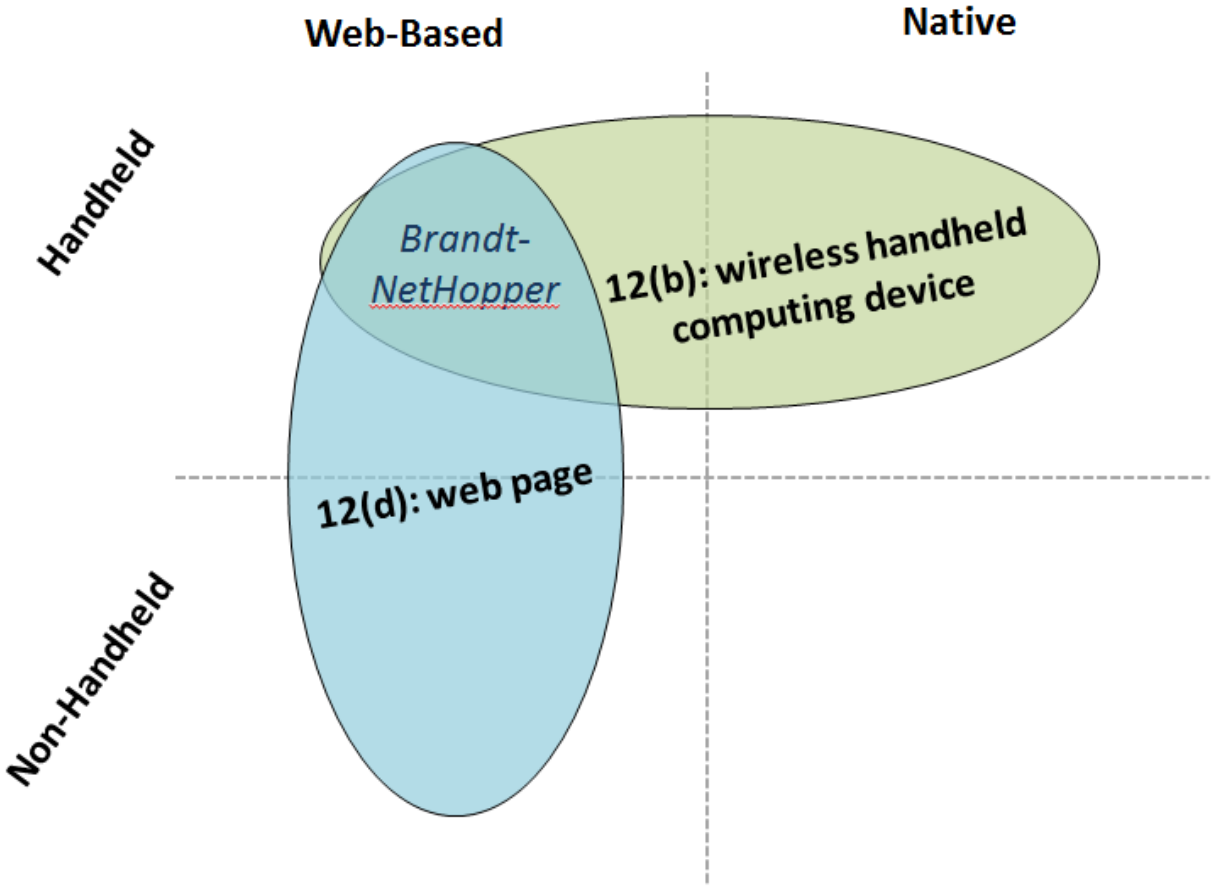
application. The fact that a web browser renders the user interface to the display does not change the fact that the web pages that define the user interface and functionality for the application (and which may include JavaScript and Java applets) are stored locally on the PDA. See Ex. 1075 (Jaworski, Mastering JavaScript [1997]) at 416-440 and 512-544 (examples of games and other standalone applications written in HTML and JavaScript).

87. A POSITA would not agree with Patent Owner's rigid distinction between a web application and a locally stored application. Since the advent of the web, both native and web-based clients have been widely used for implementing client/server applications. In the former, a native client application is developed to access a remote database through a network (e.g., the Internet). In the latter, HTML and possibly JavaScript and/or Java applets have been used to develop web pages that allow access through a network (e.g., the Internet) to data stored remotely on a web server, or in a remote database accessible through the web server. When one considers both desktop PC and wireless hand-held device platforms on which to develop the client, the implementation options multiply leading to at least four distinct implementations, all of which were possible and well-known to a POSITA before the '850 patent's application was filed in September 1999. The four implementations are: (1) native application on a hand-held device (e.g., a native Windows CE application), (2) a web-based app on a

hand-held (e.g., web pages with HTML forms, JavaScript, and/or Java applets downloaded and stored on a handheld), (3) a native app on a non-handheld device (e.g., an application written in C language on a desktop), and (4) a web-based app on a non-held-held (e.g., web pages with HTML forms, JavaScript, and/or Java applets downloaded and stored on a PC).[7]

88. Patent Owner and Dr. Weaver suggest that the applications and data stored on the handheld cannot refer to web pages because that interpretation would make the "web page" limitation in claim 12, element (d) redundant. '91 Paper 17 at 34-41; Ex. 2041, ¶¶ 87-88. I disagree. Web-based and handheld applications are not mutually exclusive as discussed above. The figure below shows the four implementation options I discussed above and how they correspond to claim elements 12(b) and 12(d):

[7] I do not mean to suggest there were only four possible options, as hybrid implementations were also known. For example, Windows CE included an "HTML Viewer Control" that developers could use in their native CE applications to display HTML documents. See Ex. 1031 at 27, 34. The '850 patent states that Windows CE is the preferred operating system for the handheld devices. Ex. 1001 at 10:63-11:3.



As shown in the figure, handheld, web-based clients as disclosed by Brandt-NetHopper can satisfy both elements 12(b) and 12(d) based on the plain language of those claim limitations.

89. A POSITA would also understand from Brandt and NetHopper that a first user might be using a PDA with NetHopper while a second user might be using a desktop computer with a web browser. In this scenario, the first user can choose to cache web pages and thus store the applications and data locally on their PDA while the second user simply accesses the web pages through a standard

network connection. This arrangement would also satisfy both elements 12(b) and 12(d).

90. I disagree with Dr. Weaver's opinion that the '850 patent does not envision synchronizing between web pages (Ex. 2041, ¶ 88). For example, if one user made an online reservation that took the last available table for a time slot, a POSITA would expect that a second user would not be able to make a reservation for the same time slot given that no table is available. This example requires synchronization between two web pages.

91. Patent Owner argues that the Brandt-Demers-Alonso combination also fails to disclose hospitality applications and data stored locally on a handheld device. '91 Paper 17 at 38-39. Dr. Weaver makes the same argument. Ex. 2041, ¶ 93. I disagree. As I discussed in my prior declaration (e.g., Helal '850 Decl., ¶ 252; Helal '325 Decl., ¶ 282), the Brandt-Demers-Alonso combination teaches storing applications and data locally on a handheld device.

92. Alonso discloses that users with mobile computers "work locally on … ***applications and data***" which are synchronized with the server prior to disconnection from the network. Ex. 1012 at 28, 34-37. Demers teaches that PDAs can be used to run applications against a locally stored replica database. Ex. 1009 at 5-6. A POSITA would recognize from these references that applications such as Brandt's car rental reservations application could be locally stored on a

PDA which would include a local replica of the application database. This approach would have the advantage of allowing use of the application during a period of network disconnection as discussed in both Demers and Alonso.

5. Synchronization of the Hospitality Applications and Data

93. I addressed this limitation in my prior declarations. See Helal '850 Decl. at ¶¶ 195-216, 244-248, 257-258; Helal '325 Decl. at ¶¶ 205-227, 271-276, 291-292.

94. Patent Owner argues that "synchronized" should be construed as "made, or configured to make, consistent" and notes that the Board adopted that meaning in a related proceeding. '91 Paper 17 at 5. Dr. Weaver agrees. Ex. 2041, ¶ 32. Patent Owner also argues that the cited prior art may disclose synchronization of data, but not synchronization of both applications and data as required by the claims. '91 Paper 17 at 29-31. Dr. Weaver repeats the same argument. Ex. 2041, ¶¶ 81 – 84.

95. I find it difficult to respond to this argument because neither Patent Owner nor Dr. Weaver provides any clear explanation of what it means to synchronize applications. More importantly, Patent Owner and Dr. Weaver do not show that Brandt and the other cited prior art fail to ***make*** the applications and data ***consistent***, which is sufficient under their own proposed construction of "synchronized."

96. It is not clear from Patent Owner's response or Dr. Weaver's declaration whether they are arguing that synchronization of applications requires updating application code. I note, however, that the '850 patent does not describe any modification of application code during synchronization. See, e.g., Ex. 1001 at 2:28-32 & 11:32-42 ("For example, a reservation made online is automatically communicated to the backoffice server which then synchronizes with all the wireless handheld devices wirelessly. Similarly, changes made on any of the wireless handheld devices will be reflected instantaneously on the backoffice server and the other handheld devices.").

97. In my opinion, the prior art grounds disclose synchronization of hospitality applications and data under Patent Owner's proposed construction and consistent with the usage of those terms in the '850 and '325 patents. For example, dependent claim 16 of the '850 patent confirms that one way to synchronize applications and data is via "digital data transmission":

> 16. The information management and synchronous communications system of claim 12 wherein ***the applications and data are synchronized by digital data transmission*** between the central database, at least one wireless handheld computing device, at least one Web server and at least one Web page.

Both the Brandt-NetHopper and Brandt-Demers-Alonso prior art grounds disclose synchronization of applications and data via digital data transmission consistent with claim 16 of the ’850 patent.

98. In my prior declaration, I discussed in detail the several mechanisms Brandt discloses for synchronizing applications and data (e.g., HTML templates and variables, WWW APIs) and how those mechanisms work in the context of the car rental application. Helal ’850 Decl., ¶¶ 195-214; Helal ’850 Decl., ¶¶ 205-227. I also noted NetHopper’s disclosures concerning the caching of web pages on the PDA and submission of forms upon network re-connection. Helal ’850 Decl., ¶ 216; Helal ’850 Decl., ¶ 226. A POSITA would understand that these disclosures show that the applications and data are made consistent between the central database, web server and web pages, and PDAs.

99. The Brandt-Demers-Alonso ground relies on the same disclosures from Brandt to satisfy the requirement for synchronization between the central database, web server, and web pages. In this ground, the handheld devices have a locally stored application and a locally stored replica database that synchronizes with the network-side application and database as disclosed in Demers and Alonso. Helal ’850 Decl., ¶¶ 243-248, 252; Helal ’325 Decl., ¶¶ 270-276, 282.

100. Patent Owner argues that Demers and Alonso fail to disclose “true synchronization.” ’91 Paper 17 at 28-29. Dr. Weaver makes the same arguments.

Ex. 2041, ¶¶ 78-79. I disagree. Demers discloses synchronization between a replica database and a primary database using anti-entropy protocols. Ex. 1009 at 3-5. For example, Demers explains that "[a]nti-entropy ensures that all copies of a database are converging towards the same state and will eventually converge to identical states if there are no new updates." Ex. 1009 at 3.

101. Alonso discusses a "synchronization phase" which "involves transferring all the information pertaining to the activity from the server to the program execution client." Ex. 1012 at 35. See also Ex. 1012 at 36-37 (describing synchronization phase). Alonso also describes a "reconnection" phase, in which "the results of the executions of the activities are reported back to the server for storage in the database." Ex. 1012 at 35. See also Ex. 1012 at 37-38 (describing reconnection phase).

102. Patent Owner suggests that neither the Petitions nor my prior declarations are clear about how Brandt's web pages would synchronize with the mobile computers. '91 Paper 17 at 29. Ex. 2041, ¶ 80. But as discussed above, in this combination Brandt's central database would be the "primary" database with which the handhelds would synchronize. Because both the handhelds and the web server and web pages would be synchronized with the same central database, they would be synchronized with each other. This approach, synchronization via the central database, is consistent with the preferred embodiment of the '850 patent.

See, e.g., Ex. 1001 at 11:32-36. ("The single point of entry works to ***keep all wireless handheld devices*** and linked Web sites ***in synch with the backoffice server (central database)*** so that the different components are in equilibrium at any given time and an overall consistency is achieved.").

103. It seems to me that Patent Owner's arguments that Demers and Alonso fail to teach "true synchronization" may be based on an interpretation of the claims that requires instantaneous synchronization or perfect synchronization at all times. I do not believe such an interpretation of the "synchronized" limitation is correct for several reasons. First, the specification repeatedly mentions "support for batch processing that can be done periodically throughout the day to keep multiple sites in synch with the central database." Ex. 1001 at 2:17-19; 4:2-4; 11:21-23. Second, the Challenged Claims expressly require storage of applications and data on the handheld. The primary advantage of storing an application and its data locally on a handheld device is that it can be used while the device may not be able to connect to the server. Instantaneous synchronization is obviously not possible if the client device is not connected to the server. Finally, I note that in its Preliminary Response, Patent Owner specifically argued that there should ***not*** be a timing requirement associated with the term "synchronized." '91 Paper 7 at 30.

104. Patent Owner argues that "locking an activity" as discussed in Alonso is "antithetical to the claimed invention." '91 Paper 17 at 29. Dr. Weaver repeats

the same argument. Ex. 2041, ¶ 79. I disagree. In the real world, networked applications that support disconnected use have to adopt one or more strategies for avoiding or dealing with data conflicts that can arise. Alonso does suggest locking a task to ensure that two different users do not perform the same task, perhaps in different ways. The locking approach works well for certain types of applications. Indeed, that approach has long been used in document management and version control systems. In my opinion, the locking approach could even work well for an order-taking application in many restaurants given there is typically only one waiter or waitress that waits on a particular table. The assigned waiter could lock his tables so that the other waiters cannot add or remove items from the order for that table.[8]

105. I would also point out that Demers discloses a different approach to dealing with data conflicts. Demers discloses "merge procedures" or "mergeprocs" which are application-specific procedures for resolving data conflicts that can arise during synchronization. Ex. 1009 at 4. When a conflict id

[8] I would also note that locking is not permanent. For example, Alonso states that a locked activity is "assigned to a user until the user completes it or unlocks it." Ex. 1012 at 36. Thus, a waiter could unlock his tables at the end of his shift, allow them to be locked by whichever waiter or waitress is taking over service of those tables. See Ex. 1012 at 38 (users can unlock activities in their worklist).

detected, the mergeproc is invoked and performs the necessary database updates to resolve the conflict. Ex. 1009 at 4.

106. In my opinion, nothing in the Challenged Claims of the '850 and '325 patents requires any specific approach to either reducing or resolving data conflicts. The specifications of the patents gloss over the challenges associated with data conflicts in a distributed system and never even addresses how one might address issues associated with disconnection of the wireless handheld devices. Therefore, in my opinion, the locking approach discussed in Alonso is not "antithetical to the claimed invention" as Patent Owner claims.

107. Accordingly, I disagree with Patent Owner's and Dr. Weaver's arguments that the Brandt-NetHopper and Brandt-Demers-Alonso combinations fail to disclose the required "synchronized" limitation.

6. An API that Enables Integration With Outside Applications

108. I addressed this limitation in my prior declarations. See Helal '850 Decl. at ¶¶ 184 – 186, 217 – 220, 255, 259; Helal '850 Decl. at ¶¶ 193-196, 228-231, 288-289, 293.

109. Brandt discloses what was well known in the art: "[e]ach application will have APIs that allow third parties to access certain features [and] to interface the application program with other programs …." Ex. 1005, ¶ 22. This alone discloses the API limitation in my opinion because it means that the car rental

reservations application would have APIs that allow "third parties" to "interface" with it.

110. Patent Owner suggests that the disclosure in paragraph 22 should be ignored because Brandt goes on to discuss the SEND and RECEIVE APIs which Patent Owner argues do not permit integration of third party applications. '91 Paper 17 at 43. Dr. Weaver makes the same argument. Ex. 2041, ¶ 100. I strongly disagree. In fact, paragraph 22 makes it clear that the SEND and RECEIVE APIs discussed in the paragraphs that follow are merely some "examples" APIs:

> Some examples of APIs that are commonly found in many different software applications are presented below for software application 342 running on computer system 300 as shown in Fig. 3.

The SEND and RECEIVE APIs are discussed because they are important to how application data gets transmitted between the users and the applications, not because they would be the only APIs available for integrating third party applications.

111. Patent Owner and Dr. Weaver state that Brandt discloses no APIs other than the SEND and RECEIVE APIs. '91 Paper 17 at 43; Ex. 2041, ¶ 100. This is not correct. As discussed in my prior declaration, Brandt discusses FlowMark APIs 436 and substitution variables, both of which are mechanisms that

enable integration of third party applications with FlowMark applications such as the rental car reservations application. Helal '850 Decl., ¶¶ 218-220; Helal '325 Decl., ¶¶ 229-231. FlowMark APIs 436 are distinct from the WWW APIs (including the SEND and RECEIVE APIs) as shown in Figure 4 of Brandt:

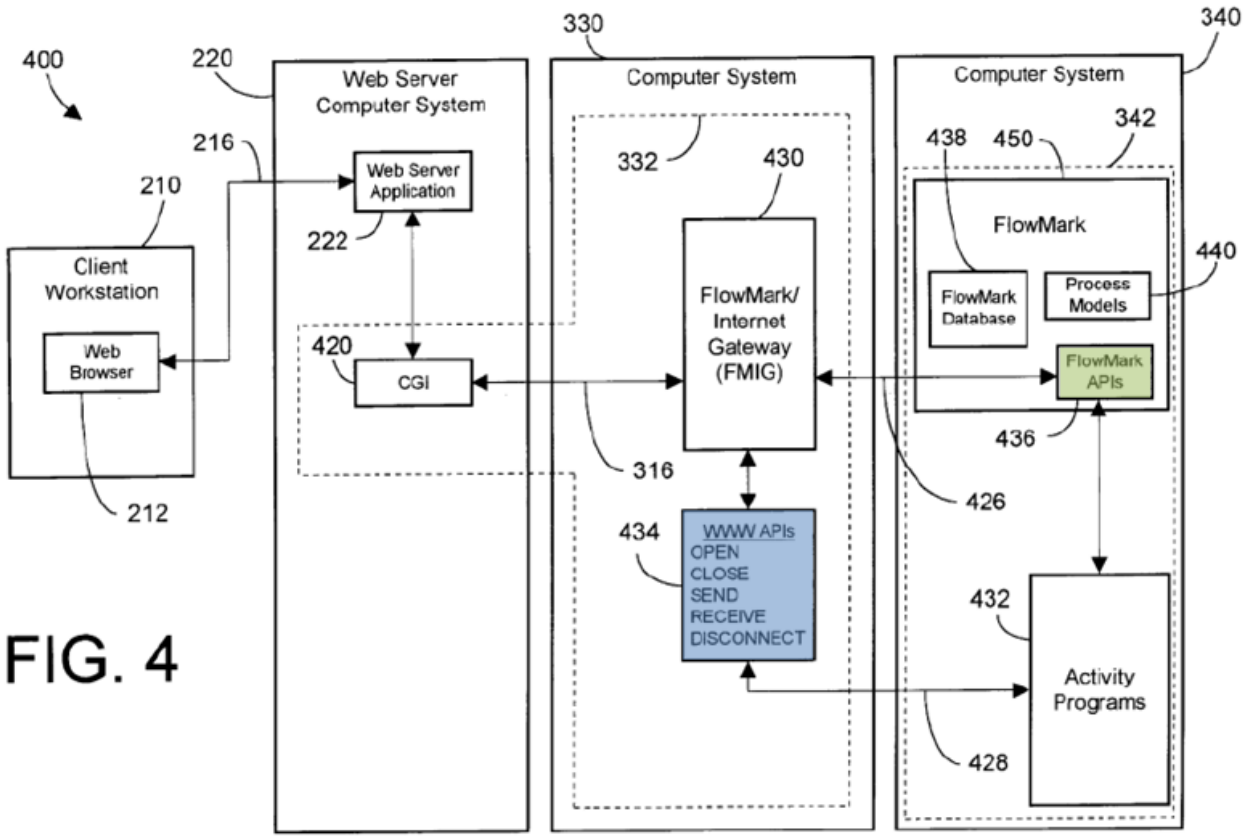


FIG. 4

Brandt teaches that substitution variables can be used to allow the same web page to interface with multiple applications. Ex. 1005, ¶¶ 57, 95. For example, a vehicle maintenance application could be integrated to allow the rental agent to view the maintenance history of a vehicle available for rent. Neither Patent Owner nor Dr. Weaver addresses the WWW APIs or the substitution variables. '91 Paper 17 at 42-43; Ex. 2041, ¶¶ 99-100.

112. I would also note that a POSITA would also have been familiar with APIs independent of Brandt because the use of APIs to integrate applications was commonplace long before the '850 patent's application was filed in September 1999. For example, as I noted in my prior declaration (Helal '850 Decl., ¶ 273; Helal '325 Decl., ¶ 311), Buschmann's 1996 text defines "API" in its glossary as "The external interface of a software platform, such as an operating system, that is used by systems or applications built on top of it." Ex. 1036 at 433.

113. Accordingly, I disagree with Patent Owner's and Dr. Weaver's arguments that the Brandt-NetHopper and Brandt-Demers-Alonso combinations fail to disclose the required application program interface.

7. Communications Control Module ("CCM")

a. Brandt's Disclosure of the Required CCM

114. In my prior declarations I provided a detailed discussion of Brandt's application gateway and explained why it is a communications control module. Helal '850 Decl. at ¶¶ 187 – 194; Helal '325 Decl. at ¶¶ 197 – 204. I also explained how Brandt's application gateway provides the claimed interface between the hospitality applications and a communications protocol. Helal '850 Decl. at ¶¶ 221 – 232; Helal '325 Decl. at ¶¶ 232 - 243.

115. Patent Owner argues that Brandt's reference to "data transmission formats … generated by a web browser" somehow "excludes the many other

wireless formats." '91 Paper 17 at 45. Dr. Weaver repeats the same argument. Ex. 2041, ¶ 102. I disagree.

116. The Brandt excerpt referenced by Patent Owner is explaining that the preferred embodiment uses standard HTTP POST data stream format but other formats can be used as well:

> Although the current preferred embodiment of the invention uses the "CGI Post" (stdin) format for data transmission from web browser 212 to CGI 420, any other data transmission formats that may be generated by web browser 212 are contemplated and are within the scope of this invention.

Ex. 1005, ¶ 81. See also Ex. 1019 at 19 (explaining that HTTP POST is used to pass data through standard input (stdin) to the server program).

117. This excerpt in Brandt relates back to the earlier discussion regarding the data stream format for data submitted from the web browser to the server:

> When the user "submits" the requested information, usually by clicking on a button presented on an HTML form, web server application 222 receives input data from web browser 212. This data stream may be presented to web server application 222 in many different formats, including RFC 1866 or RFC 1867 formats. These two specific formats are just examples of common data stream formats that common web browsers

> understand. The present invention is not limited to these formats but includes any data transmission format now known or developed in the future.

Ex. 1005, ¶ 79.

118. The data stream format discussed in Brandt is a communication protocol. The Microsoft Computer Dictionary (4th ed. 1999) defines communication protocol as "a set of rules or standards designed to enable computers to connect with one another and to exchange information with as little error as possible." Ex. 1084 at 98. A POSITA would understand in the context of Brandt that the client and server need to use the same data stream format so that the server understands the data submitted by the client.

119. For example, Fig. 12 shows the "'post' format" data transmitted by the web browser upon submission of a given reservation request:

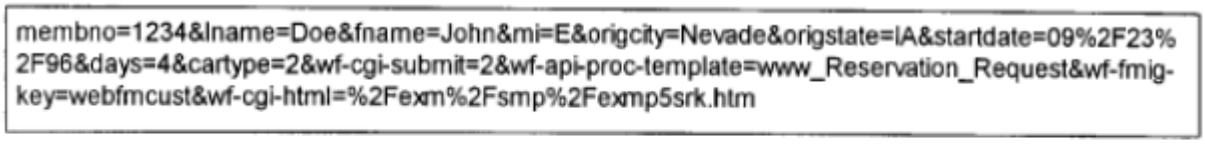


FIG. 12

Ex. 1005, ¶ 94. The server application must understand the data stream protocol in order to make sense of this data. For example, the data stream includes name-value pairs where the name precedes the '=' sign and the value follows it. The '&'

character is used to separate name-value pairs. See, e.g., Ex. 1085 (RFC 1866 – HTML 2.0 Specification, Nov. 1995) at 45-49.

120. Of course, Brandt's discussion of the HTTP POST data stream protocol does not mean that other communication protocols, such as wireless protocols, are not also used. By the time of the alleged invention, it was well understood that HTTP is an application-layer protocol that sits on top of lower level communication protocols. See Ex. 1019 at 377 ("The HTTP protocol can be thought of as 'sitting on top' of the network. In other words, the HTTP specification (HTTP) presupposes the existence of a backbone network connecting all the machines (in the case of the Internet, TCP-IP), and all of the packets flowing from client to server and vice versa take advantage of the standard TCP-IP protocol.").

121. Wireless communication protocols are lower level protocols and can be used to support TCP-IP traffic including HTTP communications. An example of a well known wireless communication protocol at the time the '850 patent was filed is Cellular Digital Packet Data (CDPD) developed in the early 1990s to allow Internet applications to send TCP/IP traffic over circuit-switched cellular networks (800-900 MHz AMPS cellular networks). Other examples include the General Radio Packet Service (GPRS) and the Wireless Application Protocol (WAP).

122. Brandt is explicit that wireless communications may be used to practice its invention. Ex. 1005, ¶¶ 15 ("A preferred embodiment for connection 216 is any suitable connection to the Internet, including … infrared or other ***wireless communications***, computer network communications (whether over a wire or ***wireless***) …."), 86 ("[T]he connections shown in the figures may be any type of physical or logical means of connecting computer systems known in the art. This includes, but is not limited to, direct connections, Internet connections, Intranet connections, Infrared (IR) and other forms of ***wireless connections***."). A POSITA would understand that implementations using wireless networks would rely on wireless communication protocols.

123. Patent Owner and Dr. Weaver argue that Brandt's application gateway is not a "layer." '91 Paper 17 at 46; Ex. 2041, ¶ 103. This argument is not clear and does not make sense to me. In its Preliminary Response, Patent Owner argued that the claimed CCM is "a server-side communications module" ('91 Paper 7 at 43) and "server-side software" ('91 Paper 7 at 44). In its institution decision, the Board noted that "the specification describes the communications control module as a centralized module." '91 Paper 9 at 23.

124. Brandt's application gateway is clearly a server-side or centralized module. For example, Fig. 3 shows the application gateway on computer system 330 which is on the server-side of web server 220 or the opposite side from client

workstation 210. Brandt also states that in a preferred embodiment, the gateway can reside on the same computer with the FlowMark server 340. Ex. 1005, ¶ 86.

125. Dr. Weaver suggests that Brandt's gateway is not "functionally separate and distinct from Brandt's other software, as a 'layer.'" Ex. 2041, ¶ 103. I disagree. Brandt's gateway is clearly functionally separate and distinct from the other software elements. The gateway is clearly separate and distinct from the client computers as shown in Figs. 3 and 4. The gateway is also separate and distinct from the core applications and database as I discussed in detail in my prior declarations. Helal '850 Decl., ¶¶ 221-229; Helal '325 Decl., ¶¶ 232-240. As I discussed there, Brandt teaches that the gateway can be modified without modifying the core applications and database.

126. Brandt also states that the same gateway can support multiple clients over a network.

> Gateway 332 uses the conversation identifier to keep track of individual requests because ***Gateway 332 may be servicing multiple users*** and multiple requests from each of those users. Gateway 332 thus maintains the information necessary to ***control the flow of data between the various users and software application 342***.

Ex. 1005, ¶ 64. Fig. 10 shows that the same gateway (e.g., GCS1) can connect multiple clients to one or more software applications. See Ex. 1005, ¶ 87

(describing Fig. 10). See also Ex. 1005, ¶ 87 ("User library 520 preferably stores the user information for a ***plurality of software applications that are to be accessed through gateway 332***.").

127. Accordingly, I disagree with Patent Owner's and Dr. Weaver's arguments that Brandt fails to disclose the required CCM.

b. The CCM in the Brandt-Demers-Alonso Combination

128. Patent Owner states that the Brandt-Demers-Alonso ground relies "entirely on Brandt's disclosure of the CCM for teaching the 'synchronization' aspects." '91 Paper 17 at 47. This is not correct. As I discussed in my prior declarations, Alonso discusses synchronization between mobile computers and the server-side FlowMark applications and database, and Demers discusses synchronization between mobile computers with replica databases and network-side databases. See Helal '850 Decl., ¶¶ 244-247, 252; Helal '325 Decl., ¶¶ 271-276, 282. See also above ¶¶ 99-107.

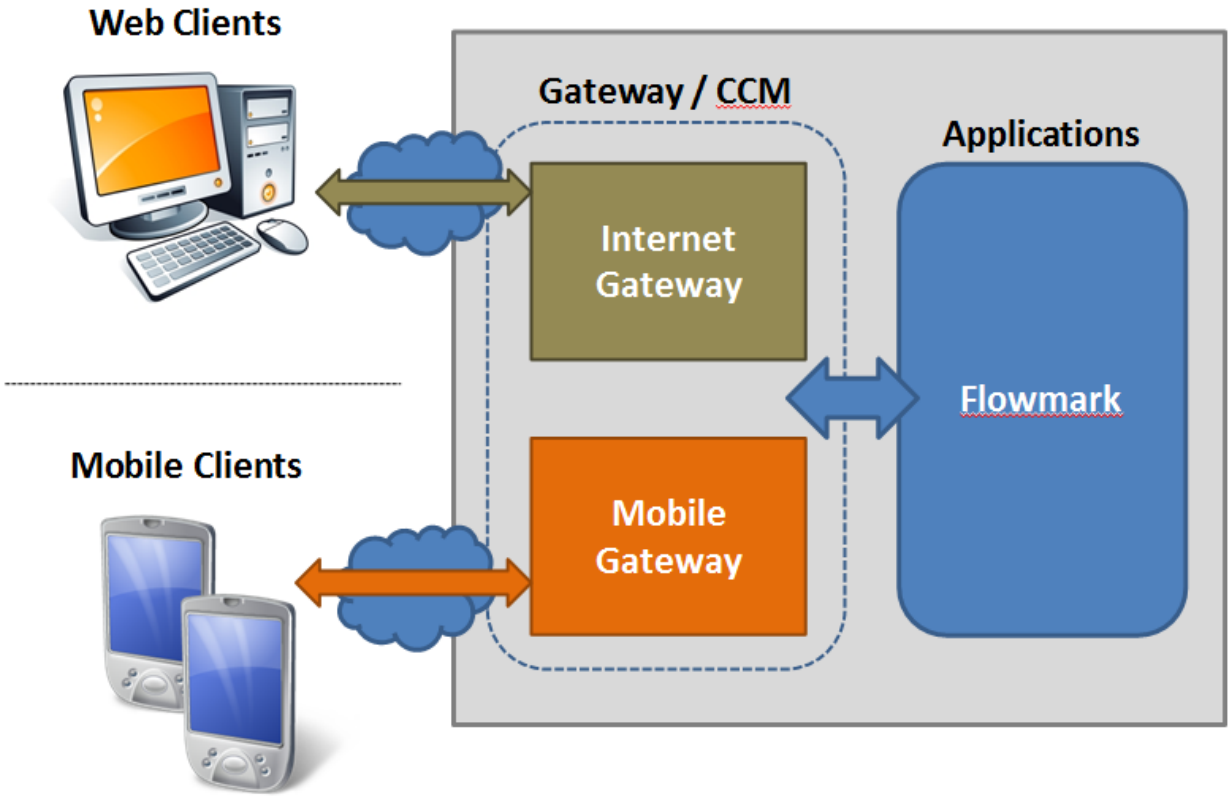
129. In the Brandt-Demers-Alonso combination, Brandt's Internet gateway allows synchronization of applications via the web interface including the web server and web pages. However, the synchronization to the mobile computers is based on the teachings of Demers and Alonso.

130. Patent Owner's argument that the Brandt-Demers-Alonso ground fails because it relies "entirely on Brandt's disclosure of the CCM for teaching the

'synchronization' aspects" ('91 Paper 17 at 47) and its proposed construction for the CCM ('91 Paper 17 at 4-5) indicate that it understands the claims to require that the handheld computers connect to the database through the CCM. For example, in discussing its proposed construction for the CCM, Patent Owner suggests that the CCM deals with both HTTP-based communications and non-HTTP communications from wireless devices. '91 Paper 17 at 5. But even under Patent Owner's interpretation, the Brandt-Demers-Alonso combination would satisfy the CCM limitations.

131. I have been advised by Starbucks' counsel that the phrase "a communications control module" does not limit the claims to systems that have one and only one CCM. The Brandt-Demers-Alonso combination would include Brandt's gateway which is a CCM as discussed above. A POSITA would recognize that the synchronization mechanisms taught by Demers can be used to provide a gateway for the handhelds to access the FlowMark applications.

132. The figure below illustrates the gateway / CCM in this combination.



What I refer to as the "mobile gateway" could be a "secondary" Bayou node that facilitates synchronization between the "primary" FlowMark database and the replicas on other Bayou nodes (e.g., on the handheld computers). See Ex. 1009 at 5 ("The other, 'secondary' servers tentatively accept writes and propagate them toward the 'primary' using anti-entropy."). Alternatively, the gateway node itself could be the "primary" and receive updates from the nearby FlowMark database. See Ex. 1009 at 5 ("In many cases, the primary may be placed near the locus of update activity for a database; this allows writes to commit as soon as possible").

133. Brandt points out that the described invention is flexible and the functional components can be spread across different computers in any number of

different configurations. Ex. 1005, ¶ 86. Demers teaches similar flexibility. See, e.g., Ex. 1009 at 6 ("The primary server for a database may also be changed."). A POSITA would understand that the Internet gateway and mobile gateway in this configuration could be located on the same computer system which would act as a "gateway computer system" as disclosed in Brandt. Ex. 1005, ¶¶ 87-88, Fig. 10. Based on Demers' discussion of wireless communications with PDAs (Ex. 1009 at 2), a POSITA would recognize that wireless protocols would be used on the client-side of the mobile gateway.

134. Accordingly, I disagree with Patent Owner's and Dr. Weaver's arguments that the Brandt-Demers-Alonso combination fails to disclose the required CCM.

B. Limitations Unique to '850 Patent

1. '850 Patent, Claim 13 – "Single Point of Entry"

135. I addressed claim 13 in my prior declaration, Helal '850 Decl. at ¶¶ 233 – 236.

136. Brandt's application gateway provides a single point of entry for all hospitality applications. Brandt teaches that the same FlowMark platform can support numerous applications. Ex. 1005, ¶¶ 76, 78 (discussing FlowMark support for applications based on process models). Accordingly, the same FlowMark

platform could support one application for rental car reservations, another for hotel reservations, another for online food ordering, etc.

137. Patent Owner argues that Brandt fails to disclose the claimed single point of entry under the correct construction which is a "center of communication for all hospitality applications." '91 Paper 17 at 48. Dr. Weaver makes the same argument. Ex. 2041, ¶ 109. Neither Patent Owner nor Dr. Weaver explain why this limitation is not present based on their proposed construction. Instead, they refer back to their argument that Brandt's car rental application is not a "hospitality application." '91 Paper 17 at 48, Ex. 2041, ¶ 109.

138. Brandt's application gateway is clearly a "center of communication." As I discussed in my prior declaration (Helal '850 Decl., ¶¶ 234-235) and above in ¶¶ 114-127, Brandt's application gateway allows multiple clients to access multiple applications, any or all of which could be "hospitality applications." As I also discussed in detail in my prior declaration (Helal '850 Decl., ¶¶ 195-216), Brandt's application gateway is integrally involved in the claimed synchronization of hospitality applications and data.

139. The Brandt-Demers-Alonso ground includes Brandt's application gateway which is a CCM and single point of entry. As discussed above in ¶¶ 130-132, even if the Challenged Claims required the handheld devices to connect through a CCM, the teachings of Demers can be used to implement a mobile

gateway to FlowMark. Brandt teaches that the same FlowMark platform can support numerous applications. See Ex. 1005, ¶¶ 76, 78 (discussing FlowMark support for applications based on process models). Accordingly, a mobile computer could synchronize multiple hospitality applications to the same FlowMark database via the mobile gateway discussed above. Brandt's Internet gateway and the Bayou node providing the mobile gateway could obviously be collocated on the same server so that all clients, both web and handheld, connect to FlowMark via the same box on the network.

140. Accordingly, I disagree with Patent Owner's and Dr. Weaver's arguments that the Brandt-NetHopper and Brandt-Demers-Alonso combinations fail to disclose the additional limitations of claim 13.

2. '850 Patent, Claims 14 & 15 – "Automatic" Communication

141. I addressed claims 14 and 15 in my prior declaration, Helal '850 Decl. at ¶¶ 237 - 240. In particular, I explained how Brandt teaches that information entered by a user on a mobile device could be automatically communicated to another user using a web browser and vice versa. A POSITA would view this communication as "automatic" because the software components ensure that the up-to-date information is presented to the user. In other words, the user is not required to do anything out of the ordinary to receive the up-to-date information.

142. Patent Owner appears to be applying a narrower view of "automatic" which requires updated data to be pushed, perhaps immediately, to a web page and handheld device while the data is being viewed by users. For example, Patent Owner makes the following argument:

> Claims 14 and 15 require that information entered on a Web page or wireless handheld device is "automatically communicated," i.e., "routed" to other system components. But the Petition does not cite to evidence of "automatic" functionality disclosing the automatic routing of a communication to a "handheld" after "monitoring" a communication from a "web page" as in claim 14 or the reverse in claim 15.

'91 Paper 7 at 50. Dr. Weaver repeats the same argument. Ex. 2041, ¶ 110.

143. I disagree with Patent Owner's and Dr. Weaver's narrow interpretation of "automatic." A POSITA at the time of the invention would understand that dynamically generated web pages are the preferred way of keeping a web interface consistent with a database. With dynamically generated web pages, the relevant data is pulled from the database ***when the page is accessed by the user***. I would note that Patent Owner itself brought up dynamic generation of web pages in its preliminary response in arguing that the '850 patent satisfies the enablement requirement for the Challenged Claims. '91 Paper 7 at 40.

144. I would also note that the ’850 patent does not teach any different approach for updating web pages instantaneously whenever the database is updated. A POSITA would not interpret the claims to require an unconventional approach, especially one that is not even described in the specification. In fact, the ’850 patent suggests that the synchronization process does not need to be immediate. Ex. 1001 at 3:59-4:4 (“The information management and synchronous communications system of the present invention features include … support for batch processing that can be done periodically throughout the day to keep multiple sites in synch with the central database.”).

145. A POSITA would also appreciate that in many instances, there are probably no web users that care to view the data entered on the handheld. An approach that would force web page updates every time data is entered on a handheld device would be extremely wasteful, especially if the database is frequently updated as would be the case for many hospitality applications (e.g., ordering, reservations).

146. Nonetheless, even if Patent Owner’s narrower interpretation of “automatic” were correct, the prior art still renders these limitations obvious. For example, it would have been trivial for a POSITA to add a simple JavaScript timer to the web pages to reload them periodically. See, Ex. 1075 (Jaworski, Mastering JavaScript [1997]) at 214-215 (discussing JavaScript timers), 307 and 988

(discussing location.reload() method for refreshing a page). Another option available to a POSITA would be to use an HTML "META" element to auto-refresh the web page according to a specified frequency (e.g., to refresh every 60 seconds: **<meta http-equiv="refresh" content="60" >**). Auto refresh Meta elements were available as part of the HTML 4.0 standard specifications that were introduced December 18, 1997. *See* Ex. 1106 at 60. Because Brandt discloses dynamically generated web pages, automatically reloading the page would ensure updated data is displayed to the web user.

147. With respect to the mobile devices in the Brandt-Demers-Alonso ground, a POSITA would understand that the mobile computer was connected to the network, it could communicate directly with the server-side database like any other traditional client. For example, Alonso discloses that locking an activity is only necessary prior to a planned disconnection. Ex. 1012 at 34-37. Demers notes that, at a given point in time, a mobile client may or may not be connected to the "primary" database. See Ex. 1009 at 5. Accordingly, a POSITA would understand that a handheld computer could receive immediate data updates while connected to the network.

148. Accordingly, I disagree with Patent Owner's and Dr. Weaver's arguments that the Brandt-NetHopper and Brandt-Demers-Alonso combinations fail to disclose the additional limitations in claims 14 and 15.

3. ’850 Patent, Claim 16 – “Digital Data Transmission”

149. I addressed claim 16 in my prior declaration, Helal ’850 Decl. at ¶¶ 241 – 242.

150. All of the communication between the various computer systems and software applications within the Brandt system is “digital data transmission.” *See* Ex. 1005 at ¶ 15 (“A preferred embodiment for connection 216 is any suitable connection to the Internet, including a hardwired connection, telephone access via a modem or high-speed T1 line, infrared or other wireless communications, computer network communications (whether over a wire or wireless), or any other suitable connection between computers, whether currently known or developed in the future.”); ¶ 86 (“[T]he connections shown in the figures may be any type of physical or logical means of connecting computer systems known in the art. This includes, but is not limited to, direct connections, Internet connections, Intranet connections, Infrared (IR) and other forms of wireless connections.”).

151. In its Preliminary Response, Patent Owner suggested that Claim 16 requires an “all digital” system. ’91 Paper 7 at 35-36. To support this argument, Patent Owner misquoted the Microsoft Computer Dictionary. Rather than quoting the definition of “digital data transmission,” Patent Owner quoted the definition of “digital communications.” See Ex. 2015 at 138. The actual definition of “digital data transmission” from Patent Owner’s own exhibit is: “The transfer of

information encoded as a series of bits rather than as a fluctuating (analog) signal in a communications channel." Ex. 2015 at 138.

152. A POSITA would have been well aware that computer applications communicate with one another using digital data. All of the data is encoded into bits rather than as a fluctuating (analog) signal. I disagree with Patent Owner's attempt to distinguish the claimed invention from dial-up modem communications. Indeed, the '850 patent repeatedly states that dial-up modems can be used to practice the alleged invention. See Ex. 1001 at 3:59 – 4:4 ("The information management and synchronous communications system of the present invention features include … real-time communication over the internet with direct connections or ***regular modem dialup connections*** …."); 5:42; 5:50; 11:19-20.

153. Dial-up modems modulate digital data for transmission over telephone lines. A POSITA would still consider data transmitted using a dial-up modem to be digital data. Indeed, the fact that modem speeds were measured in ***bits*** or ***kilobits*** per second reflects the fact that they were seen as devices for transmitting digital data.

154. Accordingly, I disagree with Patent Owner's and Dr. Weaver's arguments that the Brandt-NetHopper and Brandt-Demers-Alonso combinations fail to disclose the additional limitation in claim 16.

C. Limitations Unique to the '325 Patent

1. Synchronized Data Relates to "Orders" ('325 Patent, Claim 11), "Waitlists" ('325 Patent, Claim 12), "Reservations" ('325 Patent, Claim 13)

155. I addressed these limitations in my prior declaration, Helal '325 Decl. at ¶¶ 245-265 and 295-301.

156. Patent Owner and Dr. Weaver attempt to narrow the claims to food orders, restaurant waitlists, and restaurant reservations. '99 Paper 17 at 51-52; Ex. 2041, ¶ 111. In my opinion, a POSITA would not interpret the claims in this manner. It would have been very easy for Patent Owner to use "food orders," "restaurant waitlists," and "restaurant reservations" in the claims, but they used broader language. Accordingly, the prior art disclosures I identified in my prior declaration for synchronization of order data, waitlist data, and reservation data satisfy these claim elements and the claims are obvious.

2. Data Sent to Wireless Paging Device ('325 Patent, Claim 15)

157. I addressed these limitations in my prior declaration, Helal '325 Decl. at ¶¶ 266-269 and 302-303.

158. Patent Owner does not dispute the obviousness of the additional limitation in claim 15. '99 Paper 17 at 18. Dr. Weaver does not address claim 15. Accordingly, for the same reasons I provided in my prior declaration, claim 15 is obvious based on the prior art.

D. Secondary Considerations

159. I understand that in analyzing obviousness one should consider secondary considerations of non-obviousness or obviousness, which may include if they exist: a) long-felt and unmet need in the art that was satisfied by the invention of the patent; b) failure of others to achieve the results of the invention despite being faced with a similar problem; c) commercial success or lack thereof of the products and processes covered by the invention; d) deliberate copying of the invention by others in the field; e) taking of licenses under the patent by others; f) whether the invention was contrary to the accepted wisdom of the prior art; g) expression of disbelief or skepticism by those skilled in the art upon learning of the invention; h) unexpected results achieved by the invention; i) praise of the invention by those skilled in the art; and j) contemporaneous invention by others.

160. I understand there must be a nexus between any such secondary indicia and the alleged invention *as claimed*.

1. Patent Owner Did Not Invent "Synchronization, Integration, and Consistency"

161. In discussing the supposed evidence of secondary considerations of non-obviousness, both Patent Owner and Dr. Weaver repeatedly characterize Patent Owner's invention as "Synchronization, Integration, and Consistency." See, e.g., '91 Paper 17 at 55; Ex. 2041, ¶¶ 113, 118, 119. For example, Dr. Weaver suggests that the "novel" aspects of Challenged Claims are "synchronization,

integration, and consistency." Ex. 2041, ¶ 118. He then states that "[t]he nexus between the novel aspects of these claims and Ameranth's objective evidence of non-obviousness is strong." Ex. 2041, ¶ 119.

162. In my opinion, "Synchronization, Integration, and Consistency" is not a reasonable or accurate characterization of the Challenged Claims. Synchronization, integration, and consistency were commonplace in distributed systems and applications well before the '850 patent was filed as demonstrated by the prior art references cited in this proceeding. See also Helal '850 Decl., ¶¶ 64-65, 67, 72, 74 (discussing synchronization in the prior art). The '850 patent even states that "Windows CE® provides … built-in synchronization between handheld devices, internet and desktop infrastructure." Patent Owner's assertion that synchronization, integration, and consistency were "novel" in October 1999 when the '850 patent was filed is not accurate. Given that synchronization, integration, and consistency were well known in the art, it is also unreasonable for Patent Owner to suggest that it invented and claimed those features.

163. The Challenged Claims include many limitations that are not adequately reflected in Patent Owner's "Synchronization, Integration, and Consistency" shorthand. For example, the Challenged Clams require a central database, a web server, a web pages, a handheld device, hospitality applications and data that are stored in various places, and a communications control module

which is an interface between the hospitality applications and any other communication protocol. It is improper to disregard these elements of the Challenged Claims and summarize them as "Synchronization, Integration, and Consistency."

2. Lack of Nexus to the Challenged Claims

164. Patent Owner argues that the Challenged Claims of the '850 patent are "coextensive" with its 21st Century Restaurant (21CR) system. '91 Paper 17 at 54-55, 59-64; Ex. 2041, ¶¶ 113, 119-123. Neither Patent Owner nor Dr. Weaver has shown that the 21CR system *practiced* any of the Challenged Claims, let alone that the 21CR system is *coextensive with* any of the Challenged Claims.

165. As an initial matter, it is not even clear that the 21CR system even refers to a specific product or system. Patent Owner's evidence suggests it used the 21CR name loosely to refer to all of its restaurant-focused software. For example, case studies published in 1999 and 2000 use the 21CR name. Ex. 2062 at 82, 117-119. But the Computerworld case study states that the 21CR product was scheduled to be released in March of 2001 – almost one and a half years after the '850 patent application was filed and well after the 1999 and 2000 case studies:

> The Improv project helped seed Ameranth's new product, the 21st Century Restaurant®. The 21st Century Restaurant product integrates legacy point-of-sale systems in restaurants with wireless handheld software.

> ***This system***, which ***will roll out in March 2001***, will give restaurants the ability to use handhelds for tableside ordering and payment processing.

Ex. 2062 at 159.

166. An Ameranth press release dated Mar. 6, 2001 states that Ameranth "has traditionally supplied ***custom developed*** and integrated handheld software," but that they planned to release "a shrink-wrapped restaurant product" called "the 21st Century Restaurant(R) software version 2.0 for wireless ordering and payment processing." Ex. 1086. Even this March 6, 2001 press release states that the product was in "beta testing" at the time. Accordingly, it appears that the Improv Comedy Club solution was custom software, not a standard product offering. See also Ex. 2062 at 117 ("Castillo was particularly impressed with the fact that Ameranth ***could develop*** and install the entire Web, PC, and wireless system[.]").

167. Ameranth's current website includes a brochure for the 21st Century Restaurant system with a copyright date of 2011. Ex. 1087. I would expect that Patent Owner would have continued to develop its software and that the software would have evolved over time. It is not clear what version of the 21CR software Patent Owner contends practiced the Challenged Claims. However, Patent owner has not shown that any version practiced the Challenged Claims.

a. The 21st Century Restaurant "Screen Shots"

168. To argue that the 21CR product existed when Patent Owner filed the '850 patent application, Patent Owner references two screen shots included as Figures 1 and 6 to its original application filed Sept. 21, 1999. '91 Paper 17 at 55. The two referenced figures are shown below:

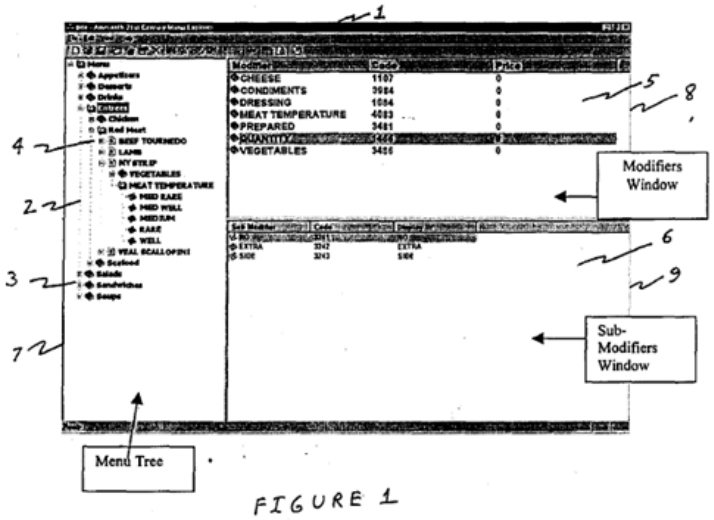


FIGURE 1

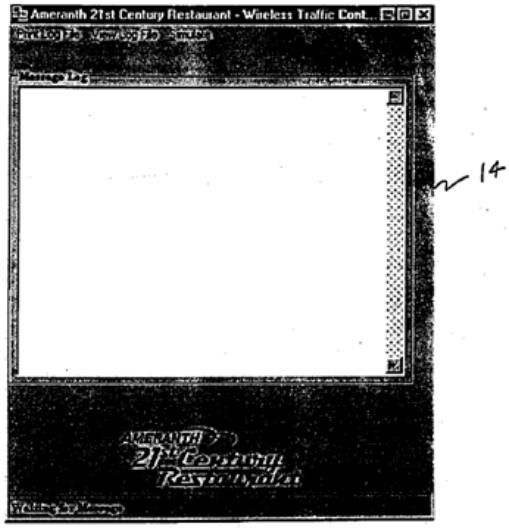


FIGURE 6

169. Patent Owner claims that these figures show a "live/operational" system. In my opinion, however, nothing about the screen shots proves that they were part of an operational system. Both merely show UI screens that could have been mocked up regardless of whether they were part of a functioning system or not. Developer tools allow developers to design UI screens (sometimes called "forms") for applications. As I noted above, Patent Owner's own exhibits and press releases indicate that the 21CR system was not yet released as of March 2001.

170. In addition, neither of the above figures is particularly relevant to the Challenged Claims. Fig. 1 relates to menu configuration which may relate to the menu generation claims of the '850 patent (e.g., claim 1), but does not relate to the Challenged Claims at issue here which do not require creating or configuring menus. According to the '850 patent, Fig. 6 is the screen that is displayed when the "Wireless Traffic icon is clicked on the desktop PC." Ex. 1001 at 9:29-32. Although the screen in Fig. 6 has *some* connection to the communications control module program, the specification says it allows for viewing a log of messages received, which is "possibly useful for troubleshooting, or maintenance, but not necessary for normal operation." Ex. 1001 at 9:32-37. Nothing in the Challenged Claims relates to displaying a log of wireless messages which is all that is shown in Fig. 6.

b. The 21st Century Restaurant Brochure (Ex. 2047)

171. Patent Owner and Dr. Weaver rely on a brochure for the 21CR system as evidence that it practiced the Challenged Claims. '91 Paper 17 at 59-63; Ex. 2041, ¶¶ 119-121. In my opinion, the 21CR brochure fails to show that the 21CR system practiced any of the Challenged Claims.

172. The 21CR brochure is a high level marketing brochure. The first page shows devices and lists features that might be useful to different workers at different locations in a restaurant. Many of the features are ambiguous and not

described in the brochure itself. For example, it is not clear from the brochure what any of the following features are:

- Manager > "Manager functions"
- Kitchen > "Direct wireless server order input"; "Wireless ready server notification"
- Back Office > "Applications software"; "Internet gateway";
- Real Time Web Access > "Frequent Dining data updates" "Corporate data exchange"

173. The brochure provides virtually no information about how the 21CR system actually functions aside from the fact that the system used a standard 2.4 GHz wireless LAN.

174. The annotated versions of the brochure has annotations with various terms and phrases from the claims and specification of the '850 and '325 patents, but in my opinion the brochure itself does not actually show that the annotated elements were present in the 21CR system. As one example, the bottom of the first page of the brochure shows an "IBM server." In the annotated version, this server is labelled "web server." However, nothing in the brochure indicates that the "IBM server" is a web server. In addition, the second page states that online reservations are made through "ameranth.com." Therefore, it is not clear that there

would have been any web server on-site at the restaurant as the annotated brochure suggests.

175. It is not clear to me *who* annotated the brochure. Dr. Weaver does not state in his declaration that he made the annotations. Ex. 2041, ¶¶ 119-121. Dr. Weaver also does not explain why the annotations are accurate or supported by the brochure itself. He merely states that he reviewed them and that they show a correspondence between the 21CR system and the Challenged Claims. Ex. 2041, ¶¶ 119-121.

176. The brochure suggests that the handheld devices supported features like "touch screen ordering," "credit card/ payment processing," and "signature capturing." The brochure does not show or state that the handheld devices stored hospitality applications and data. The annotated version states that the applications are "stored on handhelds" but nothing in the brochure shows that to be correct. With respect to web pages, the brochure lists "online reservations and waitlisting" under "Real Time Web Access." However, the brochure does not show that the web pages stored hospitality applications and data. The brochure does not provide any information as to what web technologies are used for the web pages (e.g., applets, JavaScript) or indicate whether or not the web pages were dynamically generated.

177. For the required communications control module, the annotated version includes arrows that point to a wireless access point, the "applications software" and "Internet gateway" bullets under "Microsoft." I cannot make sense of these annotations, nor does Dr. Weaver provide any explanation of them. I fail to see how they show the presence of the required communications control module. Relatedly, nothing in the brochure indicates that the ambiguously identified communications control module would be "an interface between the hospitality applications and any other communications protocol" as claimed.

178. It is also my opinion that the 21CR Brochure shows that the alleged 21CR system was not "coextensive" with the Challenged Claims of the '850 patent as Patent Owner and Dr. Weaver claim. There are a number of features referenced in the brochure that are unrelated to the Challenged Claims. These additional features may have contributed to the alleged success of the 21CR system.

179. First, the brochure discusses a "Command Center PC Server" which can be used by "office personnel [to] enter reservations directly." Ex. 2047 at 2. A "key feature" of the command center PC is that it provides "restaurant statistics" such as table turns, sales per server, peak period analysis, and "other custom functions." The Challenged Claims do not reference any "command center" or PC used by restaurant personnel. Rather, the Challenged Claims reference handheld computers and web pages.

180. Second, the brochure states that the 21CR system apparently included an online reservation interface hosted by Patent Owner. Ex. 2047 at 2 ("Diners can access the restaurant's reservation in-house reservation system online via ***ameranth.com*** to view table availability and reserve tables based on specific criteria"). Nothing in the Challenged Claims requires a third party-operated website that enables online reservations.

181. Third, the brochure indicates that the 21CR system included an array of restaurant-specific applications and features out of the box. The second page of the brochure discusses "Ameranth's 21st Century Reservation System," "Ameranth's Customer Select frequency application," Ameranth's "Waitlist Management application," and a "Table Status Application." While the claims recite "hospitality applications" generally, they do not require any particular hospitality applications. The functionality of the 21CR applications themselves (e.g., the customer select frequency application) are not covered by the Challenged Claims. This is significant as it is possible that Ameranth's applications could have been the driver for the alleged success of the 21CR system. Indeed, the brochure shows that Patent Owner touted these applications to market the 21CR system.

182. Fourth, the brochure touts portable printers for use by the wait staff and at the hostess station. The portable printers are shown in three places on the

first page and there is a large photo of one on the second page. The Challenged Claims do not require portable printers.

183. Fifth, the brochure touts Ameranth's "PadLink 100." The PadLink appears to be a hardware device for use by the bus staff to provide table status updates. It is not clear from the brochure whether the PadLink is a handheld device or whether it would be kept at each table. However, the Challenged Claims do not require the PadLink device.

c. The Microsoft Case Studies

184. Patent Owner and Dr. Weaver also rely on two Microsoft case studies that reference the 21CR system as showing a nexus to the Challenged Claims. '91 Paper 17 at 63 (citing Ex. 2062 at 80-82 and 116-119); Ex. 2041, ¶¶ 122-123. I am aware that Microsoft published case studies with technology partners as a type of advertising. The case studies typically highlight certain Microsoft technologies used by a partner to implement some software solution for a customer. I have reviewed the two Microsoft case studies and, in my opinion, neither of them shows that the 21CR system practiced any of the Challenged Claims.

185. The Fall 1999 Case study, "Ameranth and the 21st Century Restaurant," provides virtually no detail regarding how the 21CR system works. This case study does not make any reference to web pages or a web server. The case study also makes no reference to a central database.

186. The case study lists some restaurant-related tasks that can be performed using the handheld UltraPad 2700, however, it does not show that these applications are stored on the device or that the applications and data are synchronized with a central database, a web server, and a web page as required by the Challenged Claims.

187. The case study mentions "Ameranth's communications control module" but does not provide any indication that it is an interface between the hospitality applications and any other communications protocol as required by the Challenged Claims.

188. The 1999 case study characterizes the 21CR system as an add-on to provide wireless capabilities to existing systems with fixed terminals. For example, the case study states:

> Working with Microsoft, Ameranth has developed a family of modules that allow its POS, back end and other systems providers to provide a seamless and elegant wireless interface to their existing and future software installations. Developed using standard Microsoft Windows NT® server, Windows 98/95, and Windows CE toolsets and application modules, Ameranth's interface modules preserve the significant investment in existing fixed-terminal systems by projecting the capabilities of those systems into the wireless Windows CE environment and by enabling systems providers to

> create hand-held user interfaces that have a look, feel, and functionality similar to that of the host fixed-terminal system. The use of the Microsoft toolsets and application software, along with Ameranth's modular approach to using these tools, makes the introduction of wireless a smooth, painless, and affordable transition.

Ex. 2062 at 82. This characterization of the 21CR system indicates that it *may not* include components like a central database, a web server, or web pages.

189. The Spring 2000 case study concerning the Improv Comedy Club implementation is similarly vague with respect the actual design and operation of the 21CR system. The Case Study states that the "entire [Improv] solution is built according to the Microsoft Distributed interNet Architecture." Ex. 2062 at 117. What this means is not clear from the case study. The '850 patent does not mention Microsoft's Distributed internet Architecture.

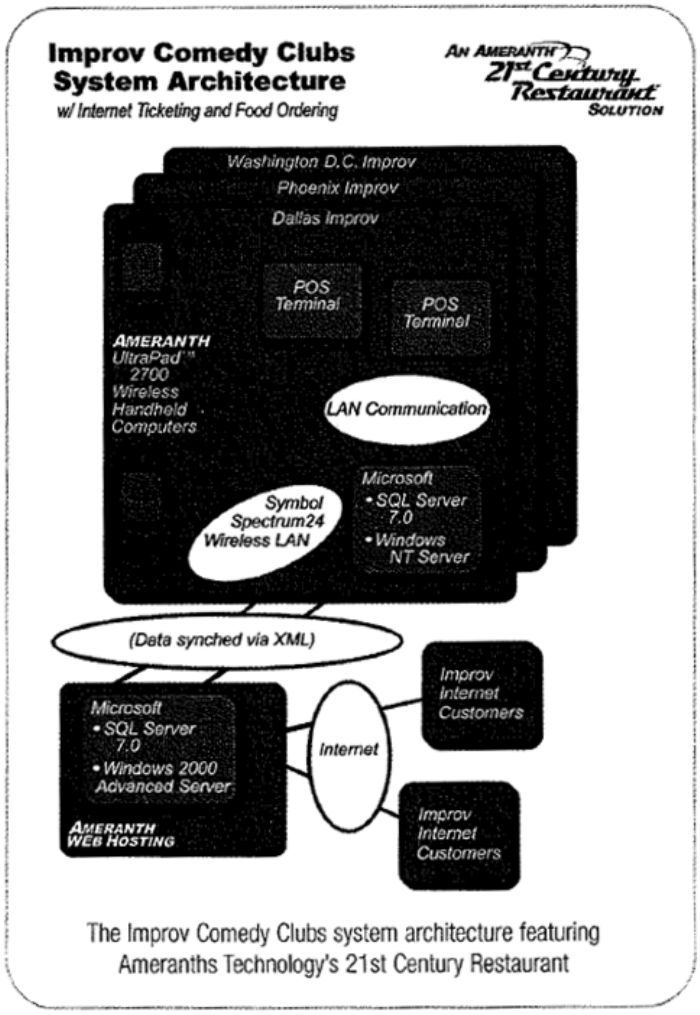
190. The case study also states that Ameranth had to develop custom software for the Improv solution. Ex. 2062 at 117 ("[Owner Tom] Castillo was particularly impressed with the fact that Ameranth could develop and install the entire Web, PC, and wireless system—something no other company could match."). Accordingly, it is not clear that the Improv solution (and therefore the case study describing it) is representative of Patent Owner's 21CR system.

191. The 2000 case study says that "Ameranth's core technology is the 21st Century Communications™ middleware which routes data, regardless of programming language, across a variety of platforms, facilitating the data synchronization required for integrating different systems, including Web-based, Wireless LAN and PC-based client/server systems." Ex. 2062 at 118. The case study does not explain what "Ameranth's 21st Century Communications™ middleware" is or how it works. The statement that it "routes data, regardless of programming language" is strange and confusing because data is not typically viewed as having a programming language.

192. There is no mention of a communications control module in the case study. In the annotated version, Patent Owner suggests that the 21st Century Communications™ middleware is the communications control module. Nothing in the case study indicates to me that the 21st Century Communications™ middleware is a communications control module or that it provides the claimed interface between the hospitality applications and any other communication protocol. According to the Microsoft Computer Dictionary, "middleware" is "software that sits between two or more types of software and translates information between them. Middleware can cover a broad spectrum of software and generally sits between an application and an operating system, a network operating system, or a database management system." Ex. 1084 at 290. The term

"middleware" was commonly used by 1999 when the '850 patent was filed and yet the '850 patent does not use the term at all.

193. The "system architecture" diagram included in the case study is vague and high level:

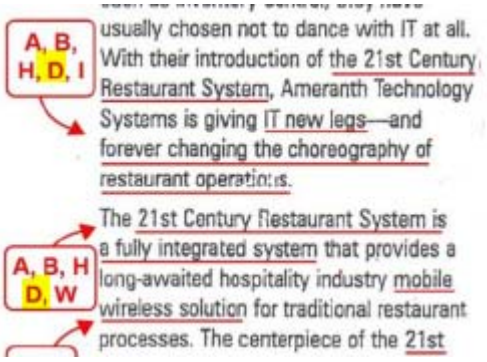


The Improv Comedy Clubs system architecture featuring Ameranths Technology's 21st Century Restaurant

Ex. 2062 at 118. It is not clear from this diagram that the system includes a communications control module or even where the 21st Century Communications middleware runs. Even Patent Owner's annotated version of the case study

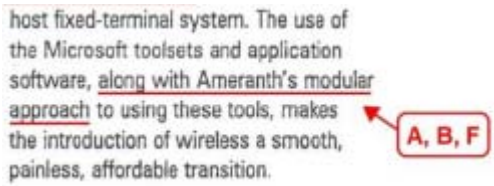
includes no annotation identifying the communications control module (letter V) in the system architecture diagram. See Ex. 2077 at 3.

194. I have also reviewed the annotated versions of the case studies in Ex. 2077. In my opinion, many of the annotations appear to be arbitrary. As an example, in the 1999 case study, Patent Owner has made arbitrary annotations for element D which is supposed to correspond to hospitality applications stored on web pages. For example, Patent Owner appears to have arbitrarily annotated references to the "21st Century Restaurant System" with element D:



Ex. 2077.

195. As another example, the element F is supposed to correspond to the "single point of entry." Patent Owner has arbitrarily tagged a reference to "Ameranth's modular approach" with element F:



Ex. 2077. I do not understand how the phrase "Ameranth's module approach" shows that the 21CR system included the single point of entry required by claim 13 of the '850 patent.

196. Between the lack of detail in the case studies and the confusing and unsupported annotations of them, it is my opinion that they fail to show that the 21CR system actually practiced any of the Challenged Claims.

d. Computerworld Case Study

197. Patent Owner and Dr. Weaver also point to the Computerworld case study (Ex. 2062 at 157- 160) as evidence of the nexus between the Challenged Claims and the 21CR system. '91 Paper 17 at 63; Ex. 2041, ¶ 122. I have reviewed the Computerworld case study and, in my opinion, it does not show that Ameranth's 21CR system practices any of the Challenged Claims.

198. The Computerworld case study is no more detailed than the Microsoft case studies. In fact, much of the Computerworld award summary consists of the same text found in the Improv Comedy Club case study.

199. Like the 2000 Microsoft case study, the Computerworld case study contains no reference to a communications control module. In the annotated version (Ex. 2078), Patent Owner identifies the 21st Century Communications middleware as the claimed communications control module. But neither Patent Owner nor Dr. Weaver explain what the 21st Century Communications middleware

is or show that it is a communications control module or that it provides the required interface between the hospitality applications and any other communications protocol.

200. The Computerworld case study also fails to describe hospitality applications and data contained in a central database, stored on web pages, stored on a web server, and stored on a handheld device.

201. In conclusion, none of the cited evidence shows that Patent Owner's 21CR system or any other product offered by Patent Owner actually practiced the Challenged Claims or that it was "coextensive" with any of the Challenged Claims.

202. I note that none of the brochures or case studies include detailed technical information. Technical specification documents, source code, or detailed system architecture diagrams showing recommended or actual implementations of the 21CR system would provide better evidence of the actual design and operation of the 21CR system. Since the system was developed by Patent Owner, one would expect Patent Owner to have these types of documents. But neither Patent Owner nor Dr. Weaver reference any source code, technical specifications, or other detailed technical documents for the 21CR system.

3. Licensing of the '850 and '325 Patents

203. Patent Owner and Dr. Weaver also cite "widespread licensing" of the '850 and '325 patents. '91 Paper 17 at 64-66; Ex. 2041, ¶¶ 124-125. Patent

Owner has not provided copies of the actual licenses so I do not know the terms of the licenses. I have seen no evidence of what dollar amount, if anything, the licensees paid to Patent Owner for these licenses. I also understand that a number of the licenses resulted from settlements of litigations filed by Patent Owner.

4. Lack of Commercial Success

204. Patent Owner and Dr. Weaver claim that the inventions of the Challenged Claims achieved substantial commercial success. '91 Paper 17 at 66-68; Ex. 2041, ¶¶ 127-130. I have founded two companies that developed and commercialized both software and hardware products that the companies sold and licensed. So I am familiar with the commercial success metrics of newly launched products. Neither Patent Owner nor Dr. Weaver shows any evidence of substantial sales or licensing of the 21CR system. Patent Owner has not even provided evidence regarding the actual number of customer implementations of the 21CR system. There is no evidence that the 21CR system achieved commercial success by any conventional standard. And as discussed above, it is my opinion that Patent Owner failed to show the 21CR system embodied any Challenged Claim.

205. Patent Owner and Dr. Weaver suggest that Patent Owner "achieved overwhelming market share" based on partnerships with many of the top POS companies based on rankings in 2004 and 2006. '91 Paper 17 at 67; Ex. 2041, ¶¶ 127-128. The cited POS market reports show at most that some of the POS

companies Patent Owner allegedly "partnered" with had significant market share. Neither Patent Owner nor Dr. Weaver provide any evidence to show how many of the POS company implementations actually included any of Patent Owner's software, if any. Therefore, the POS market share evidence does not show that Patent Owner "achieved overwhelming market share."

206. To the extent Patent Owner granted patent licenses to these POS partners, I would note again that there is no evidence that the POS partners paid anything for the licenses. Patent Owner may have freely given patent licenses to the POS companies in hopes of being included in their implementations.

207. Dr. Weaver notes that Patent Owner was chosen in 2003 as Darden's "standard wireless integrator." Ex. 2041, ¶ 129. Dr. Weaver does not explain what this means or how it relates to any of the Challenged Claims. Therefore, I do not see how this shows commercial success of the subject matter of the Challenged Claims.

208. Dr. Weaver also suggests that investments by Microsoft and others in Ameranth are evidence of the commercial success of the 21CR product. Ex. 2041, ¶ 130. I disagree. The fact that a company has notable investors does not show that its products were commercially successful. Here, despite the alleged investments in Patent Owner by Microsoft and Symbol, there is no actual evidence that the 21CR system achieved commercial success.

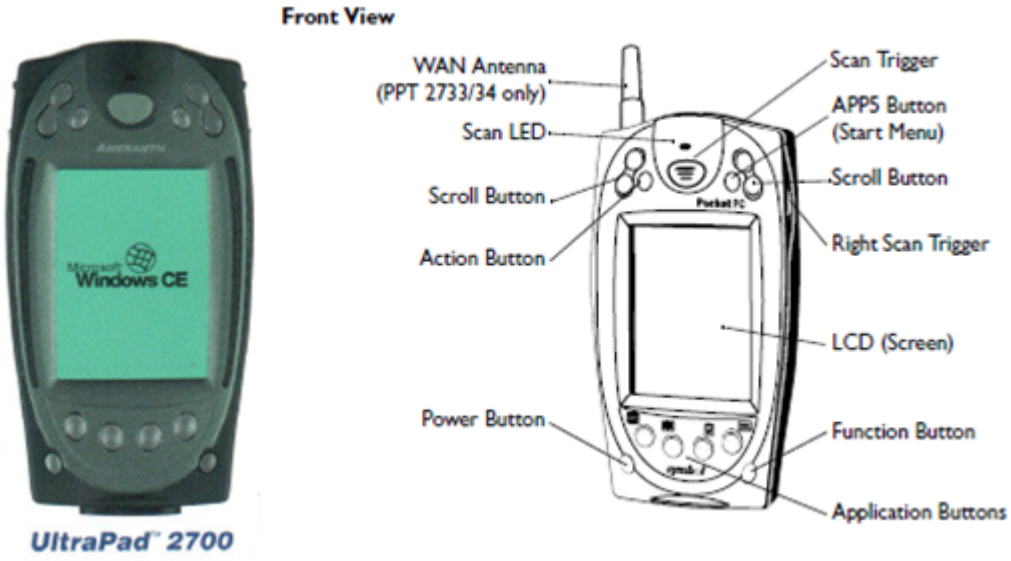
5. Purported Technology Awards

209. Patent Owner and Dr. Weaver identify purported technology awards Patent Owner allegedly received as evidence of the non-obviousness of the Challenged Claims. '91 Paper 17 at 68-70; Ex. 2041, ¶¶ 131-135. I am familiar with technology awards and their application and granting processes. In fact, as CEO of Pervasa, Inc., an Internet of Things connectivity middleware start-up, my company applied for and won the 2007 Best of SensorExpo Silver Award. I have reviewed the cited evidence and in my opinion it does not show that the Challenged Claims are nonobvious.

210. First, Patent Owner identifies an award it claims to have received at the European Hospitality Convention in 1999 for "Innovation of the Year." The only evidence provided regarding this award is Patent Owner's own press release. Ex. 2062 at 95-96. I note that the press release includes a quote attributed to unidentified "judges" which in my experience is unusual.

211. Patent Owner's press release indicates that the award was for a handheld device. Ex. 2062 at 95 ("Ameranth captured this honor with its UltraPad™2700, a small, light, beautifully designed, handheld computer that operates using Microsoft Windows CE operating system and communicates using Symbol Technologies Spectrum24 wireless technology."). I note that this

statement seems at odds with other evidence which indicates the device was an Ameranth-branded Symbol PPT 2740:



See Ex. 2062 at 141 (stating Improv Comedy Club used Symbol Technologies PPT 2740); Ex. 2062 at 117 (stating Improv Comedy Club used UltraPad 2700). Moreover, there is no indication that the purported award had anything to do with the actual subject matter of the Challenged Claims which require much more than just an off-the-shelf handheld device.

212. Second, Patent Owner identifies a "Moby Award" that it received from Mobile Insights, Inc. in 2000 for its "wireless handheld computer ticket authorization and seating assignment application" for the Dallas Improv Comedy Club. I have never heard of Mobile Insights or the Moby awards. Once again, the only cited evidence concerning this award is Patent Owner's own press release.

Ex. 2062 at 141. I note that a Mobile Insights press release announcing the winners of its 2000 Moby awards identifies the Comedy Club as the winner of the award and does not mention Ameranth. Ex. 1095.

213. According to Mobile Insights, Symbol, Patent Owner's business partner, nominated the Improv Comedy Club for the Moby award. Ex. 1095. Other companies won Moby awards in 2000 for applications using similar technology. Ex. 1095. For example, River Run Software Group apparently won 3 Moby awards in 2000 in the same year for its "mobile computing and wireless data communications solutions." Exs. 1095 & 1096.

214. Patent Owner's press release states that the Moby award was received for the comedy club's "ticket authorization and seating assignment application." Ex. 2062 at 141. Neither Patent Owner nor Dr. Weaver have shown that this application practiced any of the Challenged Claims. I would note that event ticketing and seating does not fall within the narrow definition of "hospitality applications" that Patent Owner argues for in this proceeding because it is not related to food or lodging. '91 Paper 17 at 5-11. The press release references a "21st Century Communication Controller server," but neither Patent Owner nor Dr. Weaver explain what that is. They have not shown it to be a communications control module or shown that it provided an interface between hospitality

applications and any communication protocol as required by the Challenged Claims.

215. Third, Patent Owner points to its inclusion in the Computerworld Honors case study archive as an award. I discussed the actual Improv Club case study above in Section V.D.2. As I discussed, the case study fails to show that the comedy club implementation actually practiced any of the Challenged Claims.

216. In my opinion, Patent Owner's characterization of its inclusion in the Computerworld Honors archive as an "award" is misleading. There was a "21st Century Achievement Award" given out in connection with the Computerworld Honors program but Patent Owner did not win that award. In 2000, that award was given to Real Networks in the Media, Arts & Entertainment category. Ex. 1097 at 2.

217. Patent Owner was apparently a "laureate." (Ex. 2062 at 152-153.) This seems to mean that Patent Owner submitted a case study for inclusion in the massive Computerworld Honors archive of case studies:

> The Computerworld Honors Program was created in 1988 when chairmen of the 100 leading IT companies saw the need to identify and celebrate the people making the most significant achievements in the use of IT for the benefit of mankind. These leaders agreed to work together to ensure that heroic individuals who were using IT to benefit society were remembered and that their

> innovative works were collected and preserved. The Computerworld Honors collections now encompass ***nearly 4,000 case studies submitted by laureates*** on six continents. The program annually provides copies of these case studies, along with oral histories, video biographies and other primary source materials on the history of IT to more than140 museums, libraries, universities and research institutions worldwide.

Ex. 1098. In 2000, there were more than 300 other laureates that submitted case studies. Ex. 1098. Apparently, in the process of determining the winners of the "21st Century Achievement Award," finalists are selected for each category. Ex. 1099. Patent Owner has not presented any evidence it was selected as a finalist.

218. Besides Patent Owner's own press release (Ex. 2062 at 152-153), I have seen no evidence supporting Patent Owner's claim that Bill Gates was personally involved in nominating Patent Owner. Assuming Patent Owner was nominated by Mr. Gates or someone at Microsoft, it may have been influenced by Microsoft's investment in Ameranth. *See* Ex. 2062 at 136-137 (Press Release concerning Microsoft investment).

219. Fourth, Patent Owner points to a Microsoft Retail Application Developer (R.A.D.) Award it received in 2003 for its "HostAlert" system. It appears that Microsoft gave R.A.D. Awards to companies that created retail focused applications using Microsoft technologies. Ex. 2050 at 2. According to

Patent Owner, Microsoft was an investor in Ameranth. Patent Owner was one of 12 award winners in 2003. Ex. 2050.

220. The description of Patent Owner's HostAlert includes no mention of any web page, web server, or communication control module. Ex. 2050 at 6. The discussion of HostAlert also does not show that hospitality data is stored on the handheld devices; it states that "Microsoft Pocket PCs [are used] to feed information into the system." Ex. 2050 at 6. None of the Challenged Claims require a table management application. Ex. 1100 is a HostAlert brochure obtained from Patent Owner's website in 2003 using the Internet Archive. It does not indicate there was any web component of HostAlert. The brochure states that HostAlert included a "tablet PC" but that wireless handhelds are "optional." Accordingly, I do not see any evidence that the R.A.D. award has a nexus to the Challenged Claims.

221. I would also note that Microsoft apparently gave R.A.D. awards to others in 2003 for technologies similar to what Patent Owner claims it invented. For example, Palm Hospitality Technologies won an award for an application that "makes use of a WiFi wireless backbone at the hotel property to transmit information immediately among managers, housekeepers, bell captains, valets and maintenance people, all of whom can receive information via Microsoft Pocket PC handheld devices." Ex. 2050 at 5. Another award winner was EatecNetX that

offered "special applications for stadiums and arenas, such as catering for owner suites and online ordering by suite holders." 2050 at 9. "The solution is also designed to support … input not only via browser-based access but also from handheld devices, wireless LANs and scanners." Ex. 2050 at 9.

6. Purported Industry Praise

222. Patent Owner and Dr. Weaver claim that there was widespread industry praise for the 21CR system. '91 Paper 17 at 70-73; Ex. 2041, ¶¶ 136-144. The cited evidence does not show this to be true.

223. The Tech Times article (Ex. 2062 at 166) focuses on use of handheld devices for taking orders. Using wireless devices to take orders was well known in the art before the '850 patent. *See, e.g.*, Ex. 1033 (Kasavana, 1997) at 168-169; Ex. 1101 (UK Patent Application GB 2196766A, published 1988) at Abstract. The Tech Times article does not mention any web page, central database, or communications control module.

224. The QSR Magazine blurb (Ex. 2052) is extremely short and focuses on Patent Owner's partnership with Food.com. The blurb briefly mentions the 21CR system and lists some of its alleged features. The blurb does not identify the 21CR system as a "best new product" as Patent Owner suggests.

225. I already discussed the Computerworld Honors program above in ¶¶ 215-218. I would note that the quote Patent Owner attributes to Bill Gates is

not shown in the referenced exhibit (Ex. 2062 at 151-153). Indeed, the cited Ameranth press release includes no quote at all from Bill Gates. Even if Mr. Gates made the quoted statement, it is a very generic statement does not relate to the subject matter of the Challenged Claims.

226. The cited letter from Steve Glen at Marriott International (Ex. 2062 at 107-108) does not in my opinion suggest the Challenged Claims are nonobvious. It appears that Mr. Glen had no actual experience with the 21CR system at the time he purportedly sent this letter. Rather, he expresses some excitement about its potential. In particular, Mr. Glen emphasizes the potential value of "Windows CE wireless terminals linked with laser bar-code scanning of customer frequency cards and an integrated customer database." I would also note that Mr. Glen does not reference any web-based aspect of the technology.

227. I already discussed the purported Moby "award" above in ¶¶ 212-214.

228. Dr. Weaver also identifies deposition testimony by John Harker as evidence of industry praise. Ex. 2041, ¶ 142. I disagree with Dr. Weaver's suggestion that Mr. Harker was a "completely independent and objective witness." According to Patent Owner's own evidence, it partnered with Symbol in 1999 and Mr. Harker supposedly traveled with Mr. McNally to receive an award at the European Hospitality Solutions Technology show. Ex. 2062 at 32-33 (press release concerning partnership), 95-96 (press release concerning award). A

purported memo signed by Mr. Harker notes that he chose to partner with Ameranth and that Symbol made a multi-million dollar investment in Ameranth. Ex. 2062 at 171-172. This evidence suggests that Mr. Harker was not "completely independent."

229. I do not see the significance to the issue of nonobviousness of Mr. Harker's testimony about numerous people allegedly visiting Patent Owner's booth at the 1999 NRA meeting. Apparently, in this instance, the purported booth traffic did not lead to actual customers and implementations, because Patent Owner has provided virtually no evidence that anyone used its software aside from the Dallas Improv Comedy Club.

230. Dr. Weaver also points to Mr. Harker's memo from March 2008 (Ex. 2062 at 171) where he references a "software wizard" which purportedly had something to do with POS integration and allowed POS and property management system (PMS) screens to be "ported and transferred to wireless devices." Dr. Weaver does not explain how the "software wizard" relates to the Challenged Claims which do not require POS integration.

231. Patent Owner and Dr. Weaver also reference a roughly one-page discussion of Patent Owner in the "Market Busters" book. '91 Paper 17 at 72; Ex. 2041, ¶ 143. The "Market Busters" excerpt does not suggest that the Challenged Claims are nonobvious. I note that Patent Owner's name is consistently misspelled

as "Amaranth" in the excerpt. Ex. 2051. The excerpt primarily discusses a use case of ordering food using a wireless device in a stadium. There is no mention of any web page or web server as required by the Challenged Claims. The excerpt also does not indicate that the author had any personal experience with Patent Owner's 21CR system.

7. No Evidence of Copying

232. Patent Owner and Dr. Weaver claim that others have copied Patent Owner's alleged inventions and technology. '91 Paper 17 at 73-78; Ex. 2041, ¶¶ 145-154. I have reviewed the cited evidence and it is my opinion that the evidence fails to show that anyone copied anything from Patent Owner.

233. Patent Owner's copying allegations are simply unreasonable and unsupported assumptions based on evidence that companies implemented technologies after Patent Owner had discussions with them or submitted information to them. Patent Owner seems to ignore the fact that it was not the first or only company in the industry touting features such as online and remote ordering.

234. I also note that Patent Owner's copying allegations are high level and focus on features like online and remote ordering rather than the Challenged Claims. Patent Owner provides no evidence actually showing that any of the

purported copyists are using systems that infringe the Challenged Claims or that look anything like anything Patent Owner created or shared with anyone.

a. Patent Owner Did Not Invent Online Ordering or Ordering from a Wireless Handheld Device

235. Patent Owner's copying allegations seem to be based on its unsupported claims that it invented online ordering or mobile ordering. Patent Owner has not shown that it invented online ordering or mobile ordering, or that either was novel in October 1999 when it filed the '850 patent.

236. For example, U.S. Patent No. 5,991,739 to Cupps, cited by the examiner during prosecution of the '850 patent, was filed almost two years before the '850 patent and discloses online food ordering. Ex. 1102. Even the prior art Cupps patent acknowledges that online ordering was already known. U.S. Patent No. 5,991,739 at 1:10-13 ("Currently, there exist several Internet services that provide consumers with access to menus for food products that can be ordered online."). Patent Owner acknowledged in July 1999, even before filing for the '850 patent, that Food.com was already "the Internet's premiere online takeout and delivery service." Ex. 1066.

237. Ordering from a wireless handheld device was also not invented by Patent Owner. For example, UK Patent Application GB 2196766A published in 1988 discloses ordering from a wireless handheld computer. Ex. 1101 at Abstract ("The handheld computers are used by waiters to enter customer orders which are

then transmitted by radio or infra-red radiation to the communication module 11."). In addition, Kasavana's 1997 book, Managing Computers in the Hospitality Industry, discusses ordering from wireless handheld devices. Ex. 1033 at 168-169.

238. I would also note that the '850 patent does not describe or suggest ordering from a ***customer's handheld device***. In addition, none of the materials Patent Owner has submitted about its 21st Century Restaurant system show that it even supported ordering from a customer's handheld device. See, e.g., Ex. 2047 (21CR brochure).

b. No Evidence of Copying by Starbucks

239. Patent Owner and Dr. Weaver claim that Starbucks copied its Mobile Order & Pay system from Ameranth. '91 Paper 17 at 73-75; Ex. 2041, ¶¶ 146-147. None of the evidence referenced by Patent Owner or Dr. Weaver provides any support for this accusation.

240. Patent Owner and Dr. Weaver claim that Ameranth disclosed innovations to Starbucks at the 1999 NRA show. '91 Paper 17 at 73; Ex. 2041, ¶ 146. They identify no evidence that Starbucks had any discussion with Ameranth at the 1999 NRA show or even viewed Ameranth's booth.

241. Patent Owner and Dr. Weaver also claim that Ameranth provided a PowerPoint presentation to Starbucks in 2006. '91 Paper 17 at 74; Ex. 2041, ¶¶ 146-147. I have reviewed the cited exhibits. Ex. 2053 is purportedly an email

exchange between Keith McNally at Ameranth and Steven Larson, a Microsoft employee. I find it significant that Patent Owner relies not on actual communications with Starbucks but rather on communications with an intermediary who allegedly passed the materials along to Starbucks. I would also note that Patent Owner's claim that Rob Reed at Starbucks "liked what he saw" is quoting Mr. Larson at Microsoft, not Mr. Reed or anyone else at Starbucks.

242. The emails in Ex. 2053 show that Mr. McNally was extremely eager to meet with Starbucks in late 2006 and was pressing Mr. Larson to facilitate a meeting or introduction with Starbucks. In the final email in the thread, Mr. Larson tells Mr. McNally that Starbucks is not interested in talking to Ameranth at because their resources were focused on a Web 2.0 project at the time.

243. I have also reviewed closely the materials that Patent Owner claims were provided to Starbucks in late 2006, namely Ex. 2059. In my opinion, these materials provide no support whatsoever for Patent Owner's claim that Starbucks copied anything from Patent Owner.

244. The presentation is a total of six slides including the cover slide. See Ex. 2059. The slides include no meaningful technical details or proprietary information. The slides are not even marked Confidential.

245. The only remotely technical slide in the presentation is slide 2, but even this slide provides only a very high level system architecture diagram

consisting of generic system components and Microsoft products (e.g., IIS/ASP.NET, SQL Server):

In my opinion, this architecture neither matches up with the Challenged Claims nor with the Mobile Order & Pay system that Patent Owner claims was copied from Ameranth.

246. I would note that the diagram shows that the mobile phone uses a "Mobile Web" interface. Patent Owner and Dr. Weaver have argued in this proceeding that a mobile web interface cannot possibly meet the requirements of a

handheld device on which hospitality applications and data are stored. See e.g., '91 Paper 17 at 38 ("The Petition and Helal Declaration entirely ignored the ***app-based, non-web browser dependent***, requirement of claim 12 element b."); Ex. 2041, ¶ 92 (same argument). Despite Patent Owner's insistence that the Challenged Claims require a mobile "app," Patent Owner's own presentation allegedly prepared for Starbucks includes no reference to any mobile "app."

247. The architecture slide also fails to reflect many of the elements of the Challenged Claims. For example, there is no reference to any communications control module. The slide also fails to show hospitality applications and data contained in a central database, stored on a web server, or stored on a web page.

248. Patent Owner has provided no evidence and Dr. Weaver has provided no analysis showing that Starbucks' Mobile Order & Pay system bears any resemblance to the architecture slide excerpted above. Indeed, Starbucks' Mobile Order & Pay does not use a "mobile web" interface or a voice-based interface as suggested in the architecture slide. See Exs. 1103, 1104. The presentation also includes two slides showing an online "order ahead" feature, Ex. 2059 at 4-5, but Starbucks' does not offer online ordering. Ex. 1104, 1105. Moreover, online ordering was not novel in 1999 when the '850 patent was filed (see Section V.D.7.a), and it was certainly not novel in late 2006, the purported date of the presentation prepared for Starbucks.

249. Patent Owner and Dr. Weaver have also presented no evidence or analysis to show that the Starbucks' Mobile Order & Pay system actually meets any of the limitations of any of the Challenged Claims. For example, they have not shown any evidence of a Starbucks' communications control module or hospitality applications and data stored in and synchronized between the locations required by the Challenged Claims.

250. Dr. Weaver says he has reviewed "Starbucks' own materials on its 'Mobile Order & Pay' system" (Ex. 2041, ¶ 147), but he does not identify what "materials" he reviewed nor or any such materials included in the exhibits. Counsel for Starbucks informed me that Dr. Weaver would not have had access to Starbucks' internal technical documentation regarding Mobile Order & Pay because it was released after the litigation was stayed and accordingly no Mobile Order & Pay documents were produced to Ameranth in the litigation.

251. Finally, I note that Dr. Weaver states that "Starbucks has copied the relevant 'synchronization, integration, and consistency' features of the Ameranth inventions." Ex. 2041, ¶ 147. In light of this statement, it is not clear to me whether he actually thinks Starbucks copied any technology from Ameranth. His opinion may be based on the fact that Starbucks' introduced a system that has "synchronization, integration, and consistency." But as I discussed above, Patent

Owner did not invent "synchronization, integration, and consistency," nor is that an accurate characterization of the Challenged Claims.

c. No Evidence of Copying by Pizza Companies

252. Patent Owner and Dr. Weaver also claim that Pizza Hut, Papa John's, and Domino's copied mobile ordering from Ameranth. '91 Paper 17 at 75-76; Ex. 2041, ¶¶ 148-151. The only evidence cited by Dr. Weaver concerning what Patent Owner allegedly disclosed to Pizza Hut is a meeting agenda (Ex. 2055). According to the agenda, Mr. McNally of Ameranth had a 15 minute window within the 2.5 hour meeting to provide an "Overview of E Host Project." Ex. 2055. Neither Patent Owner nor Dr. Weaver explain what the E Host project was or how it relates to the Challenged Claims.

253. Dr. Weaver concludes that Pizza Hut, Papa John's, and Domino's copied online and mobile ordering from Ameranth (Ex. 2041, ¶¶ 150-151), but he does not identify any evidence that actually shows copying. He claims to have come to this conclusion "based upon their own descriptions and admissions of their online and mobile ordering systems, and on [his] review of their systems including their mobile apps." Ex. 2041, ¶ 151. Dr. Weaver does not identify what evidence of their "systems" he reviewed, nor does he explain how the pizza company mobile apps show that they copied anything from Ameranth.

254. Dr. Weaver's opinion concerning copying by the Pizza companies appears to be based on the simple fact that these companies introduced online and mobile ordering at some point in time after Patent Owner purportedly spoke to them. But as I discussed above, Patent Owner did not invent online or mobile ordering and there is no evidence that these companies copied any specific technology or even specific ideas from Patent Owner.

d. No Evidence of Copying by Micros

255. Patent Owner and Dr. Weaver also claim that Micros copied from Patent Owner. '91 Paper 17 at 77; Ex. 2041, ¶ 152. Again, the allegations are based only on the fact that Micros offers technology for online ordering and that Micros purportedly had conversations with Ameranth at some point in time before introducing this technology. The evidence cited for what was disclosed to Micros by Ameranth (Ex. 2062 at 125-126), consists of a brief list of notes from a supposed phone call in May of 2000. The notes do not even reference online ordering, which as I discussed above, was already well known by this time.

256. Dr. Weaver does not provide any discussion or analysis of Micros' Simphony technology or show that it satisfies any of the Challenged Claims of the '850 patent. Nor does Dr. Weaver provide any comparison between any Micros product and any Ameranth product or document that was supposedly copied.

e. No Evidence of Copying by Agilisys

257. Patent Owner and Dr. Weaver claim that Agilisys copied its "IG Roam" mobile ordering product copied Ameranth's 21CR product. '91 Paper 17 at 78; Ex. 2041, ¶ 153. The cited press release merely states that the Hard Rock Hotel & Casino is using the InfoGenesis Roam solution for wireless order-taking by servers. Ex. 2010. As I discussed above, Patent Owner did not invent wireless order-taking. Although Dr. Weaver states that Agilisys' IG Roam solution "embodie[s] the claimed inventions" (Ex. 2041, ¶ 153), he provides no actual analysis or evidence that the product satisfies any limitations of any of the Challenged Claims.

f. No evidence of Copying by Marriott or Hyatt

258. Patent Owner and Dr. Weaver claim that Marriott and Hyatt also copied Ameranth's technology. '91 Paper 17 at 77; Ex. 2041, ¶ 153. The only evidence cited for Marriott is Ex. 2016 which is a Computerworld case study discussing "Marriott's Global Reservations System and Web Presence." Dr. Weaver provides no discussion of this exhibit or how it purportedly shows that Marriott copied anything from Patent Owner. I have reviewed the exhibit and nothing in it suggests to me that Marriott copied anything from Patent Owner.

259. The only evidence cited for the alleged copying by Hyatt is an interview with Hyatt CTO Matt O'Keefe (Ex. 2005). Dr. Weaver provides no

discussion of this exhibit or how it purportedly shows that Hyatt copied anything from Patent Owner. I have reviewed the exhibit and nothing in it suggests to me that Hyatt copied anything from Patent Owner.

260. Patent Owner quotes an excerpt from the interview where Mr. O'Keefe refers to Hyatt's platform as "*mise en place*, which is a French phrase that translates to 'everything in its place.'" '91 Paper 17 at 77. Patent Owner claims that this statement is a claim by Hyatt that it invented the "single point of entry" referenced in claim 13 of the '850 patent '91 Paper 17 at 77. I disagree. Mr. O'Keefe is merely discussing integration of Hyatt's back-end systems. The statement does not even suggest that Hyatt's "API façade" is novel, let alone that it is a communications control module, or that it "provides a single point of entry for all hospitality applications [that] allows the synchronization of at least one wireless handheld computing device and at least one Web page with the central database so that at least one handheld device, at least one Web page and central database are consistent" as required by claim 13 of the '850 patent.

8. No Evidence of Failure by Others

261. Patent Owner and Dr. Weaver claim that others in the industry tried and failed to develop what Patent Owner allegedly succeeded in developing. '91 Paper 17 at 78-80; Ex. 2041, ¶¶ 155-158. In my opinion, the evidence does not show that others tried to develop the technology of the Challenged Claims or that

they failed in their efforts to do so. There does not appear to be any nexus between the cited evidence and the Challenged Claims.

262. The Food.com press release indicates that Food.com was hoping Patent Owner could help them integrate their online ordering system with POS systems. Ex. 2062 at 69 (July 1999 press release). I do not see how this suggests the Challenged Claims are nonobvious. I would also note that there is no evidence showing that Patent Owner was able to actually deliver any of the benefits suggested in the press release.

263. The internal Food.com email (Ex. 2001) suggests that Food.com wanted Patent Owner's "Menu Wizard" feature. The "Menu Wizard" is not related to the Challenged Claims, but instead appears to be related to the menu generation claims 1-11 of the '850 patent and 1-10 of the '325 patent. I understand those menu generation claims have already been invalidated in separate CBM proceedings.

264. The Food.com email also references a "Communications Wizard" that had something to do with POS integration. Neither Patent Owner nor Dr. Weaver explains what the "Communications Wizard" was or how it relates to any of the Challenged Claims. The email also suggests that Patent Owner promised to provide integration with at least 5 POS platforms. Again, there is no evidence that Patent Owner was able to deliver on these promises.

265. Patent Owner and Dr. Weaver cite a Pizza Hut comment about making a run at something in the late 1990s, but the comment is highly ambiguous. '91 Paper 17 at 79; Ex. 2041, ¶ 156. It is not clear from the comment what Pizza Hut "made a run at" and why it was not successful. Ex. 2018 at 5. Even if these comments related to mobile ordering I would not find them significant to the issue of nonobviousness, because Patent Owner did not invent or patent mobile ordering. I would also point out again that cited exhibit 2055 is merely a meeting agenda and fails to show what technology or ideas, if any, Patent owner actually shared with Pizza Hut.

266. The cited Papa John's comment about lacking POS integration is not relevant because the Challenged Claims do not require POS integration. I would also note that I do not see the cited comment in Ex. 2066.

267. The cited comments that Patent Owner attributes to Paul Armstrong of Micros (Ex. 2058 at 12) are vague and do not show that Micros was trying to achieve the subject matter of the Challenged Claims. The comments are in reference to "online ordering systems" which Patent Owner clearly did not invent as I discussed above.

9. Conclusion Regarding Secondary Considerations

268. I have reviewed the evidence Patent Owner and Dr. Weaver present as secondary considerations of non-obviousness of the Challenged Claims. None of

the evidence suggests to me that the Challenged Claims were nonobvious in 1999, especially when weighed against the strong evidence of obviousness based on the prior art discussed in the Petition and in my declarations. While some of the cited evidence references Patent Owner's 21st Century Restaurant system, neither Patent Owner nor Dr. Weaver have actually shown that system practiced any of the Challenged Claims.

269. Even if Patent Owner could show a nexus to the Challenged Claims, the evidence is very weak in my opinion. I see no actual evidence of commercial success, copying, or failure of others. I am skeptical of the supposed "awards" given the only evidence of them is Patent Owner's own press releases, but even if I ignore that, none of the awards strike me as compelling. Rather, they are fairly commonplace awards that companies in industry would collect over time if they are making some efforts to market their software.

VI. CONCLUDING REMARKS

270. Notwithstanding the Corrected Patent Owner's Responses and the Weaver declaration, it is my opinion that the Challenged Claims 12-16 of the '850 patent are invalid as (1) obvious over Brandt and NetHopper , and (2) obvious over Brandt, Demers, and Alonso. It is also my opinion that the Challenged Claims 11-13 and 15 of the '325 patent are invalid as (1) obvious over Brandt, NetHopper, Carter, and Rossmann, and (2) obvious over Brant, Demers, Alonso, Carter, and Rossmann.

271. The arguments set forth by Patent Owner and Dr. Weaver are incorrect and/or not relevant as explained in this declaration, and thus do not alter the opinions that I offered in my prior declarations (Helal '850 Decl. & Helal '325 Decl.).

Executed on the 23rd day of March 2016 in Gainesville, FL.

/Abdelsalam Helal, Ph.D./

ABDELSALAM HELAL, PH.D.