IN THE UNITED STATES PATENT TRIAL AND APPEAL BOARD

In re Post-Grant Review of:	)	
U.S. Patent No. 8,452,646	)	
	)	
Issued: May 28, 2013	)	
	)	
Inventor: Andrew LEVI *et al.*	)	
	)	
Application No. 12/925,218	)	Petition filed: August 16, 2013
	)	
Filed: October 14, 2010	)	FILED ELECTRONICALLY
	)	PER 37 C.F.R. § 42.6(b)(1)
FOR: System and method for	)	
providing endorsed	)	
electronic offers between	)	
communication devices	)	
	)	

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DECLARATION OF DR. ANUPAM JOSHI
REGARDING U.S. PATENT NO. 8,452,646

I, Anupam Joshi, hereby declare and state that:

1. I am currently the Oros Family Professor in the Department of Computer Science and Electrical Engineering at the University of Maryland, Baltimore County ("UMBC").   I joined the faculty at UMBC in 1998 and became the Oros Family Professor in 2011.

2.   I have over 20 years of experience in the computer science and electrical engineering field.   I have co-authored more than 175 papers in this area, including Olga Ratsimor, *et al.*, Technical Report TR-CS-03-27 "Intelligent Ad Hoc Marketing Within Hotspot Networks", was published and publicly available around November 2003 (Ex. 1006 [1] and "Ratsimor").   The designation "TR-CS-03-27" means that this Report was the 27th report issued in 2003 by our Department of Computer Science and Electrical Engineering at the University of Maryland, Baltimore County.   This article was also publicly available for viewing and downloading on the website for the Department of Computer Science and Electrical Engineering at the University of Maryland, Baltimore County.

3.   I am an expert in the field of the intelligent networked systems, with a wide range of experience in the areas of mobile computing, semantic web, social computing, and data/web mining.   A copy of my curriculum vitae is attached as Exhibit A, which sets forth my experience and qualifications in more detail.

4.   I have been retained by the Petitioner, Groupon, Inc. to provide my opinion concerning the validity of U.S. Patent No. 8,452,646 (Ex. 1001 and "the '646 patent").

5.   The '646 patent is directed to a method and system for distribution of advertisements and electronic offers communication devices. (Ex. 1001, Abstract)   In particular, the patent describes a method for advertisers to reach potential consumers by displaying company advertisements and

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[1] The Exhibits referred to herein are those referred to in the accompanying Petition For Post-Grant Review Under 35 U.S.C. § 321 And § 18 Of The Leahy-Smith America Invents Act.

offering sales promotions or electronic offers on the user devices, including the provision of incentives. (Ex. 1001, col. 2, ln. 18-26) The disclosed method also provides for a means of redeeming offers utilizing points of sale and analysis associated with the redemption of electronic offers. (Ex. 1001, col. 2, ln. 52-55)

6. I have been given to understand that the patent application (Application No. 12/925,218) leading to the '646 patent was made on October 14, 2010. I further have been given to understand that the Patent Owner may take a position that the '646 patent is a continuation of the related U.S. Patent No. 7,664,516 (the "'516 patent") and that it therefore should be entitled to a priority date based on the earliest patent application (Provisional Application No. 60/639,267) filing leading to the '516 patent that was made on December 27, 2004. However, I have been given to understand it is Petitioner's position that all of the claims of the '646 patent (namely claims 1-13) are not entitled to any filing date earlier than the November 18, 2009 date of the 12/592,019 application ("'019 application") leading to the related U.S. Patent No. 8,155,679 (the "'679 patent"). This position is based on the Patent Owner adding new material to '019 application that was not present the earliest '267 provisional patent application filing.

7. Regardless of the priority date that the Board ascribes to claims of the '646 patent, I believe that a person of ordinary skill in the art in this area would have had a Bachelor-level degree in computer science or a related discipline, with a background in peer-to-peer networks or mobile commerce. This description is approximate, and a higher level of education or skill might make up for less experience, and vice-versa. In other words, this description of a person or ordinary skill in the art would apply both to the

time period prior to December 27, 2003 (or more than a year before the provisional filing date), as well as to the time period prior to November 18, 2008 (or more than a year before the '019 filing date).

8. Likewise, regardless of the priority date that the Board ascribes to the claims of the '646 patent, as discussed herein, methods and systems for matching advertisers and retailers to customers were well known prior to the '646 patent. It was well known to one of ordinary skill in the art to provide advertisements or electronic offers to certain customers based on their demographic information or preferences, and the provision of incentives or bonuses to customers (including a system that allows a user to redeem points) for referring new customers to the advertiser or retailer was also well known. Accordingly, this declaration is submitted to support a Petition for Post-Grant Review of the '646 patent.

9. In forming my opinion, I have relied on the claims of the '646 patent, the prosecution history of the '646 patent, the prior art exhibits to the Petition for Post-Grant Review of the '646 patent, and my own experience and expertise of the knowledge of the person of ordinary skill in the relevant art at the time the '646 patent application was filed.

10. For the reasons set forth below, it is my opinion that claims 1-2 are anticipated by certain prior art references discussed in detail below. Alternatively, claims 1-13 are obvious in view of the prior art discussed below.

11. The two primary references that form the basis of my opinions with respect to anticipation and obviousness are: Olga Ratsimor, *et al.,* Technical Report TR-CS-03-27 "Intelligent Ad Hoc Marketing Within Hotspot Networks",

published in November 2003 (Ex. 1006[2] and "Ratsimor") and U.S. Patent Publication No. 2002/0169835 to Glen Hale Paul Jr., *et al.* (Ex. 1007 and "Paul") published on November 14, 2002. I also discuss herein what was the general state of the art in the 2003 and prior timeframe.

12.   In addition, if the Board agrees with Petitioner that at least claims 1-13 of the '646 patent are not entitled to the earlier priority date, then additional references that form the basis of my opinion with respect to obviousness are:

- Atazky, R. *et al.*, U.S. Patent Publication No. 2007/0121843 A1 entitled "Advertising and Incentives over a Social Network" published May 31, 2007 (Ex. 1010)

- Hall, R. *et al.*, U.S. Patent Publication No. 2008/0256233 A1, entitled "System and Method for Tracking the Network Viral Spread of a Digital Media Content Item" published October 16, 2008 (Ex. 1011)

- MacEachren, A., Boscoe, F., Haug, D., & Pickle, L., "Geographic Visualization: Designing Manipulable Maps for Exploring Temporally Varying Georeferenced Statistics." Department of Geography, Penn State University; National Center for Health Statistics (Proceedings of IEEE Information Visualization Symposium, Research Triangle) (1998) (pp. 87-94) (Ex. 1012)

For those of ordinary skill in the art in the 2008 timeframe, they would have been aware of the Atazky, Hall, and MacEachren references (Exs. 1010-1012), as well as the earlier references from prior to 2003, including Kitaura, K. *et al.*, U.S. Patent Publication No. 2002/0091569 A1, entitled "Electronic Coupon System" published July 11, 2002 (Ex. 1009).

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[2] All the Exhibits referred to herein are attached to the Petition for Post-Grant Review Under 35 U.S.C. § 321 and § 18 of the Leahy-Smith America Invents Act.

General State Of The Art

13.   A quick scan of the reference list of Ratsimor (Ex. 1006, pp. 13-14) shows, the idea of providing profile based incentives was well known in the technical community prior to 2003.   Additionally, the following exemplar references demonstrate that that targeted advertising and the idea of providing profile based incentives was well known in the technical community prior to 2003:

- Perich, F., Avancha, S., Chakraborty, D., Joshi, A., & Yesha, Y., "Profile driven data management for pervasive environments." In *Database and Expert Systems Applications* (pp. 361-370). Springer Berlin Heidelberg (January 2002) (Ex. 1013)

- Chakraborty, D., Perich, F., Avancha, S., & Joshi, A., "Dreggie: Semantic service discovery for m-commerce applications." In *Workshop on Reliable and Secure Applications in Mobile Environment, 20th Symposium on Reliable Distributed Systems* (pp. 28-31) (October 2001) (Ex. 1014)

- Cost, R. S., Finin, T., Joshi, A., Peng, Y., Nicholas, C., Soboroff, I., ... & Tolia, S. "ITtalks: A case study in the semantic web and DAML+ OIL." *Intelligent Systems, IEEE*, *17*(1), 40-47 (2002) (Ex. 1015)

- Avancha, S., D'Souza, P., Perich, F., Joshi, A., & Yesha, Y., "P2P M-commerce in pervasive environments," *ACM SIGecom Exchanges*, *3*(4), 1-9 (2002) (Ex. 1016)

- Varshney, U., & Vetter, R., "Mobile commerce: framework, applications and networking support," *Mobile networks and Applications*, *7*(3), 185-198 (2002) (Ex. 1017)

- Tveit, A., "Peer-to-peer based recommendations for mobile commerce." In *Proceedings of the 1st international workshop on Mobile commerce* (pp. 26-29). ACM   (July 2001) (Ex. 1018)

- Sheshagiri, M., Sadeh, N., & Gandon, F., "Using semantic web services for context-aware mobile applications." In *MobiSys 2004 Workshop on Context Awareness*   (June 2004) (Ex. 1019)

- Guheen *et al.,* U.S. Patent No. 6,519,571 entitled "Dynamic customer profile management" issued February 11, 2003 (Ex. 1020)

- Heng, U.S. Patent Publication No. 20030014307 A1 entitled "Method and system for mobile commerce advertising" published January 16, 2003 (Ex. 1021)

14.	Consider some examples from the eBiquity research group at UMBC, of which I am a member. The use of profiles in peer-peer networks for example is described by Chakraborty *et al.* (Ex. 1014) in 2001, and by Perich *et al.* (Ex. 1013) and Avancha *et al.* (Ex. 1016) in 2002. The use of profiles more generally to select content and information to be shared was also well known in the literature. As an example, consider Cost *et al.* (Ex. 1015), which was published in 2002.

15.	While our group made key discoveries in this area, other advances were not unique to our group. For example, Varshney *et al.* (Ex. 1017), in a survey paper in 2002 on mobile commerce, explicitly describe the use of profiles and demographic information for targeting users in Section 2.2. Guheen *et al.* describe using profile and usage information to customize interfaces for web based access. (Ex. 1020 at col. 2, ln. 6-11) Tveit describes recommendations for services to users in a peer-peer mobile commerce environment. (Ex. 1018 at Abstract) Heng (US 20030014307 A1) describes a system where a user profile is matched against advertisements to target them to a customer. (Ex. 1021 at ¶ 8). Similarly, Sheshagiri *et al.* describe a system where a user's context (which is similar to but richer than a demographic profile) is used to tailor their experience and assist them in using services from a mobile device. (Ex. 1019 at p. 1)

In addition, the Navas (Ex. 1022) and Ko (Ex. 1023) references below describe the transmission of messages based on geography:

- Navas, J.C. & Imielinski, T. "GeoCast—geographic addressing and routing." In *Proceedings of the 3rd annual ACM/IEEE International conference on Mobile computing and networking* (pp. 66-76). ACM. (September 1997): Navas teaches the idea of sending messages and ads to devices in a specified region and providing specific services to them.

- Ko, Y.B., & Vaidya, N. H. "Geocasting in mobile ad hoc networks: Location-based multicast algorithms." In *Mobile Computing Systems and Applications, 1999. Proceedings. WMCSA'99. Second IEEE Workshop on* (pp. 101-110) IEEE (February 1999): Ko teaches sending a message to mobile devices in a given geographic region in the case of ad hoc networks.

The Ratsimor Reference

16. I co-authored the Ratsimor technical report (Ex. 1006), which was publicly available around November 2003. The system described in the technical report was also the subject of an earlier paper presented at the ACM International Conference on Electronic Commerce, held in September 2003 and published in its proceedings. These documents were also available from the UMBC CSEE Department website.

17. Ratsimor very specifically describes a system that is in the same domain (peer-to-peer) as the '646 patent, and has features that are essentially equivalent to the claimed novel business process ideas described in the '646 patent. As such, I believe that the claims of the '646 patent were either explicitly described in prior art, or were obvious to a person of ordinary skills in the art based on publicly available literature. Prior art, including Ratsimor, teaches all of these concepts. In many cases, the described

claims are directly mentioned. In others, they are straightforward and obvious to a person familiar with the ordinary skills of the art.

18. There are several concepts that are common to the claims of the '646 patent: (1) creating profiles including a set of demographic data; (2) deriving a match condition between the two profiles; (3) determining if a subscriber is a qualified subscriber; (4) execution of the endorsement tag; and (5) transmitting the advertising content. The additional features described in the dependent claims, including an incentive program and incentivizing a subscriber, are minor extensions of these key concepts.

19. Ratsimor is designed for providing incentives such as subsidies in a peer-to-peer mobile environment by trying to match user needs to that of providers of advertisements and subsidies. Ratsimor's peer-to-peer system (called "eNcentive") provides incentives for users to refer promotions and advertisements to others. "This paper proposes a framework, called eNcentive, which addresses issues of dissemination of promotional information in ad hoc environments within hotspot networks. Our framework employs an intelligent peer-to-peer marketing scheme, by providing users the capability to collect promotional information disseminated by hotspots on behalf of small businesses and merchants. Users can propagate these sales promotions and discounts to other users in the ad hoc network." (Ex. 1006, Abstract at 1) "Participating users benefit from such circulation since merchants and small businesses that originally created the promotions reward the active distributors with additional promotions and other compensations." (Ex. 1006, p. 1) Access to Ratsimor's eNcentive system can be provided by an intermediary, such as an Internet access service. "The wireless base stations and other equipment

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that provides this access can be owned and maintained by a third party specializing in Internet access services, similar to T Mobile Hotspots Services." (Ex. 1006, p. 3)

Profiles

20.   Ratsimor teaches creating profiles for users that include features such as demographic data. "The devices will consult with user's profile before storing the promotions and advertisements." (Ex. 1006, p. 2)   Ratsimor's system "offers merchants and businesses a mechanism for targeted promotions, which help them customize promotions accordingly." (Ex. 1006, p. 1)   In order to participate in the promotional services, merchants must create a profile including a set of demographic requirements (to be used in targeting promotions). (*See, e.g.,* Ex. 1006, p. 7 ("Jazz Café' management creates a promotion that is specifically destined to target potential customers of Rock'n'Roll Café' and Blue Grass Café."")). Ratsimor also refers to prior work done by our group [refs 6 and 9 in Ex. 1006] and others [refs 1, 2, 7, 15, and 17 in Ex. 1006] in terms of profiles of users that include features such as demographics. Ratsimor also teaches that a merchant may respond to questions regarding types of business and the geographic location where advertisements will run services. "The devices will consult with user's profile before storing the promotions and advertisements." (Ex. 1006, p. 2)   "Our framework allows users to store their profiles locally and does not require submission of any personal information to any centralized location." (Ex. 1006, p. 5)

Match Conditions

21. Ratsimor teaches deriving a match condition between a merchant's desired profile and a user profile in the context of disseminating promotions. Specifically, Ratsimor envisages both generic promotions that are provided to everyone, and targeted promotions that are provided only to those that meet the advertiser's criteria. For targeted promotions, more demographic criteria are used than for generic promotions. "So, in Bob's case, when MH1 receives a generic promotion form [sic] Jazz Café's eNcentive Server (that is being indiscriminately broadcasted to all customers) eNcentive framework on MH1 check with Bob's local personal profiles. From the profiles, the framework determines that Bob does not mind sharing his current route with neighborhood coffee shops. MH1 sends Bob's route to the Jazz Café eNcentive Server in Jazz Café, form [sic] that route, determines that Bob will pass by Rock 'n'Roll Café. So, Bob actually received both generic promotions and targeted promotions (with a better discount and a generous reward for distribution)." (Ex. 1006, p. 7) "Our framework also offers merchants and businesses a mechanism for targeted promotions, which help them customize promotions accordingly." (Ex. 1006, p. 1) "The devices will consult with user's profile before storing the promotions and advertisements." (Ex. 1006, p. 2) "The Marketing Agent is also responsible for determining which targeted advertisement should be supplied to the users interested in targeted promotions." (Ex. 1006, p. 9) "The preferences where [sic] used to notify customers on their mobile phones of a release of new movies or new musical albums that matched customer's preferences. Tsutaya (a reference cited in Ratsimor) also sent out other promotional information like discounts on rentals and concert

announcements that matched customers' personal preferences." (Ex. 1006, p. 4)

Qualified Subscriber

22.   Ratsimor teaches the concept of a qualified subscriber: only certain users (subscribers) whose profiles allow receiving certain advertisements will be qualified to receive the advertisements or promotions.   "So, in Bob's case, when MH1 receives a generic promotion form [sic] Jazz Café's eNcentive Server (that is being indiscriminately broadcasted to all customers) eNcentive framework on MH1 check with Bob's local personal profiles. From the profiles, the framework determines that Bob does not mind sharing his current route with neighborhood coffee shops."   (Ex. 1006, p. 7)   "The devices will consult with user's profile before storing the promotions and advertisements."   (Ex. 1006, p. 2)

23.   In targeted promotions, users (subscribers) are further qualified in that they must meet additional criteria.   "The Marketing Agent is also responsible for determining which targeted advertisement should be supplied to the users interested in targeted promotions." (Ex. 1006, p. 9).   I believe that Ratsimor envisions a richer qualification model than the '646 patent, since it argues that the subscriber is qualified based on constraints of both the subscriber and the advertiser.   In other words, either of these constraints, or the constraints jointly, can be used.

Endorsement Tags

24.   Ratsimor provides for a variety of links and unique identifiers that represent the same idea which is referred to as an "endorsement tag" in the '646 patent.   As shown earlier, subsidies that are passed from one user to another

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are uniquely tracked. "To keep track of this chain, every promotion contains a list of platform IDs of every eNcentive platform that ever distributed this coupon." (Ex. 1006, p. 3) The user choosing to pass certain promotions along (and not others) is an explicit endorsement of the offer, and the person who has passed the offer along has their id explicitly embedded. The offer has details such as locations, start/stop times and such which are also tracked. For example, Fig. 5 in Ratsimor demonstrates that promotions include links to advertising content. The image shows that a user may click "View" to obtain additional content about a particular promotion or advertisement. (*See* Ex. 1006, p. 12)

Transmitting Content

25. In Ratsimor, the subscriber (user Bob) transmits a content communication to a recipient (user Susan) by broadcasting it. "During the day, as Bob travels through the neighborhood, he passes by Suzan, who is equipped with a PDA (MH2) running eNcentive. MH2 receives Bob's broadcast and requests the promotion from MH1 as it matches Susan's drinking preference. MH1 signs the promotion with Bob's eNcentive ID and passes the promotion to Susan's MH2." (Ex. 1006, p. 5)

26. Furthermore, advertising content (an e-promotion or an advertisement) is sent to the recipient (Susan) since she uses the promotion at Jazz Café in Ratsimor's example.

Incentive Programs

27. Ratsimor teaches offering a variety of incentive or subsidy programs, such as discounts and rewards, including free access to the network. Ratsimor also teaches incentive programs wherein an incentive is associated with at

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least one advertiser. The incentive can be targeted to specific users. Ratsimor also teaches incentive programs wherein an incentive subsidy increases depending upon how much a user disseminates a promotion or advertisement. For example, given a targeted promotion that is tied to a particular advertiser, if a targeted user (such as Bob) sends the promotion to numerous other users, he will receive additional subsidies associated with that advertiser. It also teaches that the subsidy can vary based on how much profile related information the user chooses to reveal of the advertisers and intermediaries. "Clearly, in targeted promotion scenario, the customers should have a number of privacy concerns related to revealing their travel route to any entity. However, we feel that a user might be willing to disclose this information if he or she is adequately motivated by high discounts and generous reward (discussed below) for the active distributors." (Ex. 1006, p. 7) As this excerpt shows, Ratsimor also discusses the privacy issues that arise in such targeted incentive systems. (*See also* Ex. 1006, pp. 3, 6, and 9)

28. Ratsimor also teaches the communication of an incentive program, from a set of incentive programs, to a qualified user. "Targeted promotions provide mechanisms for merchants to customize the discounts to address needs and demands of a particular group of potential consumers. For example, consider merchant that is facing competition form [sic] neighboring businesses. Also, consider a user that is willing to disclose his or her route, which includes the regions that host this merchants competition. The merchant can offer this use a more lucrative promotion …" (Ex. 1006, p. 3) Ratsimor provides a specific example of this general principle with

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three users, Bob, Susan[3] and Jeff. Bob (or rather, his device) gets a discount coupon from Jazz café. He shares it with other devices he encounters, including Susan's. Susan similarly shares it with Jeff. So each of them gets a different discount – Jeff the basic discount, Susan an additional discount, and Bob an even larger discount. "To reward Susan for her assistance, Jazz Café gives her 2% off in addition to the 10% off from the original e-promotion and 10 minutes of free internet access through the Jazz Café's hotspot. So Suzan's final discount is 12% off coffee and 10 minutes of internet access. At 8pm, Bob stops by Jazz Café to get his usual evening cup of coffee. He uses his e-promotion and receives additional 5% off on top of 10% guaranteed by e-promotion that he picked up in the morning. He also receives 15 minutes of internet access through the Jazz Café's hotspot. Bob's final discount is 15% off coffee and 15 minutes of Internet access time since Bob eNcentive ID was present in Susan's and Jeff's e-promotions." (Ex. 1006, p. 6)

29. A user (subscriber) may choose from the variety of incentive programs they are offered. They may choose to utilize the e-promotion that is part of a generic or targeted promotion, may choose to forward a promotion or advertisement to others, allowing them to gain further subsidies and rewards, or they may choose a combination of the two. (*See* Ex. 1006, pp. 6-8) Those referred advertisements (such as the promotion sent from Bob to Susan and Jeff in the previous example) are received by the recipients (Susan and Jeff) from the subscriber (Bob). This sharing/passing of subsidies and offers is tracked, by embedding a user's eNcentive id in the forwarded offers. For instance, Bob's eNcentive ID is present in Susan and

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[3] In Ratsimor, "Susan" and "Suzan" are used interchangeably.

Jeff's "e-promotion" when they use their promotions at the merchant. (See Ex. 1006, p. 6-8) This permits merchants and intermediaries to track the spread of offers and adjust their subsidies dynamically.

Receipt of Incentives

30.   In Ratsimor, as incentive offers are used by various users, the intermediaries responsible for their distribution and transmission also get their promised enhanced subsidies. When Susan uses her e-promotion, (which is tagged as having been endorsed and forwarded by Bob) this usage is tracked in order to make sure that Bob receives his enhanced incentive resulting from Susan's use of the e-promotion. "At 8pm, Bob stops by Jazz Café to get his usual evening cup of coffee. He uses his e-promotion and receives additional 5% off on top of 10% guaranteed by e-promotion that he picked up in the morning. He also receives 15 minutes of internet access through the Jazz Café's hotspot. Bob's final discount is 15% off coffee and 15 minutes of Internet access time since Bob eNcentive ID was present in Susan's and Jeff's e-promotions." (Ex. 1006, p. 6)

Additional Features

31.   Ratsimor provides a peer-to-peer method for providing access to an advertisement from an advertiser to a source communication device (possessed by a subscriber) and distributing said access to the advertisement to a destination communication device (possessed by a subscriber who is the recipient of the advertisement). "This paper proposes a framework, called eNcentive, which addresses issues of dissemination of promotional information in ad hoc environments within hotspot networks. Our framework employs an intelligent peer-to-peer marketing scheme, by

providing users the capability to collect promotional information disseminated by hotspots on behalf of small businesses and merchants. Users can propagate these sales promotions and discounts to other users in the ad hoc network." (Ex. 1006, Abstract at 1) "Users can propagate these sales promotions and discounts to other users in the ad hoc network. Participating users benefit from such circulation since merchants and small businesses that originally created the promotions reward the active distributors with additional promotions and other compensations." (Ex. 1006, p. 1) As explained above, in the example of Ratsimor, Bob would be the subscriber and Susan and Jeff are recipients.

32. The identification of users (subscribers) who meet certain demographic criteria, to receive a promotion or advertisement (whether "generic" or "targeted"), and that user's election to receive said promotion or advertisement constitutes a bi-lateral match and involves the identity of the two parties to be known to one another – this is described by the patent owner as a bi-lateral endorsement. A user may further endorse the advertiser by electing to broadcast a promotion or advertisement to others.

33. Ratsimor provides for a variety of tokens and tags, including links and unique identifiers, to identify a particular advertisement sent to a subscriber and further propagated by them.

34. The advertisements that are passed along in a peer-peer manner are uniquely identified, tracked and embed in themselves the id of the users who passed them along. These advertisements can be "redeemed" by executing them. Similarly, the advertisements contain links. "To keep track of this chain, every promotion contains a list of platform IDs of every eNcentive platform

that ever distributed this coupon." (Ex. 1006, p. 3). For example, Fig. 5 in Ratsimor demonstrates that promotions include links to advertising content. The image shows that a user may click "View" to obtain additional content about a particular promotion or advertisement. (*See* Ex. 1006, p. 12)

35. Ratsimor teaches that communications sessions are initiated between the source device (subscriber) and destination device (recipient) across the peer-to-peer system, just as that described in the specification of the '646 patent. "In this case, the platform starts to actively advertise coupons to other eNcentive peer platforms that the user passes by along the way. The peer platforms can cache these distributed advertisements and later redeem them with the business that honors these advertisements or likewise become another distributor." (Ex. 1006, p. 3) The communication model implemented in the realization was a push model, but the paper envisages other models for peer communication as well. "Current design of the eNcentive framework employs a push model. The advertisements are actively broadcast throughout a network. This is clearly not the only model that can be used. A pull model can also work well in mobile peer-to-peer environment. Mobile devices that are interested in the marketing information can query other peer device in the neighborhood. Other hybrid approaches are also possible." (Ex. 1006, p. 10)

36. In Ratsimor, the promotion or advertisement is transmitted contemporaneously from the subscriber (Bob) to a recipient (Susan or Jeff) across said communication session in the peer-to-peer network. "As Bob travels though [sic] the neighborhood, MH1 (which is Bob's mobile device such as a PDA) starts advertising the targeted promotions which are picked

up by other devices in the neighborhood, MH1 starts advertising the targeted promotions which are picked up by other devices in the neighborhood." (Ex. 1006, p. 7) "When the request is granted the Ad Manager Agent of B inserts B's platform ID into the requested promotion and then forwards this to A." (Ex. 1006, p. 10)

37. Upon termination of the communications session, and once the recipient (Susan or Jeff) has utilized their promotion or advertisement, an incentive is recognized in that the subscriber who endorsed and communicated the offer to others (Bob) has more discounts and rewards available to him. "At 8pm, Bob stops by Jazz Café to get his usual evening cup of coffee. He uses his e-promotion and receives additional 5% off on top of 10% guaranteed by e-promotion that he picked up in the morning. He also receives 15 minutes of internet access through the Jazz Café's hotspot. Bob's final discount is 15% off coffee and 15 minutes of Internet access time since Bob eNcentive ID was present in Susan's and Jeff's e-promotions." (Ex. 1006, p. 6)

38. Ratsimor teaches transmitting the advertisement/offer from the source communication device of a subscriber (Bob) to the destination communication device of a recipient (Susan or Jeff). (Ex. 1006, p. 6).

39. Ratsimor teaches that the amount of an incentive to a subscriber (Bob) may be directly related to a number of messages providing the promotion sent by the subscriber. For example, if Bob sends a promotion to both Susan and Jeff, his total discount and rewards may be higher than if he only sent the promotion to Susan, since his total incentive will depend on how often his eNcentive ID is found to have forwarded and endorsed the advertisement redeemed by other users. "At 8pm, Bob stops by Jazz Café to get his usual

evening cup of coffee.   He uses his e-promotion and receives additional 5% off on top of 10% guaranteed by e-promotion that he picked up in the morning.   He also receives 15 minutes of internet access through the Jazz Café's hotspot.   Bob's final discount is 15% off coffee and 15 minutes of Internet access time since Bob eNcentive ID was present in Susan's and Jeff's e-promotions."   (Ex. 1006, p. 6)

40.   As described above, Ratsimor teaches that the incentive may be a discount or a reward.   (*See* Ex. 1006, pp. 6-7)   The incentive in Ratsimor may be based on the recipient (destination device) acknowledging the receipt of an advertisement by using it.   In particular, the recipient interacts with the promotion or advertisement (by either clicking on a link or sending the subscriber's eNcentive ID to the intermediary or via automated means such as NFC/Bluetooth based readers such that Bob's total incentive can eventually be calculated.   (*See* Ex. 1006, p. 6)

41.   As described above, an advertiser (merchant or business) utilizing Ratsimor's eNcentive system can create the promotions or advertisements disseminated through the network, and would have to upload those promotions or advertisements to the service offered by itself or an intermediary or a third party such as the communication service provider. "Participating users benefit from such circulation since merchants and small businesses that originally created the promotions reward the active distributors with additional promotions and other compensations."   (Ex. 1006, Abstract at 1)

42.   As described above, a subscriber (Bob) in Ratsimor can receive a first incentive for merely receiving a promotion or advertisement or for helping

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disseminate that promotion or advertisement to others. (*See* Ex. 1006, pp. 1, 6) The subscriber may also receive a second incentive when a recipient (Susan or Jeff) interacts with or acknowledges the promotion or advertisement. The more Bob's eNcentive ID is associated with subsequent interactions, the more discounts and rewards he will receive. (*See* Ex. 1006, p. 6). This speaks directly to claim 2 of the '646 patent.

43. As described above, Ratsimor teaches comparing advertiser criteria to user profile criteria in order to determine which users will receive certain promotions, particularly with respect to "targeted" promotions. Moreover, the notion of profile captures geographical elements—for example the route a particular customer plans to take. In fact, the example scenario envisages that the advertisements from a merchant are sent to a customer who will pass in the neighborhood of their competitor. This speaks to claim 5 of the '646 patent. "So, in Bob's case, when MH1 receives a generic promotion form [sic] Jazz Café's eNcentive Server (that is being indiscriminately broadcasted to all customers) eNcentive framework on MH1 check with Bob's local personal profiles. From the profiles, the framework determines that Bob does not mind sharing his current route with neighborhood coffee shops. MH1 sends Bob's route to the Jazz Café eNcentive Server in Jazz Café, form [sic] that route, determines that Bob will pass by Rock 'n'Roll Café. So, Bob actually received both generic promotions and targeted promotions (with a better discount and a generous reward for distribution)." (Ex. 1006, p. 7) "Our framework also offers merchants and businesses a mechanism for targeted promotions, which help them customize promotions accordingly." (Ex. 1006, p. 1) "The devices will consult with user's profile before storing the promotions and advertisements." (Ex. 1006, p. 2)

"The Marketing Agent is also responsible for determining which targeted advertisement should be supplied to the users interested in targeted promotions." (Ex. 1006, p. 9). In discussing prior work, Ratsimor *et al.* describe a previous system built in Japan by Tsutaya TV. "The preferences where [sic] used to notify customers on their mobile phones of a release of new movies or new musical albums that matched customer's preferences. Tsutaya also sent out other promotional information like discounts on rentals and concert announcements that matched customers' personal preferences." (Ex. 1006, p. 4) The subscriber is thus notified since he/she receives the promotion or advertisement, and the advertiser will also be notified if the subscriber (or a subsequent recipient) utilizes the promotion or advertisement.

44. Ratsimor teaches that the eNcentive Ad Manager resides on the subscriber's source communication device. It must therefore be transmitted to and installed on the source communication device, and more generally of the various subscriber, intermediary, and provider devices in the system. In particular on the subscriber node, "The eNcentive Ad Manager Agent performs a number of tasks on the mobile node. This agent collects, organizes and maintains promotions. The collection function of the agent is linked to the user profiles and current user context. Once Numi platform notifies Ad Manager Agent about incoming advertisements, the agent consults the user profiles and makes a determination whether to collect or to ignore the advertisement." (Ex. 1006, p. 10). "The eNcentive Ad Manager Agent also maintains and organizes already collected promotions. The promotions are kept in a lightweight data structure that is linked to the user interface." (Ex. 1006, p. 10) "The collection function of the agent is

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linked to the user profiles and current user context." (Ex. 1006, p. 10) "When the request is granted the Ad Manager Agent of B inserts B's platform ID into the requested promotion and then forwards this to A." (Ex. 1006, p. 10)

45. Ratsimor teaches that a link or a unique identifier may be provided with the advertisement. These tags are contemporaneously transmitted with the promotions or advertisements in the eNcentive system, and are used by subscribers to endorse the advertisement. (*See* Ex. 1006, pp. 3 and 13)

46. The eNcentive Ad Manager Agent is used to transmit messages (promotions and advertisements) from the source device (subscriber) to the destination device (recipient). "That is, if a device A is interested in the promotion that is being advertised by the device B then Ad Manager Agent of A request the Ad Manager Agent of B to forward the promotion. When the request is granted the Ad Manager Agent of B inserts B's platform ID into the requested promotion and then forwards this to A." (Ex. 1006, p. 10)

47. In Ratsimor, the recipient's *(e.g.,* Susan or Jeff's) destination communication device records information related to an interaction with an advertisement when the recipient utilizes a promotion or advertisement. This is necessary in Ratsimor so that the subscriber's eNcentive ID can be recorded so that the subscriber can receive any additional subsidy to which he is entitled. "At 8pm, Bob stops by Jazz Café to get his usual evening cup of coffee. He uses his e-promotion and receives additional 5% off on top of 10% guaranteed by e-promotion that he picked up in the morning. He also receives 15 minutes of internet access through the Jazz Café's hotspot. Bob's final discount is 15% off coffee and 15 minutes of Internet access

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time since Bob eNcentive ID was present in Susan's and Jeff's e-promotions." (Ex. 1006, p. 6) "To keep track of this chain, every promotion contains a list of platform IDs of every eNcentive platform that ever distributed this coupon. When a user decides to redeem a coupon and presents it to the business, the business after honoring the coupon stores the list of the platform IDs for future reference." (Ex. 1006, p. 3)

48. Additionally, the further steps recited in claims 10 and 11 of the '646 patent are either inherently performed in, or are obvious extensions of, Ratsimor. As noted above, Ratsimor inherently compares different sets of historical data, or alternatively it would be obvious that this would be done. Similarly, it would it be an obvious extension of Ratsimor to carry out the other aspects of these claims, namely the steps of transmitting and comparing the data, as that is the logical way by which the subsidy to be offered to people who disseminated the advertisements would be calculated. (*See* Ex. 1006, p. 6) As discussed further herein, it was well known in the art that a report could be generated from such data. (*See infra* discussion of Paul).

49. As has been described in earlier examples, Ratsimor teaches using the spread and use of advertisement and offers to dynamically compute the subsidy offered them. This obviously necessitates storing this information in the system so that it can be used.

50. While Ratsimor does not explicitly teach showing the historical data about advertisements, their spread and usage, this is implicit and inherent in that this data is stored by the system in order to function as described. Making

this data explicitly visible is an incremental step obvious to anyone with ordinary skills in the art.

51. As described in detail previously, Ratsimor describes the "eNcentive" system that allows advertisers to communicate advertising media (promotions or advertisements) from a first communication device (subscriber) to a second (recipient) and providing a subsidy on a peer-to-peer network. (See Ex. 1006, Abstract at 1 and 6) It thus describes a system that has the same features claimed as novel by the '646 patent.

52. Ratsimor teaches that the system and methods can be provided by an intermediary, namely an Internet access service or other telecommunications provider. "The wireless base stations and other equipment that provides this access can be owned and maintained by a third party specializing in Internet access services, similar to T Mobile Hotspots Services." (Ex. 1006, p. 3) Furthermore, Ratsimor teaches that the eNcentive system utilizes a server. "[T]he eNcentive Server checks the eNcentive database and notices that she successfully assisted in distribution of one e-promotion." (Ex. 1006, p. 7) Ratsimor also teaches that the system may utilize a web interface, such as a website. (See Ratsimor at 12, Fig. 5) Ratsimor also discloses an analysis application that is responsible for receiving data and calculating appropriate subsidies.

53. The Ratsimor eNcentive system comprises servers and (mobile) nodes. These are all computers, which have processors. (*See, e.g.,* Ex. 1006, pp. 7-9)

54. Ratsimor teaches receiving a set of demographic qualifications from advertisers, used to determine which users will receive various promotions

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or advertisements. "The devices will consult with user's profile before storing the promotions and advertisements." (Ex. 1006, p. 2) Furthermore, Ratsimor teaches its system that "offers merchants and businesses a mechanism for targeted promotions, which help them customize promotions accordingly." (Ex. 1006, p. 1) "Jazz Café' management creates a promotion that is specifically destined to target potential customers of Rock'n'Roll Café' and Blue Grass Café." (Ex. 1006, p. 7). Ratsimor's disclosure is consistent with and subsumes what I understand to be the Patent Owner's construction of this element that a merchant who merely registers with a provider's services satisfies this claim element. (Ex. 1009, pp. 116-122)

55. As explained above, Ratsimor communicates promotions or advertisements to a subscriber according to a set of criteria, including demographic criteria, in a profile. The profile can stay with individual subscriber devices, and is so described in the embodiment in the paper. However, there is no restriction on profiles being shared with central servers either. "The devices will consult with user's profile before storing the promotions and advertisements." (Ex. 1006, p. 2) "Our framework allows users to store their profiles locally and does not require submission of any personal information to any centralized location." (Ex. 1006, p. 5)

56. Ratsimor teaches comparing user profiles in determining whether to send promotions or advertisements to a user (subscriber), including in the context of both "generic" promotions or advertisements and "targeted" promotions or advertisements. "So, in Bob's case, when MH1 receives a generic promotion form [sic] Jazz Café's eNcentive Server (that is being indiscriminately broadcasted to all customers) eNcentive framework on

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MH1 check with Bob's local personal profiles. From the profiles, the framework determines that Bob does not mind sharing his current route with neighborhood coffee shops. MH1 sends Bob's route to the Jazz Café eNcentive Server in Jazz Café, form [sic] that route, determines that Bob will pass by Rock 'n'Roll Café. So, Bob actually received both generic promotions and targeted promotions (with a better discount and a generous reward for distribution)." (Ex. 1006, p. 7) "Our framework also offers merchants and businesses a mechanism for targeted promotions, which help them customize promotions accordingly. (Ex. 1006, p. 1) "The devices will consult with user's profile before storing the promotions and advertisements." (Ex. 1006, p. 2) "The Marketing Agent is also responsible for determining which targeted advertisement should be supplied to the users interested in targeted promotions." (Ex. 1006, p. 9) It describes previous work of Tsutaya which is related: "The preferences where [sic] used to notify customers on their mobile phones of a release of new movies or new musical albums that matched customer's preferences. Tsutaya also sent out other promotional information like discounts on rentals and concert announcements that matched customers' personal preferences." (Ex. 1006, p. 4) Ratsimor teaches determining if a subscriber is a qualified subscriber since only certain users (subscribers) whose profiles allow receiving certain advertisements will be qualified to receive the advertisements or promotions. (See Ex. 1006, pp. 2, 7, and 9)

57. The identification of users (subscribers) who meet certain demographic criteria are described as qualified subscribers by the '646 patent. Qualified subscribers can receive a promotion or advertisement (whether "generic" or "targeted"), and elect to receive said promotion or advertisement. A user

may further endorse the advertiser by electing to broadcast a promotion or advertisement to others.

58.   In the eNcentive system of Ratsimor, a promotion or advertisement is first sent to the communication device of a subscriber (*i.e.,* the subscriber Bob), who can then serve as a source of this to other subscribers (destination). (*See, e.g.,* Ex. 1006, p. 6)

59.   In Ratsimor, the recipient's (Susan or Jeff's) destination communication device records information related to an interaction with the advertisement when the recipient utilizes a promotion or advertisement, which is then communicated to the intermediary.   This is necessary in Ratsimor so that the subscriber's eNcentive ID can be recorded so that the subscriber can receive any additional subsidy to which he is entitled from the intermediary. "At 8pm, Bob stops by Jazz Café to get his usual evening cup of coffee. He uses his e-promotion and receives additional 5% off on top of 10% guaranteed by e-promotion that he picked up in the morning.   He also receives 15 minutes of internet access through the Jazz Café's hotspot. Bob's final discount is 15% off coffee and 15 minutes of Internet access time since Bob eNcentive ID was present in Susan's and Jeff's e-promotions."   (Ex. 1006, p. 6)   "To keep track of this chain, every promotion contains a list of platform IDs of every eNcentive platform that ever distributed this coupon.   When a user decides to redeem a coupon and presents it to the business, the business after honoring the coupon stores the list of the platform IDs for future reference." (Ex. 1006, p. 3)

60.   Ratsimor teaches evaluating data related to the communication session in that the eNcentive system identifies the eNcentive IDs provided by the

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recipient in order to determine the appropriate amount of subsidy to provide to the subscribers.   (*See* Ex. 1006, pp. 7-9)

61.   As described above, Ratsimor teaches that the eNcentive system can provide multiple promotions and advertisements to a user and can provide a subscriber with various promotions and incentive programs that are downloaded to the subscriber's first communication device.   (*See, e.g.,* Ex. 1006, p. 6)

62.   The eNcentive ID identifies the referring individual.   In one possible scheme described, the more referrals that are send out and accepted, the more a user's account is credited.   (Ex. 1006, p. 5) ("Promotions in eNcentive are objects that encapsulate information like discount information and details describing a marketing reward model that will be used as an incentive to active participants.   For instance, a coffee shop e-promotion object can consist of discount information like "10% off on any cup of coffee" and reward model of additional 1% off for every 15 successful references"). Ratsimor shows various possible schemes (linear and others) on relating the number of referrals to the subsidy provided.   Since the number of offers used are tagged, capping their usage at a certain number as described in claim 8 of the '646 patent is inherent in, or an obvious trivial extension of, Ratsimor.

63.   Ratsimor also teaches the use of various messaging services.   "Current marketing approaches use SMS (Short Message Service), MMS (Multi-media Messaging Services) and EMS (Enhanced Messaging Services) messages sent by merchants to the user's mobile phone".   (Ex. 1006, p. 2)

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64.   The system described by Ratsimor also measures how often a communication occurs to determine the amount of any incentive. The message that is sent has a clickable link (*See* Figure 5). It would also be either inherent to or obvious to store the data. This means that the claims 10 and 11 of the '646 patent are either inherent in or alternatively rendered obvious by Ratsimor. (Ex. 1006, p. 6)

The Paul Reference

65.   As I explained in the previous section, there are concepts that are common to the claims of the '646 patent, namely: (1) creating profiles including a set of demographic data; (2) deriving a match condition between the two profiles; (3) determining if a subscriber is a qualified subscriber; (4) execution of the endorsement tag; and (5) transmitting the advertising content. The additional features described in the dependent claims, including an incentive program and incentivizing a subscriber are minor extensions of these key concepts. Paul also teaches these concepts as an internet based email marketing system. While an email system is very different in its low level technical detail (the network level protocols used, for instance), it is similar to the peer-to-peer system in the '646 patent at the application level where the purported novelty of the claims of the patent reside. Further, "peer-to-peer" is not a required element of the '646 patent claims, and Paul is a reference that a person of ordinary skill in the art would have looked to.

66.   Paul implicitly teaches a system comprising a network, a source communication device, a destination communication device and an intermediary connected to the network because it teaches an "Internet-based method of communicating [that] interacts with a plurality of members each

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having a computer-based communications system with an e-mail facility." (Ex. 1007, Abstract) As disclosed in the '646 patent, the Internet is an example of the claimed network. (Ex. 1001, col. 4, ln. 35-37) The intermediary (sponsor) may utilize the methods and systems of Paul to perform promotional campaigns for other businesses, and to perform "Co-Promotions". "With a fully performing campaign manager program, the sponsor can … (12) conduct cooperative promotions with other businesses and demonstrate how the sponsor's ASP can drive customers to the two coop sponsors." (Ex. 1007, ¶ 51; see also Table 6.0 and ¶ 55 (discussing "Co-Promotions")) As described in more detail below, Paul teaches a method for providing advertising content to a recipient associated with the destination communication device (*i.e.,* the recipient of an e-mail message) and for subsidizing a qualified subscriber associated with the source communication device (*i.e.,* the sender of the e-mail message).

Profiles

67.   Paul teaches creating profiles for "members" who may be advertisers, such as business partners, suppliers or vendors. "The e-mail communication system can also be expanded to include business partners, suppliers or vendors which fill out a member profile form." (Ex. 1007, ¶ 42) "The present Internet-based method of communicating is a highly sophisticated marketing and advertising solution. It enables sponsors or businesses to attract, register members, and communicate directly with members and consumers through the Internet." (Ex. 1007, ¶ 33) "For example, an e-mail communication sent to the selected members includes an advertisement for a particular vendor, such as The Washington Post." (Ex. 1007, ¶ 95) "Typically, the member profile form includes specific

information such as e-mail addresses, name, address, telephone number and fax numbers for the member or business partners." (Ex. 1007, ¶ 42) "In contrast, demographic information such as income level, types of magazines ordered, commutation to work mileage and other information which identifies a particular member within a population group is generally characterized as demographic data." (Ex. 1007, ¶ 80; *see also* Ex. 1007, Fig. 3 and Table 4.0) This member may also who designate various demographic qualifications.

68. A "member" in Paul may also be a subscriber, who would create a profile including a set of demographic data (Ex 1007, ¶ 41). As described above, these profiles include a set of demographic requirements. (*See* Ex. 1007, ¶¶ 42 and 80, Abstract, Fig. 3 and Table 4.0)

69. Paul teaches that the subscriber creates a profile on a website hosted by the intermediary. "The member M1 accesses the sponsor's home page and, when the member 'clicks on' or selects the 'become a member' link or 'access your member profile' link (*see* Fig. 2) on the sponsor home page, the member's computer, *e.g.,* M1, is hyperlinked or transferred to central server 12. Certain member data, input by a user at computer M1, is returned to server 12. In this manner, servers 10, 12 transmit information to a web browser on a user's client computer M1 and that information is displayed to the user. When the user inputs information, that data, such as member profile data (discussed later), is sent back to server 12 to be processed." (Ex. 1007, ¶ 27)

Match Conditions

70.   Paul teaches match conditions because the system searches through member profiles to determine matches that can be used for particular e-mail campaigns. "The computer-based method of communicating prepares a list of members from the data structures based upon criteria therein." (Ex. 1007, ¶ 10) "With the campaign manager program, the sponsor defines the parameters of the campaign by conducting a search through the member records based upon criteria encompassed in the member records." (Ex. 1007, ¶ 51; *see also* Table 7.2 (describing how a particular marketing campaign may include "Matching Member Data Profile categories"), ¶ 66, and Table 7.3 (providing for reviewing relevant "Matches" prior to mailing), ¶ 75 ("The income levels selectable by the user at SP1 would match the income levels selectable by the member when the member was initially inputting the data into Member Data Profile Table 4.0."))

Qualified Subscribers

71.   As described above, only members who meet the particular match conditions in Paul will be qualified to receive a particular e-mail campaign. Paul also teaches a system involving further qualification in the context of promotions that may involve random drawings, so as to remove members affiliated with the entity sponsoring the promotion from receipt. "If those sponsor members show up as winning members based on a random draw from a selected group of members, this communications system should be able to delete those 'unqualified' members." (Ex. 1007, ¶ 94; *see also* ¶ 102 which qualifies some members for the random drawing)

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Endorsement Tags

72.   Paul discloses that a member receiving a message selects an advertiser associated with a particular promotion via a link.   "[T]he sponsor may be permitted to add a hyperlink from the sponsor's web page 42 (*See* Fig. 5) to a third party such that a member at the sponsor's site 42 can click on that hyperlink and be transported to an advertiser."   (Ex. 1007, ¶ 104; *see also* ¶ 101)

73.   Paul teaches providing a link to advertising content.   "In the e-mail message, a hyperlink is included to a new member website uniquely configured for attracting a referred person."   (Ex. 1007, ¶ 102)   "Further, the hyperlink is associated with a referral communication data packet which identifies the sponsor and the initial recipient of the e-mail, that is, the recipient member."   (Ex. 1007, ¶ 102)   Paul teaches a variety of items that could constitute an endorsement tag, including various identifiers.   "One important feature of the present invention is the utilization in an e-mail communication of a hyperlink and a referral communications data packet. Under the tools function (Table 13.0), is a function 'update a referral URL (Universal Resource Locator).'   This feature of the present invention generates a response count or tick sent to the referring website whenever a member clicks on a target hyperlink in a compiled e-mail communication that is part of an e-mail campaign.   For example, and e-mail communication sent to the selected members includes an advertisement for a particular vendor, such as The Washington Post.   When the member clicks on the hyperlink in the e-mail communication, a tick code including a member ID code, and e-mail campaign ID code, and a sponsor-client code is sent to the referring website.   The member is transferred to the target web

site for The Post. In effect, this function establishes a response count to the e-mail campaign." (Ex. 1007, ¶ 95). As can be seen, this hyperlink is acting similar to the endorsement tag of the '646 patent.

74. In Paul, the "endorsement tag" is part of the e-mail communication, which is transmitted. "All members are sent refer a member or refer a friend e-mail message." (Ex. 1007, ¶ 102) "The member receiving this refer a friend message, sends the e-mail message (with the embedded hyperlink and referral data) to one or more friends who may be interested in becoming members." (Ex. 1007, ¶ 102)

Transmitting Content

75. In Paul, advertising content is transmitted to the recipient via a web page. "[T]he sponsor may be permitted to add a hyperlink from the sponsor's web page 42 (see Fig. 5) to a third party such that a member at the sponsor's site 42 can click on that hyperlink and be transported to an advertiser." (Ex. 1007, ¶ 104)

76. Paul teaches sending an advertisement in a refer a friend campaign to a member (the subscriber) who then refers the advertisement to another member (the recipient). (*See* Ex. 1007, ¶¶ 100-102) Since the purpose of the "refer a friend" campaign is to refer friends, the subscriber and recipient likely have a pre-existing relationship.

Incentive Programs/Electronic Offers

77. Paul teaches conditioning a variety of incentive programs based on a particular type of campaign described as a "refer a friend campaign." "The refer a friend campaign essentially provides a coupon to the member if the

member is successful in generating or referring a friend to the sponsor." (Ex. 1007, ¶ 94; *see also* Table 7.2 and ¶ 64)   In addition to coupons, other subsidies are available by combining the "refer a friend campaign" with the "random drawing" feature of Paul.   "The random drawing function can be linked to the refer a friend e-mail campaign such that members, who are successful in having their friends 'click on' the embedded hyperlink text and have an indicator in their member records reflecting the receipt of a referral communication data packer, are rewarded by being placed in a limited pool of potential random drawing participants."   (Ex. 1007, ¶ 102)   "In this manner, the activity level of the members in this communications system can be increased by offering an economic incentive by way of a random drawing and also increasing the number of members participating in the overall program." (Ex. 1007, ¶ 102)

78.   A coupon as taught in Paul, as well as participation in a random drawing, is an incentive relating to a product discount, a reward, or a mitigation of expenses.   "The refer a friend campaign essentially provides a coupon to the member if the member is successful in generating or referring a friend to the sponsor."   (Ex. 1007, ¶ 102)

79.   In Paul, a member selects the incentive program by choosing to accept the coupon provided to the member, referring the particular campaign or promotion to other friends for additional incentives, and by electing to participate in a potential drawing if the campaign involves a drawing (as described above, *see* Ex. 1007, ¶¶ 101, 102).   "The refer a friend campaign essentially provides a coupon to the member if the members is successful in generating or referring a friend to the sponsor."   (Ex. 1007, ¶ 101)   "In this manner, the activity level of the members in this communications

system can be increased by offering an economic incentive by way of a random drawing and also increasing the number of members participating in the overall program." (Ex. 1007, ¶ 102)

80. The subscribers receive an e-mail for the particular "refer a friend" campaign that communicates the subsidy. "All members are sent refer a member or refer a friend e-mail message." (Ex. 1007, ¶¶ 101, 102)

81. Paul teaches recognizing an incentive. As described above, a member may choose from a variety of incentive programs. These different incentives may be recognized after the termination of the communication session. For example, in the context of an incentive involving a friend who "clicks on" an embedded hyperlink, such clicking cannot occur until the e-mail message has been communicated to the recipient.

Receipt of Incentive/Offer

82. Paul teaches providing a variety of incentives as described before, including incentives that determined based on a user activity. "In this manner, the activity level of the members in this communications system can be increased by offering an economic incentive by way of a random drawing and also increasing the number of members participating in the overall program." (Ex. 1007, ¶ 102). To show how an incentive is received, Paul teaches how links, or executable "endorsement tags" are "clicked" (*i.e.,* executed) in order to transmit advertising content. "If those incipient members click on the hyperlink in the e-mail communication, those incipient members are transferred to the incipient member web site and the referral communication data packet is sent back to the campaign database. In this manner, the referral data packet not only identifies which member is actively

recruiting friends or new members but also identifies the e-mail campaign for refer a friend." (Ex. 1007, ¶ 102). In other words, the incentive is tracked by sending information about clicks back to the campaign database.

83.   As described above, a subscriber can receive an incentive (such as a coupon) simply for the act of referring a communication to a friend in a "refer a friend campaign" (first subsidy), but can also receive an additional incentive (second incentive) in the form of being entered into a random drawing if the recipient (friend) "clicks on" (*i.e.,* interacts) with a link the referred e-mail message.   (*See* Ex. 1007, ¶¶ 101-102)

84.   Paul also teaches that a subscriber may receive additional promotions and advertisements.   (*See, e.g.,* Ex. 1006, p. 6)   For example, Paul describes how the more friends that are referred, the more incentives a user can receive. "The refer a friend campaign essentially provides a coupon to the member if the member is successful in generating or referring a friend to the sponsor."   Additionally, Paul describes a "refer a friend" campaign where a recipient (destination communication device) "clicks on" a link in the e-mail received from the subscriber, and a subsidy to a subscriber in the form of participating in a random drawing is increased in that the chances for winning the random drawing are increased.   (*See* Ex. 1007, ¶ 102)

Use of Intermediary

85.   Paul teaches an intermediary (*i.e.,* the provider of the e-mail advertising campaigns) that provides subsidy programs in the context of a "refer a friend" campaign.   "The refer a friend campaign essentially provides a coupon to the member if the member is successful in generating or referring a friend to the sponsor."   (Ex. 1007, ¶ 94)   In addition to coupons, further

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subsidies are available by combining the "refer a friend campaign" with the "random drawing" feature of Paul. "The random drawing function can be linked to the refer a friend e-mail campaign such that members, who are successful in having their friends 'click on' the embedded hyperlink text and have an indicator in their member records reflecting the receipt of a referral communication data packer, are rewarded by being placed in a limited pool of potential random drawing participants." (Ex. 1007, ¶ 102) "In this manner, the activity level of the members in this communications system can be increased by offering an economic incentive by way of a random drawing and also increasing the number of members participating in the overall program." (Ex. 1007, ¶ 102) The intermediary (sponsor) may utilize the methods and systems of Paul to perform promotional campaigns for other businesses. "With a fully performing campaign manager program, the sponsor can … (12) conduct cooperative promotions with other businesses and demonstrate how the sponsor's ASP can drive customers to the two coop sponsors." (Ex. 1007, ¶ 51) Paul also teaches such an analysis application that can be used to set up advertising campaigns and analyze their results known as a "campaign manager." "With a fully performing campaign manager program, the sponsor can … (7) track response rates and analyze response results for fact, economical on line focus groups … (9) test the effectiveness of a promotional communication campaign through e-mail." (Ex. 1007, ¶ 51)

86. The intermediary of Paul utilizes a computer containing a processor. (Ex. 1007, ¶ 23)

87. Paul teaches that the intermediary may host content uploaded by an advertiser that can then be linked to in an e-mail message. "[T]he sponsor

may be permitted to add a hyperlink from the sponsor's web page 42 (see Fig. 5) to a third party such that a member at the sponsor's site 42 can click on that hyperlink and be transported to an advertiser." (Ex. 1007, ¶ 104) "One important feature of the present invention is the utilization in an e-mail communication of a hyperlink and a referral communications data packet. Under the tools function (Table 13.0), is a function 'update a referral URL (Universal Resource Locator).' This feature of the present invention generates a response count or tick sent to the referring website whenever a member clicks on a target hyperlink in a compiled e-mail communication that is part of an e-mail campaign. For example, and e-mail communication sent to the selected members includes an advertisement for a particular vendor, such as The Washington Post. When the member clicks on the hyperlink in the e-mail communication, a tick code including a member ID code, and e-mail campaign ID code, and a sponsor-client code is sent to the referring website. The member is transferred to the target web site for The Post. In effect, this function establishes a response count to the e-mail campaign." (Ex. 1007, ¶ 95)

Additional Features

88.   The advertiser's identification of a member (or members), who meet certain demographic criteria, to receive an advertising campaign, and that member's election to receive said campaign constitutes what the '646 patent owners describe as a bi-lateral endorsement. Furthermore, the member may further endorse the advertiser by referring the communication and advertisement to a friend in a "refer a friend" campaign as described above.

89.   Consistent with the Patent Owner's interpretation of "endorsement tag" as a "link" (*see* Ex. 1001, col. 3, ln. 20-22), Paul teaches providing such a link

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related to an advertisement. "In the e-mail message, a hyperlink is included to a new member website uniquely configured for attracting a referred person." (Ex. 1007, ¶ 102) "Further, the hyperlink is associated with a referral communication data packet which identifies the sponsor and the initial recipient of the e-mail, that is, the recipient member." (Ex. 1007, ¶ 102) Paul teaches a variety of items that could constitute an endorsement tag, including various links and identifiers. "One important feature of the present invention is the utilization in an e-mail communication of a hyperlink and a referral communications data packet. Under the tools function (Table 13.0), is a function 'update a referral URL (Universal Resource Locator).' This feature of the present invention generates a response count or tick sent to the referring website whenever a member clicks on a target hyperlink in a compiled e-mail communication that is part of an e-mail campaign. For example, an e-mail communication sent to the selected members includes an advertisement for a particular vendor, such as The Washington Post. When the member clicks on the hyperlink in the e-mail communication, a tick code including a member ID code, and e-mail campaign ID code, and a sponsor-client code is sent to the referring website. The member is transferred to the target web site for The Post. in effect, this function establishes a response count to the e-mail campaign." (Ex. 1007, ¶ 95)

90.   Since Paul utilizes e-mail communications, the communication (e-mail) is sent across a communication session between the source (subscriber) to the destination (recipient) via the referral made through the "refer a friend" campaign. "All members are sent refer a member or refer a friend e-mail message." (Ex. 1007, ¶ 102) "The member receiving this refer a friend

message, sends the e-mail message (with the embedded hyperlink and referral data) to one or more friends who may be interested in becoming members." (Ex. 1007, ¶ 102)

91. The e-mail communication described above is transmitted from the source device (*i.e.,* the subscriber's device which operates an e-mail program) to the destination device (*i.e.,* the recipient's device, which also operates an e-mail program). (*See* Ex. 1007, ¶¶ 95, 102)

92. Paul teaches content communications of text (e-mail text), audio, and graphic (banner ad) media times. "An e-mail communication is prepared and a command sequence including a hyperlink to a first web site and referral communications data packet associated with the hyperlink is embedded in the e-mail." (Ex. 1007, Abstract) "If some members do not respond to the initial e-mail communication, the computerized multi-modal method generates a digital version of an audio communication..." (*Id.*) "The creation of a link for a banner add also permits the user at SP1 to follow the hyperlink by the member from the member's pages on the sponsor's website to the hyperlinked site." (Ex. 1007, ¶ 87)

93. As described above, Paul teaches searching through member profiles comparing criteria from advertisers to that of other members when preparing an advertising campaign. "The computer-based method of communicating prepares a list of members from the data structures based upon criteria therein." (Ex. 1007, ¶ 10) "With the campaign manager program, the sponsor defines the parameters of the campaign by conducting a search through the member records based upon criteria encompassed in the member records." (Ex. 1007, ¶ 51; *see also* Table 7.2 (describing how a particular

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marketing campaign may include "Matching Member Data Profile categories"), ¶ 66, and Table 7.3 (providing for reviewing relevant "Matches" prior to mailing), ¶ 75 ("The income levels selectable by the user at SP1 would match the income levels selectable by the member when the member was initially inputting the data into Member Data Profile Table 4.0.")) Members are notified by receiving the e-mail campaign, and advertisers are notified by receiving the results of the campaign.

94. Paul teaches recording information related to interaction by a recipient with a link. "If those incipient members click on the hyperlink in the e-mail communication, those incipient members are transferred to the incipient member web site and the referral communication data packet is sent back to the campaign database. In this manner, the referral data packet not only identifies which member is actively recruiting friends or new members but also identifies the e-mail campaign for refer a friend." (Ex. 1007, ¶ 102) "In any event, the responses from e-mail campaigns are logged into the member database records or the campaign data base records." (Ex. 1007, ¶ 77) "The hyperlink includes a command (a 'referral' command) such that when the member clicks on 'link here,' the member is transported to a first web site and a message is sent to another web site. ... Preferably, the referral communications packet includes sponsor data, recipient member data (such as e-mail addressee data), e-mail campaign data and, in some situations, member action data. The recipient member data may be (a) the member id or (b) a mail count number. ... ASP1 in function 214 activates a form 216, imports the data from the form 216 and from the data packet, logs in the data generally in step 218, logs in the data into sponsor data base in step 220 and

annotates the member record as responding to that e-mail communication in the member data base in step 222." (Ex. 1007, ¶ 96; *see also* Table 5.0).

95.   Claim 9 of the '646 patent extends claim 4 by determining if the user accepts the token and directing them to the web site and storing this information. This is inherent in how Paul handles the refer a friend promotion. It requires tracking and storing of whether a user accepts a token. Redirecting the user to a different site is explicit in Paul, as seen in [0007] of the Objects of the Invention section. Claim 2 of the '646 patent, which computes the subsidy associated with the token, is implicit in giving subsidies based on the number of friends referred. Claim 10 of the '646 patent involves transmitting the redemption data periodically to the intermediary, which Paul exhibits by transferring the logged information to the campaign manager which uses it to compute the subsidy. (Ex. 1007, ¶ 17) Claim 11 of the '646 patent involves generating a trend analysis report, which Paul inherently describes in its report to the sponsor in [0017].

96.   Paul teaches the offering of multiple advertisements, promotions, and e-mail campaigns to members. "The view mailings function 60 provides a list or display to the member of all e-mail communications sent to the member by the sponsor (chronologically). The member is permitted to select one or more of these e-mail communications to view the mailing." (Ex. 1007, ¶ 38)

97.   Paul teaches comparing the subscriber profile to various demographic qualifications from an advertiser to determine the qualified subscribers who will receive a particular campaign. "The computer-based method of communicating prepares a list of members from the data structures based

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upon criteria therein." (Ex. 1007, ¶ 10) "With the campaign manager program, the sponsor defines the parameters of the campaign by conducting a search through the member records based upon criteria encompassed in the member records." (Ex. 1007, ¶ 51; *see also* Table 7.2 (describing how a particular marketing campaign may include "Matching Member Data Profile categories"), ¶ 66, and Table 7.3 (providing for reviewing relevant "Matches" prior to mailing), ¶ 75 ("The income levels selectable by the user at SP1 would match the income levels selectable by the member when the member was initially inputting the data into Member Data Profile Table 4.0.")) Only "members" (*i.e.,* subscribers) who meet the requisite demographic qualifications in Paul will be qualified to receive a particular e-mail campaign. (*See* above) Furthermore, Paul also teaches a system involving further qualification in the context of promotions that may involve random drawings, so as to remove members affiliated with the entity sponsoring the promotion from receipt. "If those sponsor members show up as winning members based on a random draw from a selected group of members, this communications system should be able to delete those 'unqualified' members." (Ex. 1007, ¶ 94; *see also* ¶ 102)

98. The advertiser's identification of a member (or members) who meet certain demographic criteria identified, to receive an advertising campaign, and that member's election to receive said campaign constitutes a bi-lateral endorsement. Furthermore, the member may further endorse the advertiser by referring the communication and advertisement to a friend in a "refer a friend" campaign as described above. (Ex. 1007, ¶ 102)

99. In a "refer a friend" campaign in Paul, advertising media accompanying an e-mail communication is first sent to the subscriber (the first communication

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device) before being sent (or referred) to a recipient. "All members are sent refer a member or refer a friend e-mail message." (Ex. 1007, ¶ 102) "The member receiving this refer a friend message, sends the e-mail message (with the embedded hyperlink and referral data) to one or more friends who may be interested in becoming members." (Ex. 1007, ¶ 102)

100. Paul teaches various applications (or "managers") that can be used to manage e-mail communications (*i.e.,* "endorsements" or "advertisements") that are the subject of Paul, including an e-mail program. As taught by Paul, a subscriber transmits advertising media in an e-mail communication from a first communication device to a second communication device via such an e-mail program. "All members are sent refer a member or refer a friend e-mail message." (Ex. 1007, ¶ 102) "The member receiving this refer a friend message, sends the e-mail message (with the embedded hyperlink and referral data) to one or more friends who may be interested in becoming members." (Ex. 1007, ¶ 102)

101. Paul teaches logging of various aspects of referral and advertising campaign, including logging communication sessions, and transmitting said data back to a database utilized by the analysis application (*i.e.,* the "Campaign Manager"). "The following Referral and Advertising Log Table 5.0 outlines functional steps." (Ex. 1007, ¶ 96, *see also* Table 5.0 ("At server 12, the communication is logged in along with date and time. Results are incorporated into campaign manager data base.")

102. Paul teaches evaluating data related to the communication session from the subscriber to the recipient, determining a subsidy according thereto, and relating said subsidy to the subscriber in the context of a "refer a friend"

campaign. In Paul, referral communications are tracked, as are interactions by the recipient with the referral, which are used to determine the subsidy to be provided to the subscriber. "The refer a friend campaign essentially provides a coupon to the member if the members is successful in generating or referring a friend to the sponsor." (Ex. 1007, ¶ 101) "The random drawing function can be linked to the refer a friend e-mail campaign such that members, who are successful in having their friends 'click on' the embedded hyperlink text and have an indicator in their member records reflecting the receipt of a referral communication data packer, are rewarded by being placed in a limited pool of potential random drawing participants." (Ex. 1007, ¶ 102) "In this manner, the activity level of the members in this communications system can be increased by offering an economic incentive by way of a random drawing and also increasing the number of members participating in the overall program." (Ex. 1007, ¶ 102) These different subsidies may be recognized after the termination of the communication session. For example, in the context of a subsidy involving a friend who "clicks on" an embedded hyperlink, such clicking cannot occur until the e-mail message has been communicated to the recipient.

103. As described above, Paul teaches that multiple advertisers and multiple forms of incentives are available to an intermediary performing advertising campaigns, including the possibility of running "Co-Promotions" or "cooperative promotions" with other businesses. The "campaign manager" of Paul may be used to develop a campaign that provides any combination of such advertisers and subsidy programs (including, for example, combining a "refer a friend" campaign with a "random drawing" feature) that would be e-mailed to the subscriber (*i.e.,* first communication device). "The

campaign manager enables the sponsor to develop and implement direct marketing e-mail campaigns." (Ex. 1007, ¶ 34) "Sponsors can add new news items, with graphics, web links or hyperlinks, and have the ability to create numerous types of e-mail campaigns, such as "refer a friend" campaign, through the campaign manager program discussed later." (Ex. 1007, ¶ 50) "The random drawing function can be linked to the refer a friend e-mail campaign…" (Ex. 1007, ¶ 102)

104. The system described by Paul counts how often a friend is referred, and bases an incentive on that. The message that is sent has a link to the advertisement as a textual description, which is a clickable link, *i.e.,* a URL. It would also be either inherent to or obvious to store the data. This means that the claims 10-11 of the '646 patent are either inherent in or alternatively rendered obvious by Paul's system.

The Kitaura Reference

105. As I explained in the previous section, there are numerous concepts that are common to the claims of the '646 patent, namely: (1) creating profiles including a set of demographic data; (2) deriving a match condition between the two profiles; (3) determining if a subscriber is a qualified subscriber; (4) execution of the endorsement tag; and (5) transmitting the advertising content. The additional features described in the dependent claims, including an incentive program and incentivizing a subscriber, are minor extensions of these key concepts. Kitaura specifically teaches uses of a barcode to display electronic coupons in a mobile device and is a reference that a person of ordinary skill in the art would have looked to. Kitaura also envisages a server (similar to the intermediary device in the '646 patent) that sends valid electronic coupons to a mobile device as bar codes. This is the

same idea that claim 7 of the '646 patent discloses. Claim 3 of Kitaura also talks of generating bar codes only when the coupon is valid, similar to claim 3 of the '646 patent which describes checking validity. Claim 4 of Kitaura talks of generating a bar code image, like claim 7 of the '646 patent. (Ex. 1009, Abstract)

The Atazky Reference

106. Atazky teaches the concept of delivering offerings and advertisements to a group of social networking users. (Ex. 1010, Abstract) User reviews and endorsements can be used to supplement advertisements. (Ex. 1010, [0062]) These reviews and endorsements can positive or negative and can, therefore, reinforce are detract from the advertisements. (Ex. 1010, ¶ [0062])

107. Advertisements can be targeted to various users based upon characteristics of the target audience. (Ex. 1010, ¶¶ [0063], [0089], and [0187]) In addition, incentives can be added to the advertisement to encourage users to endorse of an offer and/or a product. (Ex. 1010, ¶ [0064]) A particular user's incentive can be based upon the a user's importance as perceived by other users of the social network. (Ex. 1010, ¶ [0217])

108. Users can distribute their opinion on an offer and provide a link to the offer via various ways, such as, email, webs sites, forums, blogs. When other users click the link, the user can be directed to a coupon. In addition, the link or other links associated with the coupon can be to other available resources, such as, video clips, articles. (Ex. 1010, ¶¶ [0242] and [0243]). Coupons can have an expiration date. (Ex 1010, Table IIb) Accordingly, a user that clicks on a link to an expired coupon would not receive the

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coupon, as it would be worthless as unredeemable. The links and/or coupon that are provided to a user after clicking on an unexpired coupon, therefore, provide a verification signal by sending the various links and/or coupon.

109. The teachings of the Atazky reference would have been obvious to one of skill in the art at the time of '646 invention to provide additional links to users of the Paul and/or Ratsimor systems. In addition, such a combination would allow taking into account social network users connections as additional demographic data in determining targeted users. The usage of social networking demographic information would allow compiling "a listing of members" to "solicit responses from…" (Ex. 1007, ¶ [0003])

The Hall Reference

110. Hall teaches the concept of a tracking the spread of advertisements that are forwarded from one person to another (what they call viral marketing). They display on a map the geographic spread of the material, where it was viewed, and cumulative statistics such as number of transmissions, rewards earned etc. (Ex. 1011, ¶ [0003 in summary])

111. Claim 1 of Hall talks explicitly about forwarding of content between two subscribers/users. Claim 5 in Hall speaks to receiving this data from mobile devices, and Claims 11 and 12 in Hall talk about displaying information in a time lapse manner to show changes. Claims 15-18 in Hall describe tracking a variety of parameters associated with the content being forwarded, including whether the content was viewed and revenue generated. Taken together, these make claims 12 and 13 of the '646 patent

obvious—showing a parameter related to the spread of the advertisement (in the '646 patent, the validation) on a map and showing its change over time.

The MacEachren Reference

112. MacEachren teaches the concept of animating a graphical map in response to changes in the underlying data (see section 1 Introduction). It also describes as previous work and state of the art the display of data on a map, which is generally the domain of Geographic Information Systems (GIS). MacEachren demonstrates that the basic ideas of claims 12 and 13 of the '646 patent were well known to the academic computing community at least by 1998, and would be common knowledge to a person of ordinary skill in the art.

Obviousness

113. As noted above, Ratsimor teaches a variety of subsidy programs (*e.g.,* discounts and rewards), wherein a subsidy increases depending upon how much a user (subscriber) disseminates a promotion or advertisement. (Ex. 1006, p. 7) In addition, Paul teaches various incentive options for a particular type of campaign described as a "refer a friend campaign." (Ex. 1007, ¶ 50) In addition to coupons, further incentives are available by combining the "refer a friend campaign" with the "random drawing" feature of Paul. (Ex. 1007, ¶ 102)

114. In the event the Board finds that Ratsimor does not explicitly teach creating a profile via a website hosted by an intermediary, Ratsimor does teach a web based user interface which allows a user to interact with and configure the eNcentive system (see Fig. 5 of Ex. 1006, p. 12 ("Web Interface for eNcentive Mobile Node Configuration")). Additionally, creating a profile

through a website hosted by an intermediary was well known in prior art. For example, the Paul reference teaches this element. "The member M1 accesses the sponsor's home page and, when the member 'clicks on' or selects the 'become a member' link or 'access your member profile' link (see Fig. 2) on the sponsor home page, the member's computer, *e.g.*, M1, is hyperlinked or transferred to central server 12. Certain member data, input by a user at computer M1, is returned to server 12. In this manner, servers 10, 12 transmit information to a web browser on a user's client computer M1 and that information is displayed to the user. When the user inputs information, that data, such as member profile data (discussed later), is sent back to server 12 to be processed." (Ex. 1007, ¶ 27)

115. As explained above, Ratsimor communicates multiple promotions or advertisements to a subscriber according to a set of demographic criteria in a profile. These can be viewed by the subscriber via a web interface as depicted in Fig. 5 of Ratsimor. Paul teaches making multiple advertisements, promotions, and e-mail campaigns available to members in a similar fashion. "The view mailings function 60 provides a list or display to the member of all e-mail communications sent to the member by the sponsor (chronologically). The member is permitted to select one or more of these e-mail communications to view the mailing." (Ex. 1007, ¶ 38)

116. Taken together, these clearly make claim 1 of the '646 patent obvious in light of the prior art.

117. Claims 2-5 and 10-11 of the '646 patent are likewise obvious based on Ratsimor in view of Paul and related literature. For example, dependent claim 2 offers an incentive to subscribers which both Ratsimor and Paul

describe. Claims 3-5 deal with validating an offer based on a variety of parameters such as geography and time. In addition, validation in general of Claims 3-4 is clearly described in Atazky making them inherent in Atazky. *See infra*.

118. Claim 10 of the '646 patent describes receiving data at the intermediary from destination devices related to redemptions, and generation of a report. Both Ratsimor and Paul describe data being received as discussed earlier—it is required in order to tabulate the value of the incentive to those who are forwarding the offers. While Ratsimor does not explicitly describe a report being generated, it is a trivial extension. Paul explicitly describes a report as noted above.

119. Ratsimor describes targeted ads that are only given based on geography (the route of a subscriber), so claim 5 of the '646 patent is obvious. Navas *et al.* and Ko *et al.,* which describe restricting advertisements and messages to a given geographic area, further make claim 5 of the '646 patent an obvious modification.

120. Claims 6-8 of the '646 patent are likewise obvious based on Ratsimor in view of Paul and Kitaura. Claim 6 of the '646 patent introduces a temporal restriction on the ads, which is a trivial change obvious to one skilled in the art. Dependent claim 7 of the '646 patent depends on claims 1-4 and 6 and merely adds the known element of a bar code, including a bar code in a static graphic image, which was well known as described in the discussion of Kitaura above. Specifically, Claim 4 of Kitaura describes generating a bar code image corresponding to a coupon. The general milieu of claim 8 of the '646 patent in terms of offers to subscribers and their forwarding is

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clearly established by Ratsimor and Paul. Claim 8 is about invalidating an offer when a limit of usage has been reached.

121. Claim 9 of the '646 patent is likewise obvious based on Ratsimor in view of Paul and Atazky. Claim 9 of the '646 patent is about redirecting the user to some web site when the offer is valid. Atazky provides an additional example of providing a user with links to information, such as video clips, based upon clicking a valid coupon link.

122. Claims 12 and 13 of the '646 patent are rendered obvious by the disclosures in Ratsimor and Paul in view of Hall and MacEachern. As described earlier, MacEachern clearly establishes that showing data on a geographic map and showing its variation over time were well understood in 1998. Hall explicitly describes the use of maps to display spread of advertisements/contents in a marketing situation. Claims 1, 5, 11, 12, 15-18 of Hall read together make claims 12 and 13 of the '646 patent obvious. *See infra*.

Summary

123. The '646 patent is directed to a method and system for peer-to-peer advertising between mobile communication devices. In particular, the patent describes a method for advertisers to reach potential consumers by displaying company advertisements and offering sales promotions or electronic offers on the user devices. The disclosed method also provides for an incentive program based on the profile of the advertiser.

124. Methods and systems for matching advertisers and retailers to customers, providing incentives and offers, determining validity of offers, using barcodes, and displaying advertising data on maps were well known at least

as of 2003, as evidenced by Ratsimor, Paul, and Kitaura, and were certainly well known at least as of 2008 as evidenced by the Hall, Atazky, and MacEachern reference.   Likewise, it was well known prior to 2003 to offer particular promotions or advertisements to certain customers based on their demographic information or preferences, and to provide incentives or bonuses to customers for referring new customers to the advertiser or retailer, as discussed earlier.   Ratsimor very specifically describes a system that is in the same domain (peer-to-peer) as the '646 patent, and has features that are essentially equivalent to the purported novel business process ideas described in the '646 patent.   As such, I believe that the claims of the '646 patent were either explicitly described in prior art, or were obvious to a person of ordinary skill in the art based on publicly available literature.

This declaration contains my opinions about the technical issues related to the claims of the '646 patent and their relationship to prior art, which are based on my expertise in this area. To the extent that there are statements of fact in this declaration, I hereby declare under penalty of perjury under the laws of the United States of America that the factual statements made herein of my own knowledge are true and correct, and that all statements made on information and belief are believed to be true and correct; and further that the statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title XVIII on the United States Code.

August 16, 2013   _____

Date   Anupam Joshi

EXHIBIT A

CURRICULUM VITAE
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Education:

Ph.D., Computer Science	1993	Purdue University
M.S., Computer Science	1991	Purdue University
B.Tech., Electrical Engineering	1989	Indian Institute of Technology, Delhi

Experience in Higher Education:

2012 – date	Director, UMBC Center for Cybersecurity
2011 – date	Oros Family Professor
2005 – date	University of Maryland, Baltimore County, Professor (tenured), Comp. Sc. Elec. Eng. On sabbatical in AY 05-06, spent partly at IBM IRL, IIT-B On partial leave AY 08-09, AY 09-10 at IBM IRL
2001 – 2005	University of Maryland, Baltimore County, Assoc. Professor (tenured), Comp. Sc. Elec. Eng.
1998 – 2001	University of Maryland, Baltimore County, Asst. Professor, Comp. Sc. Elec. Eng.
2000 – 2003	UMIACS, Joint Appointment
1996 – 1998	University of Missouri, Asst. Professor, Comp. Eng. Comp. Sc.
1993 – 1996	Purdue University, Visiting Asst. Professor, Computer Sciences
1992 – 1993	Purdue University, Teaching Assistant, Computer Sciences
1991 – 1992	Purdue University, David Ross (PRF) Fellow, Computer Sciences
1989 – 1991	Purdue University, Teaching Assistant, Computer Sciences

Experience in Other than Higher Education:

Sep08 - Aug 10	Visiting Scientist at IBM India Research Labs
Nov 05-Mar 06	Sabbatical visitor at IBM India Research Labs
1988 – 1988	IDM Ltd., Bombay, Summer Intern (R&D Division)

Research Interests

- Pervasive, Mobile, Sensor and Networked Computing
  - Information and Data Management, Security, Networking
  - Context Awareness, especially in Healthcare Delivery
- Semantic Web, Web Mining and Personalization
  - Detecting Influence, Trust, and Bias in Social media
- Policies, Security, Trust, and Privacy in Open Distributed systems
- Distributed AI (MultiAgent systems), Neuro-Fuzzy Systems, Learning and Adaptation, HPCC

Research Support:

2012-2014	*T2K: From Tables to Knowledge*, $200K, NSF, PI
2012-2015	*Policy Compliant Integration of Linked Data*, $400K, NSF, CoPI (Tim Finin, PI)
2012-2014	*Social Media Analytics*, $80K, NSF I/UCRC/ Northrop Grumman, PI
2011-2012	*Situational Awareness for Threat/Vulnerability Detection*, $40K, Northrop Grumman, PI
2010-2013	*Application of Multicore Processing to Advance Personalized Medicine, Software Assurance, and Health IT*, $396K, NIST, CoPI (Yelena Yesha, PI)
2009-2012	*Platys: From Position to Place*, $700K, NSF, CO-PI (Tim Finin, PI). Collaborative grant with NCSU and Duke who got separate awards.
2009-2013	*Generating Semantic Metadata from Biomedical Images*, $500K, NIST, CoPI (Yelena Yesha,PI)
2009-2010	*Inferring the semantics of structured and unstructured data*, $100K, Microsoft External Research, CoPI (Tim Finin, PI).
2009-2011	*Understanding RSM: Relief Social Media*, $270K, Office of Naval Research (via subcontract from Lockheed Martin), CoPI (Tim Finin, PI)
2008-2010	*Policy-based WAN Configuration and Management*, $224K, DARPA (Phase II STTR with Shared Spectrum Company), PI.
2008-2013	*A Framework for Managing the Assured Information Sharing Lifecycle*, Multi-disciplinary University Research Initiative (MURI), $7.5M, AFOSR, CoPI (Tim Finin PI). UMBC is the lead institution. The amount is the total across all institutions with options. The UMBC share is about 25%
2008-2009	*Modeling influence, bias and information flow in Social Media*, $60K, Google, CoPI (Tim Finin, PI)
2008-2009	*Modeling bias, influence and information flow in social media*, $55K, Microsoft Research, CoPI (Tim Finin, PI)
2007-2008	CT-T: Collaborative Research: A Semantic Framework for Policy Specification and Enforcement in a Need to Share Environment, $50,000, National Science Foundation, CoPI (Tim Finin PI) (separate funding to UTD and UTSA for joint work)
2007-2009	MC2 (Muticore Computational Center), $***,*** (exact amount confidential), IBM, CoPI (M. Halem PI).
2007	Database security in Ad-Hoc Networks, $40K, Agnik LLC (STTR Phase 1 from DoD), PI
2007	SPINTEL:Information Quality for the Intelligence Analysis, $40K, Lockheed Martin, CoPI (Tim Finin, PI).
2007-2008	Context Aware Surgical Training, $168K, University of Maryland Medical System, coPI (Tim Finin, PI).
2006-2007	PWAN – Policy Driven Adaptive Networks, $40K, CoPI SharedSpectrum, Inc., STTR Phase 1 from DARPA
2006	Faculty Award, $20,000, PI, IBM
2005-2007	Automatically creating an Electronic Medical Encounter Record, $200000, University of Maryland Medical System (DARPA Traumapod subcontract), co PI
2004	Shared University Research Grant, $88,000 (approx), CoPI (M. Halem, PI), IBM.

2003-2008	ITR-SemDis: Discovering Complex Relationships in Semantic Web, $453,417, National Science Foundation, P.I.
2003-2008	ITR: Science on the Semantic Web: Prototypes in Bioinformatics, $2,350,000, National Science Foundation, Co-PI (T. Finin, PI. Other CoPIs from UMCP, UCSD, UCSF)
2003-2006	Trust and Security for the Semantic Web, $240,000, National Science Foundation, CoPI (T. Finin, PI)
2003	Equipment Grant, $125,000 (approx), CoPI (Y. Yesha, PI), Cisco Systems
2003	Shared University Research Grant, $250,000 (approx), CoPI (Y. Yesha, PI), IBM.
2002-2005	Subcontract for Security in Pervasive Computing, $73,596, BAH/NIST, P.I.
2003-2004	An Eclipse IDE for Security, Trust and Privacy Policies, IBM, $40,000, P.I.
2002-2003	UPP Award, $52,000, IBM
	2002 Research Support for Pervasive Computing, $15,000, Fujitsu Labs of America, P.I.
2002-2005	Profile Driven Architecture for Data Management in Pervasive Environments, $153,190, National Science Foundation, P.I.
2002-2005	Agent Oriented Approaches to a Ubiquitous Grid, $480,726, National Science Foundation, P.I.
2002	Support for Organizing the 2002 IDM PIs Meeting, $224,905, National Science Foundation, Co-PI
2001	A Simulator to evaluate/prototype Local Area and Personal Area Wireless Network protocols and products, $79,800, AetherSystems Inc, Co-PI (D. Phatak, PI)
2000	Disconnected Web Browsing, $69,332, AetherSystems Inc, P.I.
2000	Home Automation Service Discovery, $132,720, AetherSystens Inc, Co-PI (T. Finin, PI)
2000-2004	Dynamic Negotiation Agents in Mobile Computing, $174,000, National Science Foundation, P.I.
2000-2005	DAML Program, $1,742,524, DARPA, Co-PI (T. Finin PI, Two other CoPIs from JHU-APL and MIT).
2000	An Expertise Recommender using Web Mining, $58,089, NASA/USRA, P.I.
2000	Data Analysis for Intrusion Detection, $15,000, Department of Defence, Co-PI. (C. Nicholas, PI)
1999-2004	CAREER: MultiAgent Systems to Support Mobile Information Access, $213,952, National Science Foundation, P.I.
July 1999	Summer Fellowship, UMBC Graduate School, $2500,
1998-2002	Web Mining and Personalization Using Robust Fuzzy Clustering, $163,713, National Science Foundation, PI (Separate Collaborative award to colleague at Colorado School of Mines)
1998-99	ILI: Distributed Systems Lab, $91,960 ($41,460 from NSF, $50,000 match), National Science Foundation, P.I.
1997-1999	Ubiquitous Computing to Support Humanitarian Demining, $30,815, Research Board - University of Missouri, P.I. (This award was transferred to H. Shi at my request when I left the University of Missouri)
1997-1999	UPP Faculty Development Award - Intelligent Agent Proxies to support Mobile Computing, $80,000 + Equipment, IBM Corporation, P.I.

1998-1999	A vBNS Connection for the University of Missouri-Columbia, $350,000(NSF) + $600,000 (Cost Share), National Science Foundation, Faculty Associate,
1997	Faculty International Travel Award, $600, University of Missouri
1995	Unrestricted grant to support research in Mobile Computing, $10,000, Intel Corporation, Co-PI.
1995	SciencePad Project, $90,000, Intel Corporation, Co-PI .
1995	Equipment award of for "Purdue-on-Line'', over $150,000, IBM Corporation, co-PI
1994-1996	NSF (CISE) Research Associate Award given to E. N. Houstis to support my work in ubiquitous, intelligent scientific computing, $46,200 , National Science Foundation
1994	Special Purpose Grants in Science and Engineering - Classroom of the future project, $22,000, AT&T Foundation, Co-PI

Research Support for Students
NSF Graduate Fellowship for Patricia Ordonez, 2007-
IBM Fellowship from Toronto CAS for Dipanjan Chakraborty, $78,000, 2001-2003
Provost's UGRA Award for Morgan Madiera, $1500, 2011-2012.
Provost's UGRA Award for Ramya Ramakrishnan, $1500, 2001-2002.

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2. Ahmed Elmagarmid, Haitao Jiang, Abdelsalam Helal, Anupam Joshi, Magdy Ahmed, Video Database Systems: Issues, Products and Applications, 1997, Kluwer Academic Publishers.

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7. Lalana Kagal, James Parker, Harry Chen, ***Anupam Joshi***, and Tim Finin, Security, Trust and Privacy in Mobile Computing Environments, in *Handbook of Mobile Computing*, Imad Mahgoub and Mohammad Ilyas (eds.), CRC Press, 2004,

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5. ***Anupam Joshi***, Tim Finin, Lalana Kagal, Jim Parker and Anand Patwardhan, Security Policies and Trust in Ubiquitous Computing, *Philosophical Transactions A, The Royal Society of London*, **366**:1881, pp 3769-3780, October 2008.

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9.	Akshay Java, Sergei Nirneburg, Marjorie McShane, Timothy Finin, Jesse English and ***Anupam Joshi***, Using a Natural Language Understanding System to Generate Semantic Web Content, *International Journal on Semantic Web and Information Systems*, 3(4), 2007.

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27.	Harry Chen, Tim Finin, ***Anupam Joshi***, An Ontology for Context-Aware Pervasive Computing Environments, *Knowledge Engineering Review*, **18**:3, pp197-207, 2003.

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14. Ramakrishnan, N., Joshi, Anupam, Houstis, E.N., Rice, J.R. and Weerawarana, S., ``Intelligent Networked Scientific Computing'', Proc. 15th IMACS World Congress, 1997.

15. Drashansky, T., Joshi, Anupam, Rice, J. R., Houstis, E. N., Weerawarana, S., ``MultiAgent Techniques for Simulation of Complex Scientific Systems'', Proc. 15th IMACS World Congress, 1997.

16. Graham, S., Pizlo, Z. and Joshi, Anupam, ``Problem Solving in Human Beings and Computers'', presented at Annual Math. Psych. Meeting , Irvine, 1995.

17. Guerra, C, Houstis, E.N. and Joshi, Anupam , ``Reconstruction of rectangles from projections: an application to surface mounted device placement'', SPIE Intelligent Robots and Computer Vision XIII, 1994, pp. 145-150.

<u>Non-Peer-Reviewed Works</u>.

1. Pranam Kolari, Akshay Java, Tim Finin, James Mayfield, ***Anupam Joshi***, and Justin Martineau*, Blog Track Open Task: Spam Blog Classification, TREC 2006 Blog Track Notebook*, November 2006

2. Tim Finin, Li Ding and ***Anupam Joshi***, Information Integration and the Semantic Web, *Notes from the Information Integration Workshop*, October 2006,

3. Joshi, Anupam, Weerasinghe, R., Mcdemott, S., Tan, B., Bernhardt, G. and Weerawarana, S., Mowser: Mobile Platforms and Web Browsers', Bulletin of the TCOS, IEEE Computer Society, 1996

4. Houstis, E. and Joshi, Anupam, SciencePad: An Environment for the Electronic Classroom and Laboratory, presented at Invited Minisymposium on Electronic Textbooks, Classrooms and Laboratories for Education in Computational Sciences, SIAM Annual meeting 1995

Students:
I have served on the committee of several students at both the MS and PhD level. I indicate below only those students whose committees I chaired. I've also been the external examiner for PhD theses from Monash University (Australia), IIT-Delhi (India) and IIT-Guwahati (India).

Ph.D.

Wenjia Li, Aug 2011, Chair.
Palanivel Kodeswaran, May 2011, Chair
Sethuram Balaji Kodeswaran, Aug 2008, Chair
Jim Parker, Dec 2008, Chair
Anand Patwardhan, May 2007, Chair
Sasikanth Avancha, Aug 2005, Chair (MS, December 2001)
Filip Perich, May 2004, Chair
Dipanjan Chakraborty, June 2004, Chair

Randy Schauer, PhD Expected 2013, Chair (part time student)
M. Lisa Matthews, PhD Expected 2016, Chair (SFS Fellowship)
Prajit Das,   PhD Expected 2016, Chair
Clare Grasso,   PhD Expected 2017, Chair
Joseph Hennawy, PhD Expected 2017, Chair (part time student)
Christopher Schwartz, PhD Expected 2018, Chair (part time student)

Master's

Dibyajyoti Ghosh, Oct 2012, Chair
Sumit More, May 2012, Chair
Pramod Jagtap, Summer 2011, Chair
Audumbar Chormale, Summer 2009, Chair
Kishor Datar, Summer 2009, Chair
Sheetal Gupta, Summer 2008, Chair
Onkar Valawalkar, Summer 2007, Chair
 Amit Karandikar, May 2007, Chair
Sandor Dornbush, Aug 2007, Chair
Nimish Vartak, Summer 2006, Chair
Sheetal Agarwal, Summer 2006, Chair
Sachee Tripathi, Summer 2005, Chair
Abhishek Gujar, December 2005, Chair
G.K. Shashidhara, Summer 2005, Chair
Vladimir Korolev, Aug 2004, Chair
Pranam Kolari, May 2004, Chair
Amit Choudhri, September 2003, Chair
Avinash Shenoi, September 2003, Chair
Hiren Shah, Aug 2003, Chair
Vipul Hingne,May 2003, Chair
Kejian Hu, August 2002, Chair
Bhagyalakshmi Bethala, August 2002, Chair
Sovrin Tolia, August 2002, Chair

Dhiraj Bhandari, May 2002, Chair
Purnima Chandrashekharan, Aug 2001, Chair
Tapan Kamdar, May 2001, Chair
Chaitanya Pullela, August 2000, Chair
Liang Xu, May 2000, Chair
Scott Jiang, May 2000, Chair

The Following Students graduated from the University of Missouri
Vineeth Subramanium, Summer 1999, Chair
Sunil Tripathy, Feb 1999, Chair
Sanjay Mellacheruvu, Feb 1999, Chair
Harini Bharadwaj, Summer 1998, Chair
Scott Drummond, Summer 1998, Chair
Pramod Karnam, Summer 1997, Chair

Honors Received:

1999-2003	NSF CAREER Award
2003 - date	IBM Toronto Center for Advanced Studies Fellow
1997-1999,	IBM Faculty Award / UPP
2002-2003,	IBM Faculty Award / UPP
2006- 2007	IBM Faculty Award / UPP
1994-1996	NSF Research Associate Award.
	Member, Upsillon Pi Epsilon.
	Member, IEEE, IEEE-CS, ACM. Elected Senior Member of IEEE in 2003.
1984	Prefect,Academics, Modern School (India).
1983	National Talent Scholarship (India)
1980	Junior Science Talent Scholarship (India)

Selected Professional services

I have served on the PC for many conferences, some of which are outlined below. In addition, I routinely review papers for several prominent journals in my field. Recent examples include Trans. Knowledge and Data Engineering, IEEE Trans. Computers, IEEE Trans Mobile Computing, IEEE Computer, IEEE Internet Computing, IEEE Trans. SMC, IEEE Trans. Neural Networks, Comm. ACM, VLDB Journal, ACM/Kluwer MONET, J. Distr. and Parallel Databases. I have also served as a panelist for NSF on several occasions for different programs such as IIS, EIA and DUE. Due to confidentiality reasons, exact dates and panels cannot be revealed.

2006 – date	Editorial Board Member	International Journal on Semantic Web and Information Systems
1999 – 2003	Associate Editor	IEEE Transactions on Fuzzy Systems
2003	Guest Editor	VLDB Journal Special issue on the Semantic Web (with Y. Yesha and V. Atluri)
2002	Guest Editor Special	Journal of Very High Speed Networks
		Issue on Multimedia Networks (with P. Mundur)
2001	Guest Editor	Journal of Very High Speed Networks Special

		Issue on Broadband Wireless Networks.(with A. Krishna)
Jun 1999	Guest Editor	Journal of Distributed and Parallel Databases Special Issue on Mobile Data
	Management and	
		Applications (with J. Jing)
Mar 1999	Guest Editor	CACM Theme section on MultiAgent systems on the Network (with M. Singh)
Oct 1998	Guest Editor	IEEE Personal Communications Magazine Special Issue on Mobile Systems and the Web (with A. Krishna)
2005 -	Steering Committee	IEEE MDM
2012	General Chair	IEEE MDM
2010	PC Chair	IEEE SRDS
2008	Program Committee	IEEE MDM
2007	Program Committee	ISWC/ASWC
2007	Program Committee	Mobiquitous
2007	Program Committee	AAMAS
2007	Program Committee	AAAI07/AIW
2006	Program Committee	IEEE MDM
2006	Program Committee	IEEE PERCOM
2006	Program Committee	ISWC
2006	Program Committee	Mobiquitous
2006	Program Committee	AAMAS
2006	Program Committee	AAAI06/AIW
2006	Program Committee	WWW MTW Workshop
2006	Program Committee	ICDE SeNS Workshop
2006	Program Committee	ACM CIKM06
2005	Program Committee	IEEE SECON
2005	Program Committee	ISWC
2005	PC Chair	Mobiquitous05
2005	Organizing Committee Chair	ACM SIGMOD
2005	Program Committee	IEEE ICDE
2005	Program Committee	IEEE PERCOM
2005	Program Committee	ISWC SWPW Workshop
2004	Local Arrangements Chair	ACM SenSys
2004	Program Committee	IEEE SECON
2004	Panels Co-Chair	Mobiquitous04
2004	Co-General Chair	IEEE MDM
2004	Program Committee	ISWC
2004	Program Committee	IEEE ICDE
2004	Program Committee	IEEE ICDCS
2003	Program Committee	IEEE PERCOM
2003	Program Committee	IEEE MDM
2003	Program Committee	IEEE ICDE
2003	Program Committee	ISWC
2002	Local Arrangements Chair	ACM CIKM
2002	Program Committee	AAMAS Workshop on Ubiquitous Agents on embedded, wearable, and mobile devices,
2002	Program Committee	ACM Mobicom Workshop on Mobile

		Commerce
2002	Program Committee	ACM SIGMOD Conference
2002	Program Committee	IEEE ICDCS
2002	Co-Organizer	NSF Workshop on Context Aware Mobile Data Management,.
2001	Program Committee	ATAL
2001	Program Committee	IPCCC
2001	Program Co-Chair	ACM Mobicom Workshop on
Mobile		
		Commerce
2001	Program Committee	3rd IEEE Intl. Conf. Mobile and Wireless Communication Networks
2001	Program Committee	Intl. Conf. Parallel and Distributed Systems
2001	Program Committee	2nd International Workshop on Wireless Networks and Mobile Computing (held with IEEE Intl Conf. Distributed Computing Systems),
2001	Program Committee Member	2nd International Conference on Mobile Data Management
2000	Local Arrangements CoChair	ACM CIKM
2000	Tutorial on Mobile E-Commerce	2nd ACM SigECOM Conference EC00.
2000	Tutorial: Mobile Data Management	ACM CIKM.
2000	Program Co-Chair	Tenth IEEE Workshop on Research Issues in Data Engineering (RIDE2000)
2000	Program Committee Member	IPCCC.
2000	Co-Organizer	HICSS33 Minitrack on Multi-Agent systems, Internet, & Applications.
1999	Program Committee	Electronic Commerce and Web (EC-WEB) Conference
1999	Co-Organizer, Panel on Mobility	First ACM Conference of
Electronic,		
	and Electronic Commerce,	Commerce
1999	Program Committee Member	Fifth Annual ACM/IEEE MobiCom
1999	Program Committee Member	WIDM Workshop, ACM CIKM.
1998	Program Committee Member	Fourth Annual ACM/IEEE International Conference on
Mobile		
		Computing and Networking
1998	Program Committee Member	AAAI 98 Workshop on Software Tools for Developing Agents.
1998	Moderator & Organizer	Panel on Security in Mobile Systems, ACM/IEEE Mobicom '98
1998	Presented a tutorial on at Computational Intelligence & Data Mining	IEEE WCCI
1998	Session chair (mobile databases session)	IEEE ICDE'98
1997	Organizer, Panel Cooperative MultiAgent systems for the Web	CoopIS'97.

1996	Presented a tutorial on Mobile Computing and Web	ACM Mobicom '96
1996	Member Program Committee	IASTED/ISMM Intl. Conf.
Intelligent		
		Information Management Systems
1996	Member Program Committee	IEEE Intl. Conf. Tools wih AI,
1996.		
1995	Co-Organizer and panelist, minisymposium on Electronic Textbooks, Classrooms and Labs for Education in Computational Sciences	SIAM Annual Meeting 1995
1995	Tutorials Chair	IEEE First International Conference on Software Testing,
	Reliability and	
		Quality Assurance
1995	Panelist, AI Tools in Human-Computer Interaction: Perspectives, Issues, and Directions	IEEE Intl. Conf. Tools with AI.

University Service

Oct 2012 - date	Director	UMBC Center for Cybersecurity
Oct 2012 - date	Chair	Vice President for Research Search Committee
Aug 2011 – Aug 2012	Chair	CMSC Faculty Search Committee
Aug 2010 – Aug 2012	GPD	CMSC Program
Aug 2010 – date	Member	CSEE Executive Committee
Aug 2010-Oct 2010	Interim Chair	CSEE Department
March 07 – Summer 07	Member	Faculty Senate Executive Committee
Aug 06 – Aug 08	Member	University Research Council
Sep 2006 – Aug 2008	Chair	CS Promotion and Tenure Committee
Fall 04	Member	Search Committee for the Assistant/Associate Vice Provost for Research Administration
Aug 2002 - date	Member	UMBC Computer Policy Committee
Sep 2004 – date	Chair	UMBC Computer Policy Committee
April 2004 – date	Member	Internal Advisory board for Alex Brown
Center.		
Aug 1998 - date	Member	CS Graduate Committee
Aug 1999 - date	Member	CS Graduate Admissions Committee
Aug 1999 - 2001	Chair	CS Graduate Admissions Committee
Aug 1999 - May 2002	Member	CS Faculty Search Committee
Aug 2003 - date	Chair	CS Equipment Committee
Aug 1998 - date	Member	CS Equipment Committee

(at Univ of Missouri)

| Jan 1997- Aug98 | Coordinator | Internet Information Services |

Jan 1997 - Aug98   Member   Library Committee
Aug 1997 - Aug 98   Member   Graduate Committee
Jan 1997 - Aug1997   Member   Course & Curriculum Committee
1997   Member   Faculty Search Committee