UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Foursquare Labs, Inc.
Petitioner

v.

BoardActive Corporation,
Patent Owner

Patents US10621620 & US10692108

DECLARATION OF DR. STEVEN H. GOLDBERG

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I, Steven Goldberg, hereby declare the following:

I. INTRODUCTION

1. My name is Dr. Steven H. Goldberg. I have been retained by counsel for Petitioner as a technical expert in the above-captioned *Inter Partes* Review ("IPR") matter. Specifically, I have been asked to study and provide my opinions on the technology described and claimed by U.S. Patent Nos. 10,621,620 ("'620"), and 10,692,108 ("'108"), collectively "Patents-at-Issue". I understand that the Challenged Claims include all of the claims cited in the two Patents-at-Issue. My opinions in this Declaration address those Challenged Claims.

2. My compensation in this matter is not based on the substance of my opinions or the outcome of this matter. I have no financial interest in the Patent Owner. I am being compensated at an hourly rate of $400 for my analysis and testimony in this case.

II. BACKGROUND AND QUALIFICATIONS

3. I am currently a Partner at Finistere Ventures, an early-stage venture capital firm. Additionally, I am the sole proprietor of a consulting business, dba Air Access, where I provide engineering, technical and management services. In that role, I direct and advise a number of high-tech start-up companies and provide litigation technical consulting and support services. My current curriculum vitae (CV) is attached at Exhibit A and some highlights follow.

4. My forty-year career in the technology industry includes employment as an RF engineer, algorithm engineer, digital design engineer, engineering manager, business general manager, CEO, technology investor, and board member. The vast majority of these positions were at companies involved in wireless communications, telematics, radar technology, communications technology, automotive, and/or embedded systems (those that include hardware, software, and algorithms).

5. I received a B.S.E.E. degree and M.S.E.E. degree from Washington University, St. Louis, Missouri in 1975 and 1980, respectively. I also received a Ph.D. in Electrical Engineering from the University of California, Santa Barbara in 1988.

6. My graduate education focused on digital and analog communications and related algorithms. My Ph.D. doctoral thesis focused on direct sequence spread spectrum communications and wireless technology, which includes technology related to the Global Positioning System (GPS), a technology based on direct sequence spread spectrum technology.

7. I was twice employed at Trimble Navigation, Sunnyvale, CA, a global leader in GPS technology. In my first position at Trimble, from 1991 to 1995, I was an Engineering Manager with the Vehicle Tracking Division of the company and a Senior Engineer in the Differential Corrections Group in the Survey Division. My group within the Vehicle Tracking Division—which was composed of hardware,

software, and algorithm engineers—designed, developed, and manufactured tracking systems for cars, trucks, first responders, and public transportation systems. My second period of employment with Trimble Navigation was from September 2008 to September 2009. During this time, I was the Program Manager for the Trimble Military Division where I led approximately 20 hardware, software, algorithm, mechanical, and RF engineers in the design of the next generation M-Code GPS system for military aircraft.

8. My software and programming experience includes programming activity through undergraduate, graduate, Ph.D. programs in Fortran and Matlab (1971-1988). As a Systems Engineer at Applied Signal Technology (1988-1991), my job was to create algorithms to help the National Security Agency and the CIA to receive and decode wireless messages from entities of interest internationally (known as Signal Intelligence). I designed and tested my algorithms in MATLAB, a programming language used by systems engineers. From 1991-2009, I had hundreds of software engineers reporting to me in my roles as Engineering Manager, VP Engineering, and CEO, including over 250 software engineers as part of my role of VP of Engineering at Nokia. I regularly reviewed product software architectures and validated, at a system and algorithmic level, the functionality and the potential performance of a wide variety of products, from GPS receivers and wireless/microwave radios to Internet Security products.

9. Additionally, earlier in my career I was an engineer with California Microwave, Inc., Emerson Electric Co., and an engineer at the Hewlett Packard Company where I regularly had responsibility for radar component design and/or radar system measurements.

10. Notably, I was also a founder and engineering leader at DataRunway, a startup company focused on the design, manufacture, and sale of a system that would provide high-speed data to aircraft in flight.

11. Throughout my career, I was very close to "product" and "product development." As an engineer, engineering manager, VP of engineering, General Manager, CEO, and corporate board member, I have been directly involved in product definition, market validation, product development, testing, manufacturing, pricing, sales, and support. My product management experience includes the creation and oversight of Market Requirements Documents (MRD; created by Marketing Dept), Product Requirements Documents (PRD; created by Product Managers), and System Specification Documents (SSD; created by engineering departments). These documents are tied to a detailed process that guides and enables the creation of a product by assessing and responding to the market and customer needs.

12. Additionally, at Trimble Navigation, Cylink, Applied Signal Technology, Nokia, DataRunway, and Vidient, I was involved with the generation

of intellectual property, specifically patents, related to the products planned for current and future development in the fields of GPS, RF and microwave communications, communications signal processing, receiver design, and RF and microwave components.

13. My professional experience also includes the comparative analysis of competing products and features in a given marketplace as a mechanism for product valuation and unit pricing. This analysis typically involves leveraging a multidisciplinary evaluation of the product that requires an understanding of the hardware, software, algorithmic, user interface, and aesthetic design, and a valuation of the intellectual property associated with these aspects of the product.

14. Additionally, I worked for 11 years at Venrock, a Venture Capital firm, as a Partner where I evaluated and provided technical diligence for a wide range of technology companies, including a range of location services companies, positioning technologies, wireless technologies, and embedded systems.

15. My experience of nearly 40 years in academic, financial, and practical situations as well as my hands-on experience, has given me a detailed appreciation of the technology involved with the Patents-in-Suit.

III. MATERIALS USED

16. In writing this Declaration, I have considered the following: my own knowledge and experience, including my work experience in the above fields; my experience in teaching those subjects; and my experience in working with others involved in those fields. I have also reviewed the exhibits filed with the Petition as well as the background materials referenced below in my analyses:

a) U.S. Patent 9094137 "Sehn"

b) U.S. Patent 10521822

c) U.S. Patent 10621620

d) U.S. Patent 10621621

e) U.S. Patent 10685380

f) U.S. Patent 10692108

g) European Patent 2424278A1, "Alcatel"

h) U.S. Patent Publication 201101719761A1, "Creemer"

i) U.S. Patent No. 9,516,470 ("Scofield")

j) U.S Patent Publication 20150095124A1, "Verizon"

k) U.S. Patent No. 8,391,886 ("Cellco")

l) U.S. Patent Publication 20160309292A1, "Kerr"

m) U.S. Patent Publication 2015/02622214A1, "Geer"

n) International Publication WO 2017/079838 "Muhire"

IV. LEGAL FRAMEWORK

17. I have been informed by counsel for Petitioner that the following legal principles apply to an analysis of patentability based on 35 U.S.C. § 103 for obviousness. I have also been informed that, in an *inter partes* review proceeding such as this proceeding, to render a patent claim unpatentable, Petitioner must show by a preponderance of the evidence that the claim would have been rendered obvious by one or more properly combined prior art patents or publications.

A. Obviousness

18. I understand that to find a patent invalid for obviousness, the Petitioner must prove that the differences between the claimed invention and the prior art taken as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made.

19. I have been informed that to render a claim obvious, a combination of prior art references must disclose each claim element of that claim, and that obviousness is a question of law based on the underlying facts. I understand that the underlying factual inquiries are: (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations of non-obviousness.

20. I am also informed that the fact that all of the elements of a claimed invention can be found separately in more than one prior art reference is not sufficient to warrant a finding that a claimed invention is obvious. There must be a

reason why it would have been obvious to modify or combine the prior art to arrive at the claimed invention. I understand that a helpful insight into this determination is whether there is a teaching, suggestion or motivation in the prior art that would lead one of ordinary skill in the art to combine the elements. When there is no suggestion for the proposed combination, or when the prior art suggests something other than the combination, a finding of obviousness is generally not warranted.

21. I understand that the prior art must be considered in its entirety, including disclosures that teach away from the claimed invention. Furthermore, if a proposed modification to a prior art reference would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

22. I understand that the pertinent obviousness inquiry takes place at the time of the invention. Therefore, the use of hindsight in an obviousness analysis is impermissible.

23. I further understand that, in making a determination as to whether the claimed invention would have been obvious to a person of ordinary skill, the fact finder must consider certain objective factors, such as commercial success, long-felt, but unsolved need, unexpected results, copying, and praise by others in the field. The presence of such factors—known as "secondary considerations"—is evidence

of non-obviousness. I also understand that a connection, or nexus, must exist between the secondary consideration and the claimed invention.

24. Even more specifically, a product, technique, or method can be considered obvious if a person of ordinary skill in the art (i.e. POSITA, defined below) can apply a known improvement technique to a known device to yield predictable results.

B. Level of a Person of Ordinary Skill in the Art

25. I was asked to provide my opinion as to the level of skill of a person of ordinary skill in the art of the Patents-in-Suit at the priority date of the claimed inventions, which counsel has told me to assume is April 10, 2017 ("POSITA"). In determining the characteristics of a hypothetical POSITA of the Patents-in-Suit, I considered several factors, including the type of problems encountered in the art, the solutions to those problems, the rapidity with which innovations are made in the field, the sophistication of the technology, and the education level of active workers in the field. I also placed myself back in the time frame of the claimed invention and considered the colleagues with whom I had worked at that time.

26. In my opinion and for purposes of this Petition, a POSITA (at the time of the claimed inventions of the Patents-in-Suit) would have had at least a Bachelor's Degree in an Engineering discipline such as Electrical or Computer Engineering (or equivalent field), and about two to three years of practical experience. Of course,

additional education could substitute for experience and vice versa, and examples of relevant experience can include in the research, design, development and/or testing of wireless systems and related embedded systems, or the equivalent. Such a POSITA would have been capable of understanding the Patents-in-Suit and the prior art references discussed herein. I apply this level of ordinary skill throughout this declaration.

27. Based on my education, training, and professional experience in the field of the claimed invention, including teaching the requisite skills necessary for a POSITA during the relevant time period, I am familiar with the level and abilities of a POSITA at the time of the claimed invention. Additionally, I met at least these minimum qualifications to be a POSITA as of the time of the claimed inventions of the Patents-in-Suit. Specifically, by April 11, 2017, I had already obtained a Ph.D. degree in electrical engineering and accumulated at least 20 years of experience in the design and/or testing of wireless technology, embedded systems, communications protocols, and related technologies.

C. Claim Construction

28. In my opinion, for purposes of this Petition, none of the terms in the challenged claims appear to require additional construction beyond their plain and ordinary meaning as a POSITA would understand them at the time of the invention in light of the applicable specification, and my interpretation is observable from the

application of the prior art as I have reviewed herein, although I reserve the right to support my interpretations as needed.

V. TECHNOLOGY BACKGROUND

A. Location-based Content

29. Location identification, distance measuring, tracking, and navigation technologies have seen rapid development and improvement over the past 50 years. Terrestrial location identification can be broadly characterized as identifying a location on a map or on the surface of the earth for one's own use or use by a remote user. Over the years, two fundamental approaches have been developed for location tracking; infrastructure-based systems and client-based systems. Labrador, et.al., in *Location-Based Information Systems*, summarizes the details related to these techniques.[1]

30. Infrastructure-based systems are characterized by using equipment or infrastructure, not located at the site or location to be identified. A commonly used technique is to use multiple mobile telephone cell sites to "triangulate" a location. In this way, the user to be located simply has to have a cellphone but no other specialized technology to have their location identified.

31. An alternative infrastructure approach would be to use a client device to receive a signal from a transmitted positioned at a known fixed location (e.g. from

[1] Wightman, P. M., Perez, A. J., Labrador, M. A. (2010). Location-Based Information Systems: Developing Real-Time Tracking Applications. United States: CRC Press.; Sections 6.1-6.3.5

a Bluetooth beacon) and determine approximate distance by leveraging an RSSI (Received Signal Strength Indicator) technique. This technique leverages the fact that stronger signals imply less distance, i.e. closer proximity, between a client device and the respective transmitter.

32. Alternatively, a client-based approach to location identification or tracking is based on location technology included on or in the client device. One common technique would be to use a GPS receiver (perhaps located in a cellphone or personal device) to determine the user location using GPS satellites and then either use the computed location locally for relevant application or transmit the location to a remote user for tracking or other applications requiring location information.

33. Leveraging either of the client or infrastructure techniques to identify a client location on a map, location service and/or content providers often use a technique known as geofencing. Geofencing involves creating a virtual geographical boundary that triggers the transmission of message or marketing content to a mobile device when that device enters or exits the boundary.[2]

34. Users and/or operators of location-based services often have an interest in certain details about the location, direction, and/or speed of the user or mobile vehicle or device in question. Location, from a GPS perspective, is an output, along

[2] Geopositioning and Mobility. (2013). Germany: Wiley; Section 6.4 Geofences

with time, derived from the GPS receiver, often in latitude and longitude coordinates.

35. Speed/velocity can be computed, with reasonable accuracy of a few meters per second, by simply computing the change in location divided by the change in time between the two location coordinates. When high accuracy, within centimeters per second, of vehicle or mobile velocity is required, it can be computed by leveraging the Doppler shift of the GPS signals received at the mobile device.[3]

36. Characterizing the "movement" of the mobile device is a bit more nuanced. Generally, different terms are be used to describe vehicle movement including direction, bearing, track, heading, and course. One must be clear about the specific use case of the measurement of movement. In the matter being discussed in this report, when considering terrestrial vehicle or mobile course, it is not necessary to consider wind or other similar effects that could create differences between the desired course of travel and the actual course of travel. In a perfect scenario, with no corrections or other nuanced issues, direction, bearing, track, and heading are very similar and are measured as an angle between two points.[4]

37. However, it is important to distinguish an "instantaneous course of travel", a "short-term course of travel", and the "intended course of travel." Given

[3] Petovello, M., Inside GNSS, April 2015, Pages 38-41
[4] Airplane Academy.com, *Heading, Track, Bearing, and Course Explained, 2023*

the measurement error, or high-frequency noise, in GPS, and a number of other short-term error sources, an "instantaneous" course of travel, determined by closely timed location measurements on the order of a second or less, may not be the best predictor of the intended course of travel. Alternately, given that vehicles often must drive on a number of different road segments, to arrive at a given destination, a "short-term" measurement of course, over two received location points separated by only a few tens of seconds, given a change in direction of a given street or road, may also not be a good predictor of the intended course of travel. Using two or more GPS location measurements, taken over a period of minutes, or more, would likely provide the best estimate of a user's course of travel over routes containing a number of segments.

38. The computation of the "course of travel", or generically the direction, angle, or bearing between two GPS points can be described as follows:

Calculation of direction between two geographical points[5]

Bearing, in degrees, from point A to B, can be calculated as,

$\beta = \text{atan2}(X,Y)$,

where, **X** and **Y** are two quantities and can be calculated as:

$X = \cos \theta b * \sin \Delta L$

$Y = \cos \theta a * \sin \theta b - \sin \theta a * \cos \theta b * \cos \Delta L$

where θa is 1st LAT, θb is 2nd LAT, and ΔL is difference in LON.

[5] https://www.igismap.com/formula-to-find-bearing-or-heading-angle-between-two-points-latitude-longitude/

Example: Direction/Angle/Bearing between Kansas City and St. Louis:

- **Kansas City (LAT/LON): (39.099912, -94.581213)**
- **St Louis (LAT, LON): (38.627089, -90.200203)**

X and Y can be calculated as,

X = cos(38.627089) * sin(4.38101)

X = 0.05967668696

And

Y = cos(39.099912) * sin(38.627089) – sin(39.099912) * cos(38.627089) * cos(4.38101)

Y = 0.77604737571 * 0.62424902378 – 0.6306746155 * 0.78122541965 * 0.99707812506

Y = -0.00681261948

Finally, **β = atan2(X,Y) = atan2(0.05967668696, -0.00681261948) = 1.684463062558 radians**

Convert to degrees:

β = 96.51°

This means, from Kansas City if we move in 96.51° bearing direction, we will reach St Louis.

39. A person of ordinary skill in the art (POSITA), as defined in a subsequent section below, would understand that given two GPS coordinates, a direction or bearing angle could easily be computed using the formulas and approach just above. The significance of this angle to the ultimate user destination would be based on the time difference between the two GPS measurements and the specific complexity of the route being taken.

40. When using location as a "trigger" for marketing content or advertising, it is important to recognize that even more targeted techniques can be used to improve the accuracy and efficiency of a marketing campaign.

41. Excessive transmission of content or advertising to a user at a targeted location who has no interest in certain information is both inefficient, from a communications bandwidth perspective and "noisy" from a user perspective from receiving unwanted messages. Additionally, there is often a cost, either money, time, processing effort, or user disinterest, associated with targeting a given user with uninteresting, untimely, or inappropriate messages. By adding additional conditions as to when certain messages would be sent to specific users, to improve message fit and/or alignment, accuracy is improved, costs are lowered, and efficiency in response is obtained.

42. For example, conditioning messages based on time of day/week/month/year, affinity group (i.e. specific type of buyers), relevance to a specific user, or historical purchasing or response data from a specific user can all improve accuracy, reduce noise, and increase efficiency.

43. Generally, accuracy in messaging can attract attention from the user. By accurately pairing information in the content to the user, the user values the notices provided, and can afford more attention and/or more frequent consideration of those messages. Reducing inappropriate or less-compelling communications can

avoid noisy but uninteresting messages to the user. Such noisy messaging can confuse or otherwise irritate the user, by making it challenging to know which messages will be credible from their perspective. Increasing the efficiency of communications can be realized through both increased accuracy and/or precision of messages, and by avoiding less-compelling messaging. By consuming capitalizing on the user's time with efficient messages, the user can appreciate increased value in the messaging itself.

B. General Network Communication[6]

44. One of the most widely deployed computer networks, i.e. physical connections of computers to exchange data, is the Internet. It serves as the prototypical network in which data communication takes place. As such, it serves as appropriate background for how data communication takes place generally.

45. The Internet has been around for several decades. Many trace the origins of the Internet to the ARPAnet (the Advanced Research Projects Agency Network), which dates back to the late 1960s. While the origins of the Internet were humble, it has grown into a massive, highly sophisticated network for highly complex and highly varied forms of communication.

46. Much of the communication in networks takes place using a "client/server" paradigm. That is, content servers hold information desired by users.

[6] https://www.cisco.com/E-Learning/bulk/public/tac/cim/cib/using_cisco_ios_software/linked/tcpip.htm.

Through their clients, users make requests for this information, and the server responds by providing the requested information. Such a paradigm is used in, for example, the World Wide Web (WWW). In other applications, like email, servers are responsible for accepting, storing, and forwarding email. Two principles upon which applications and the underlying network infrastructure are based are the use of "layered" communication to break the task of data delivery into more manageable sub-tasks and the use of "protocols" to establish rules for how data is communicated.

47. Generally, a "protocol" is a set of rules that define how a set of functions will be performed. Protocols are important within networks since the two sides of a communication must act in the same, predictable way for data to be successfully delivered. For example, the HyperText Transfer Protocol (HTTP) defines both how requests/responses for objects are to be made and the syntax of such request/response messages. The way in which data is exchanged is as important as the format of the data when it is exchanged. Called "syntax," protocol specifications typically include the way information in a message is formatted. By clearly describing a protocol's communication rules and syntax, ambiguities and errors can be avoided.

48. Multiple protocols are then combined, based on the "layer" at which each operates, to perform the functions necessary to deliver data between sources and destinations across the Internet. In many cases, there is one protocol responsible

for the functions of not just one, but sometimes multiple layers. Each layer and its corresponding protocol perform a set of functions based on widely, but not universally, agreed upon guidelines. As data is prepared for transmission by an application, it is sent through a set of layers. Each layer performs specified functions. For some of the layers, there is a corresponding protocol and a corresponding protocol header that is added to the application's data.

49. To help understand the process and give direction to the flow of data, the layers are "stacked" one on the other, from the highest layer – the application layer, to the lowest layer – the physical layer. Data, therefore, flows "down" the stack from the application layer of the transmitting host, across the network, and "up" a corresponding stack at the receiver. This description and methodology is most often referred to as the International Organization for Standardization (ISO), Open Systems Interconnect (OSI) model, and is described in detail in Kozierok, *The TCP/IP Guide*.[7]

50. The cornerstone of the Internet is the Internet layer. The corresponding protocol, the Internet Protocol (IP), provides end-to-end delivery through the Internet. Using IP address and a variety of support protocols (e.g. routing protocols), routers in the Internet are able to choose the next path towards a destination, thereby

[7] Kozierok, C. M. (2005). The TCP/IP Guide: A Comprehensive, Illustrated Internet Protocols Reference. Switzerland: No Starch Press.

robustly moving packets closer to their destination. From a lay perspective, the most common transport protocol, i.e. TCP, along with IP, forms the core of Internet communications, and hence, the Internet's protocols are commonly called "TCP/IP." Yet, this reference ignores two other important layers below IP.

51. The Data Link Layer (DLL) and the Physical Layer are often closely coupled. The reason is that the function of the DLL is to move bits across one physical hop of an end-to-end path. A DLL protocol is typically designed for a specific physical medium, though there are often many different protocols that can be used for a given medium. Physical Layer protocols are responsible for converting digital bits into the analog transmission signal specific to a particular medium being used for communication. It is therefore clear why there is a close relationship between a DLL protocol and the Physical Layer: both work for a specific medium and together move data across a single hop along a path from a source to a destination. In client/server-based architectures that use a particular protocol to support a specific application, the protocol is usually implemented in both the client and the server. Thus, for example, there is an HTTP client (i.e. a web browser) and an HTTP server. The client and server communicate over the network using additional protocols focused on the actual delivery of data.

C. Software Development and Architecture

52. Embedded systems, like the ones summarized in the patents and prior art references, mentioned in this declaration, are often purpose-built electronic systems that include computer hardware (i.e. a processor, memory, and input/output peripheral devices), software, and possibly mechanical structures. The "embedded software" is often described as the specialized programming that "runs" on an embedded system that controls its functions. Given the typical complexity of an embedded system, the software is often formatted or structured in an architecture that enables easy debugging, faster team development, more reliable operation.

53. Layering is one of the most common structuring techniques that software designers use to break apart a complicated software-based system.[8] When thinking of a system in terms of its software layers, one can imagine the principal subsystems in the software arranged as modules and/or submodules, that contain various functionality. These modules can be designed into software layers that separate the system functionality such that when addressing a single function only a fraction of the overall software is considered at any one time that enables simpler debugging, faster development, and more reliable operation, among many other benefits.

D. Bluetooth and Bluetooth Beacons

[8] Fowler, M. (2012). Patterns of Enterprise Application Architecture. United Kingdom: Pearson Education; Pp. 17-24

54. Bluetooth is a short-range wireless technology for exchanging data between networked devices. It is authorized to operate in the 2.4GHz Industrial, Scientific, and Medical unlicensed band from 2.4 to 2.485GHz. It was specifically designed to be a low cost, low complexity networking protocol and radio technology that could be used in a wide variety of applications. It supports a wide range of network topologies including point-to-point, broadcast, and mesh. The Bluetooth Specification is managed by a group called the Bluetooth Special Interest Group (Bluetooth SIG). It is regularly updated to meet evolving technology and market needs.

55. It is helpful to recognize how Bluetooth relates to other wireless standards. Cellular phones, which enable long-range (up to several miles) voice and data communications, are often referenced as wireless wide-area networks or WWANs. WiFi, with a relatively short-range oriented protocol, is often referred to as a LAN, local area network, or WLAN, wireless LAN. Bluetooth, given the short range and low power operation, is often referred to as a WPAN or wireless personal area network. Bluetooth is often used for wireless headphones, wireless computer mice, wireless keyboards, and the like.

56. Bluetooth Low Energy, or BLE, is a variation of the Bluetooth specification where even longer battery life is preferred over high data transfer rates.

57. BLE was written in the Bluetooth Core Specification version 4.0, called Bluetooth Smart in early 2010 and was first released in the iPhone 4S in October 2011.[9] Other mobile device manufacturers followed with BLE 4.0 devices in 2012. The Bluetooth Specification was updated to version 4.1 in December 2013 and again in December 2014 it was updated to version 4.2. These two versions of the protocol continued to be marketed through June 2016 when version 5 was adopted.

	Classic Bluetooth	**Bluetooth LE and/or Beacon**
Data Transfer Rate	2-3 Mbps	200 Kbps
Time to send data	Typically 100ms	Typically 3ms
Power consumption	Approx. 30mA	Less than 15mA
Applications suited for	Use cases that need continuous streaming of data, such as headphones	Use cases that do not require continuous streaming of data, such as proximity marketing campaigns.

58. Bluetooth beacons use BLE to broadcast small packets of data to other networking devices, most commonly cellphones, enabled with Bluetooth, with applications or pre-installed services installed. They are effectively small radio transmitters that are inexpensive to build and are easy to deploy. Range is typically less than 100 meters. The beacons send out an ID number, called a Universally Unique Identifier, or UUID, on a BLE frequency channel, approximately 10 times

[9] https://blog.beaconstac.com/2018/08/ble-made-simple-a-complete-guide-to-ble-bluetooth-beacons/.

per second. Another BLE device, typically a cellphone, when in proximity of the beacon, links the reception of the beacon signal to an action. The action can be the downloading of an application or some specific message or marketing content.

E. Cellular Mobile Telephones

59. Cellular technology is based on a network having a large number of interconnected transmitters and receivers, known as cellular base stations, to provide wireless connectivity to mobile transceivers, cellphones, over a relatively wide area. These cellular base stations are directly connected to the legacy wired telephone network. This provides the ability for the cellphones to "connect" with either another cellphone or the legacy wired telephone network. Pandya, in *Mobile and Personal Communication Services and System*, provides a detailed summary of cellular telephone networks.[10]

60. By adding more cellular base stations and decreasing the size of their respective coverage area (often called cell splitting), the mobile telephone system can increase its capacity, i.e. increase the number of simultaneous connections (calls). Over the years, cell size (the area covered by a single cell base station) has been steadily decreasing to areas as small as several hundred square yards. This improvement has provided increased capacity on the overall network that supports more users per cell and increased data rates for any given user in a given cell.

[10] Pandya, R. (2004). Mobile and Personal Communication Services and Systems. Germany: Wiley.

61. The first commercial cellular system, known as 1G, was launched in Japan, by NTT, in 1979. It brought the ability to provide mobile phones, with basic voice service, to a much larger portion of the population at a reasonable price point. These early networks operated at frequencies near 450 MHz and 900 MHz.

62. Second generation cellular, 2G, was brought to market in approximately 1991 in Europe. 2G brought digital cellular to the market that included data services, including SMS/text. Over time the speed of the mobile data, for a given user, has increased from approx. 50kbps with the early 2G systems to today's 4G cellular systems that provide data rates of over 40Mbps to some users.

63. Cellphones, in the mid-1990's, began to add significant computer processing functionality that enabled the ability to add Internet networking software that allowed high speed, rapid interaction with the global wired Internet. As the power consumption of mobile processors dropped and performance increased, prices of cell phones dropped. Computer applications that were once limited to desktop computers were now being implemented on cellular mobile phones. By the late 2000's, the concept of the smartphone was brought to market. In early 2007 the first Apple iPhone was announced. It included voicemail, multi-touch gestures, email, a web browser text messaging, and a wide range of other features.

64. By mid-2008, with the iPhone 3G, third-party applications were introduced to the market. This development enabled businesses, like retailers, to

create their own applications that could reside and operate on the consumer mobile phones.

65. Additionally, as mobile processors continued to drop in power consumption and increase in performance, cellphone manufacturers were able to add additional hardware functionality in the phone include the ability to interact with other communication systems including WiFi, Bluetooth, and GPS (for location services).

66. Today's 4G services where first brought to market in late 2009. By this time, indoor coverage (the ability to transmit and receive voice and data indoors) had dramatically improved and the use of third-party applications, which leveraged both Bluetooth and cellular technology, was widespread.

VI. OVERVIEW OF PRIOR ART

A. Kerr

67. U.S. Patent Publication 20160309292A ("Kerr"), "Targeted Content Delivery" was filed April 15, 2016 by inventors Kerr and Stewart and published October 20, 2016.

68. Kerr discloses "[a] system for delivering targeted content to a wireless handset."[11] The "system further comprises a content administration interface configured to store an association between a content item and a user attribute."[12]

[11] Kerr, Abstract
[12] *Id.*

Figure 1A below shows an illustrative targeted delivery system according to one embodiment in Kerr. "Wireless handset 102 receives content transmitted from data processing module 104 via network 106. The content is stored in data storage module 108. A content administration interface 110 allows a content administrator to create content and content associations to define how the content will be targeted." Kerr ¶[0060].

69. "Wireless handset 102 may be a mobile handset, mobile phone, wireless phone, or any type of mobile terminal. The network may be a local area network ("LAN"), wire area network ("WAN"), or any other network to facilitate communication among computers and wireless communications devices." See Kerr ¶[0061].

70. Content administration interface 110 is an application use by a content administrator to manage content. It may further comprise location module 118. The location module of the content interface allows the content administrator to indicate information required for determination of the position of the wireless handset. The content administration interface may also include a geofence module 120. The geofence module allows the content administrator to indicate the location of a geofence relative to a map and enable associations between content items and geofences. See Kerr ¶¶[0066],[0067].

71. “Data storage module 108 stores content items and information used for targeted delivery of content items.” “Data processing module 104 comprises one or more applications used for targeted delivery of content.” “Content delivery module 124 of data processing module 104 determines one or more content items to transmit to wireless handset 102.” See Kerr ¶[0069].

72. “Location determination module 126 of data processing module 104 determines a location of the wireless handset based on information received from or regarding wireless handset 102. The location determination module may further determine whether the wireless handset is located within a geofence. The determined location may be used by content delivery module 124 to determine which content items to transmit to wireless handset 102.” Kerr ¶[0072].

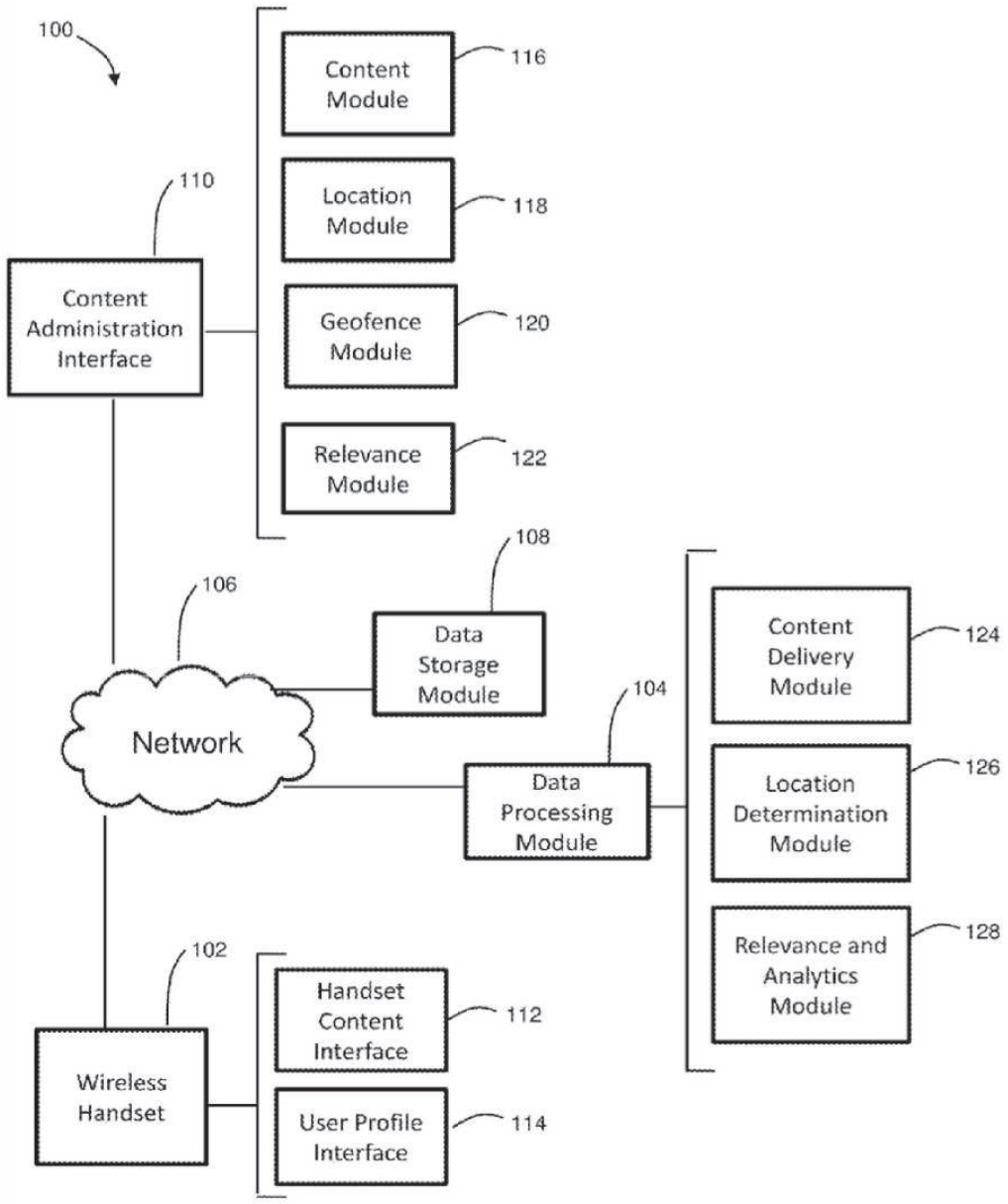


Figure 1A

B. Verizon

73. U.S. Patent Publication 2015/0095124A1 ("Verizon") was filed by Applicant Verizon Wireless on Sept. 27, 2013 for inventors Felt, Venugopal, and Gaddam and published on April 2, 2015.

74. The Patent Application describes a system and method for displaying content at a predetermined location and at a predetermined time. The content may be displayed on a mobile vehicle unit and also distributed to a mobile device within the proximity of the mobile unit.[13] Figure 2B, below, displays a system for processing, managing, displaying, and delivering marketing content. Ad server 107 may send marketing content, updated marketing content, and/or other data or instructions to the input/output module 222.

[13] Verizon, Abstract

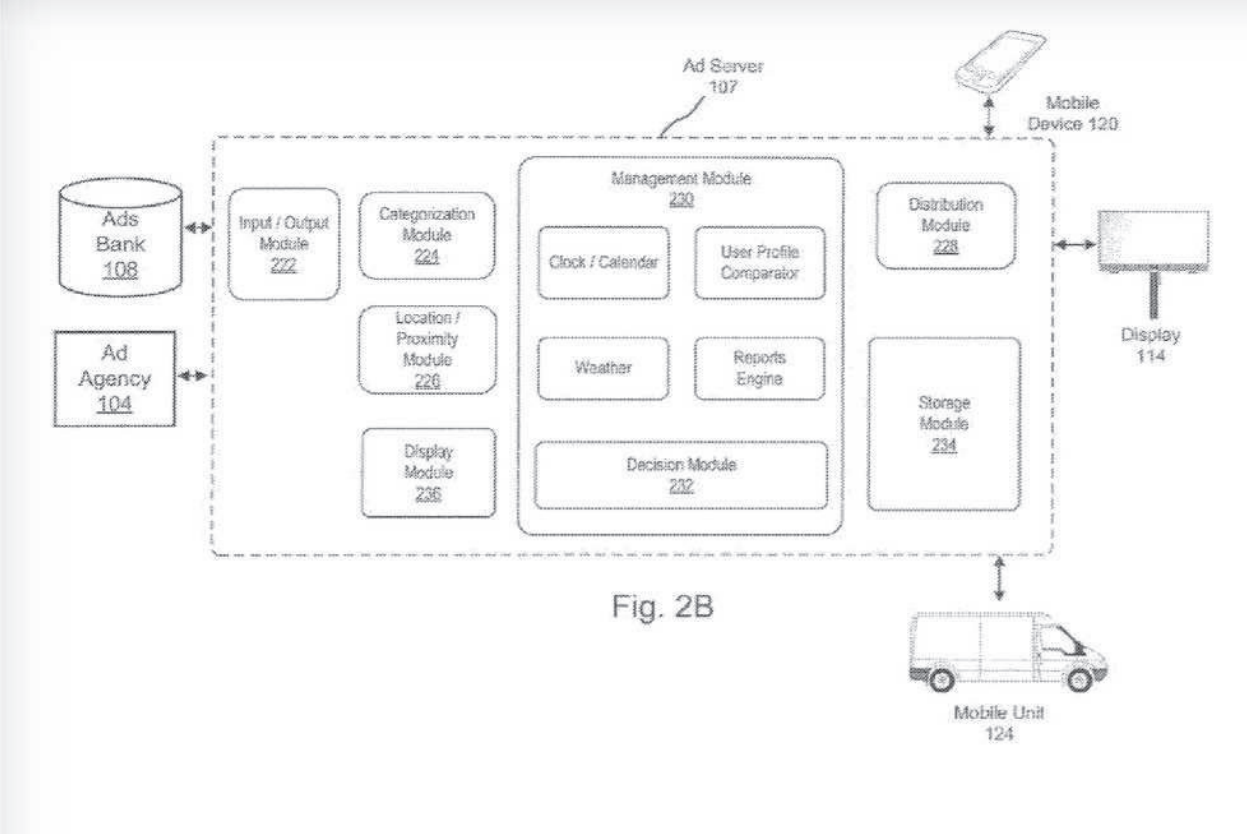
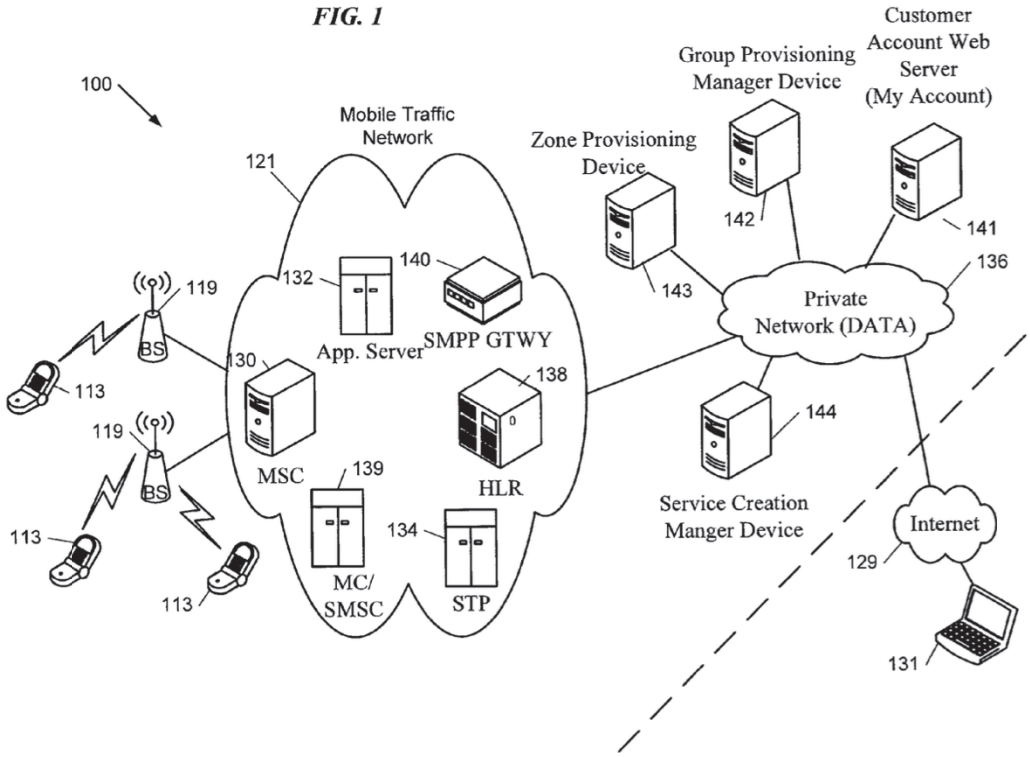


Fig. 2B

C. Cellco

75. Cellco, U.S. Patent No. 8,391,886 ("Cellco") was filed on July 14, 2010 by inventor Atul Thaper, published on March 5, 2013, and assigned to Cellco Partnership. It is focused on "providing information as to location of a mobile station involv[ing] receiving a mobile station location request from a requesting software application at an API gateway of a wireless communication network……The location of the mobile station can be determined, according to either a course or granular location position, or accuracy, based on the request of the application and/or the conditions of the wireless communication network." Abstract. Figure 1 is a functional block diagram that depicts various components of an exemplary mobile

communications network as used for mobile station position determination. Col. 3:41-43.



D. Alcatel

76. European Patent Application EP 2424278A1("Alcatel") was filed on Dec. 21, 2010 by inventor Krishna Adharapurapu, assigned to Alcatel Lucent, and published February 29, 2012.

77. Alcatel is focused on the delivery of content to mobile devices based on the location, and/or direction of mobility of the mobile device as it moves through a telecommunications network. See Alcatel ¶[0001]. Alcatel summarizes a method

for receiving the location information of a mobile device from a mobility manager, storing the location information of the mobile device in a database, determining the

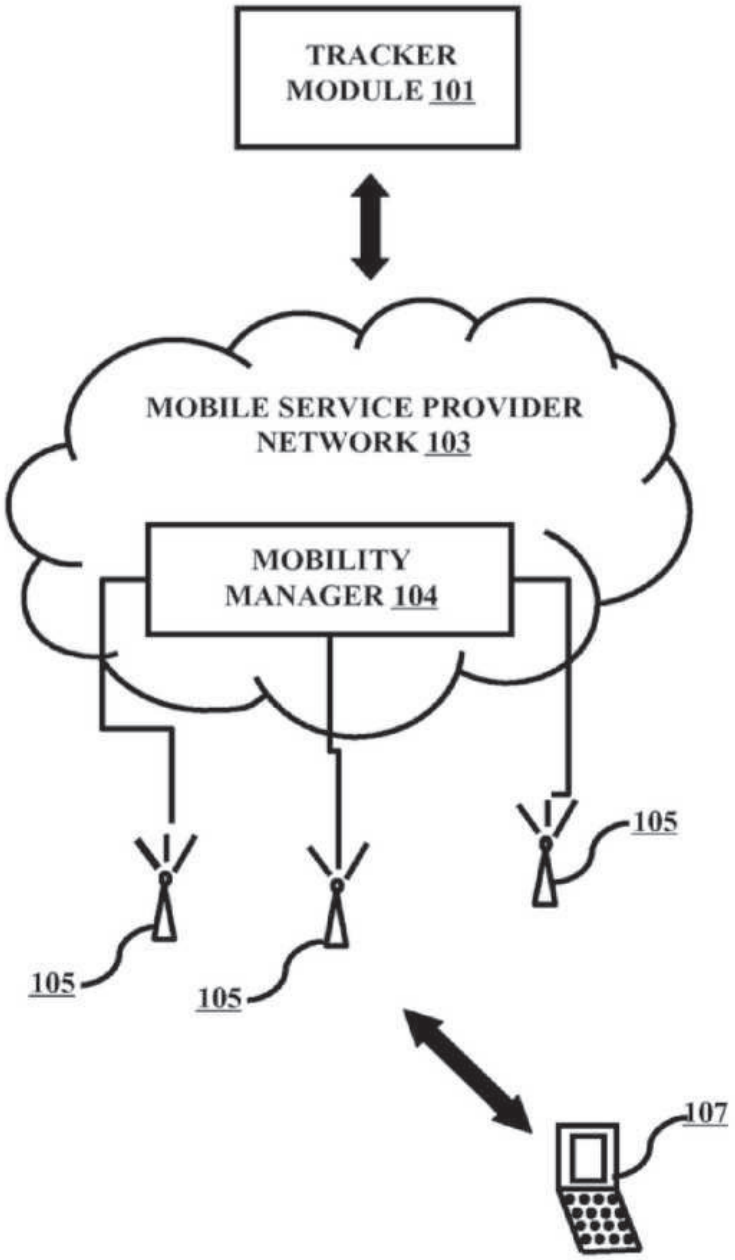


FIG. 1

direction of mobility of the mobile device, and then determining the content to be sent to the mobile device base on a rules processor.

E. Creemer

78. U.S. Patent Publication 2011/0171976A1 was filed on Dec. 15, 2010 by inventor David Creemer and issued on July 14, 2011 with priority date January 5, 2001.

79. Creemer teaches a method and system for targeting content (e.g. a service or advertisement) according do location-based information derived from a mobile wireless transceiver device. Position information as a function of time is used to calculate a rate of travel and a direction of travel. Figure 1 displays the system of Creemer.

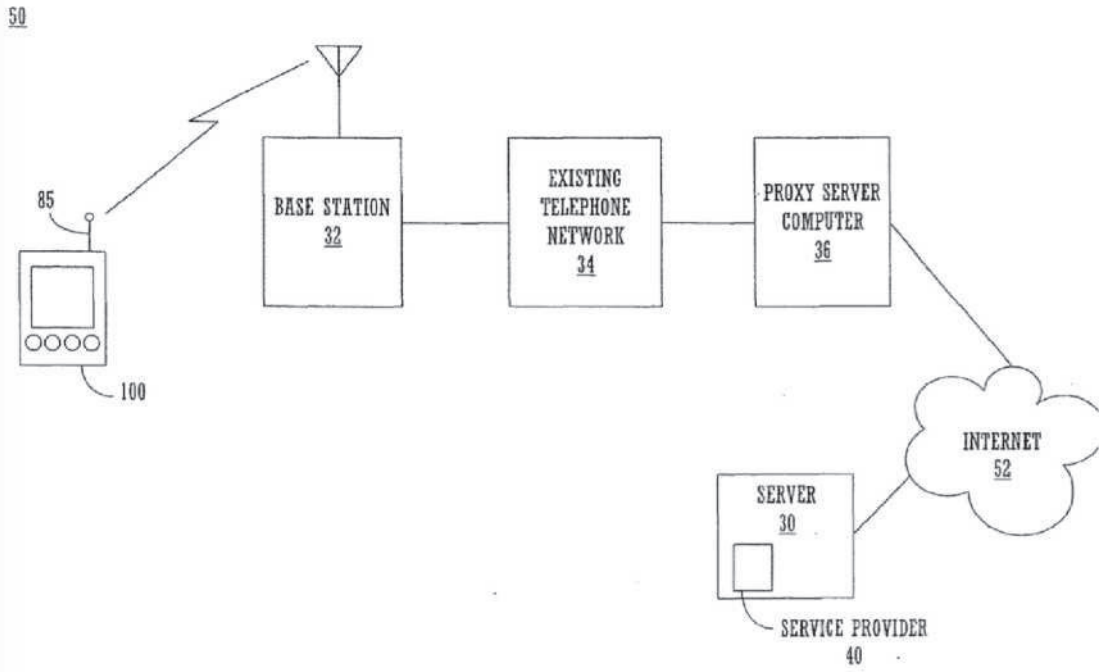


FIGURE 1

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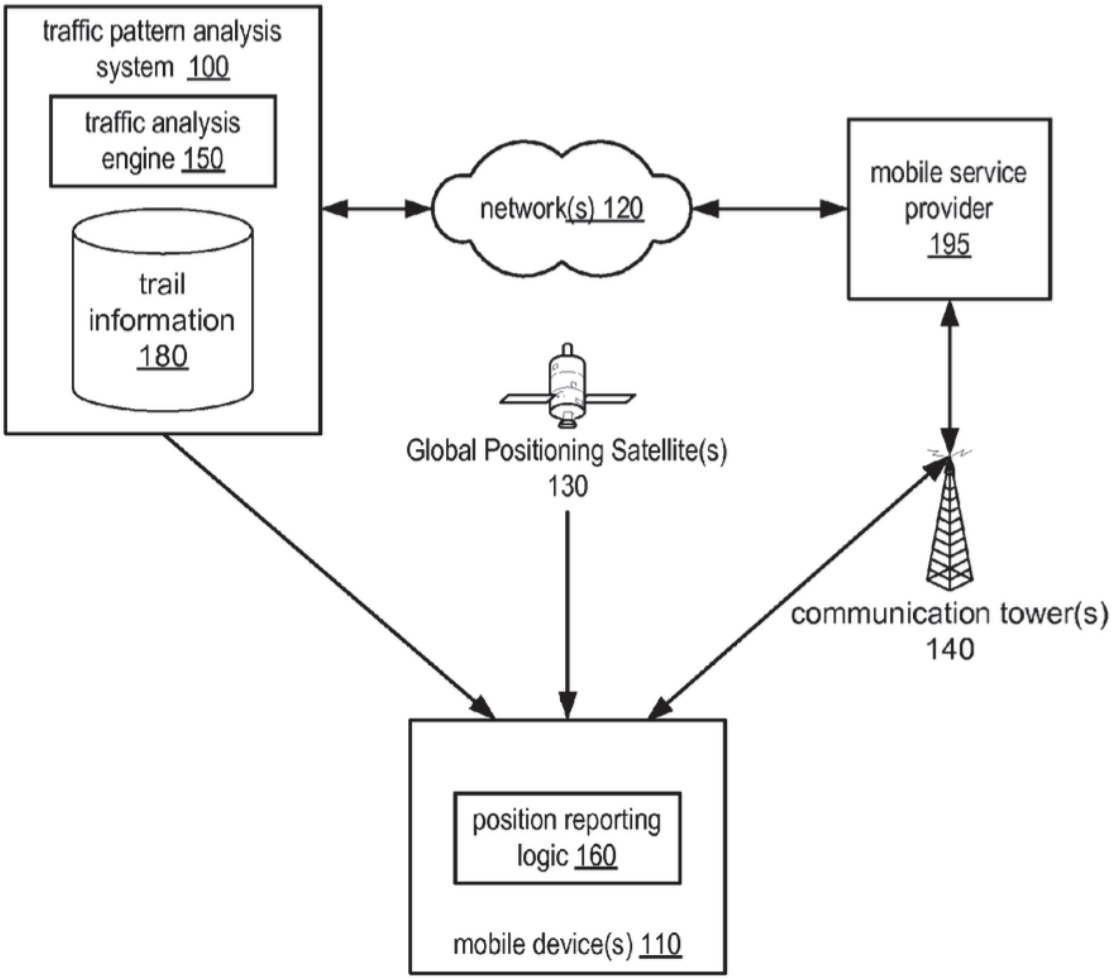
F. Scofield

80. Scofield et al., U.S. Patent No. 9,516,470 B1 ("Scofield") was filed March 8, 2007 and issued on December 6, 2016, and assigned to Amazon Technologies, Inc. The patent teaches that "mobile device users may be tracked either via mobile-signal triangulation or via Global Positioning Satellite information. A mobile-device user's recent movements may be analyzed to determine trails or traffic patterns for device user among various locations." Abstract. "Electronic advertising content, such as advertising content, such as advertisements, coupons

and/or other communications, associated with the next destination may be sent to the mobile device. *Id*. Figure 1, shown below, is a logical block diagram illustrating various components of a system configured to analyze mobile device users' traffic patterns and to determine next destinations for the mobile device users to communicate advertising content regarding the next destination to the mobile device, according to one embodiment." Col 2:66- Col 3:4.

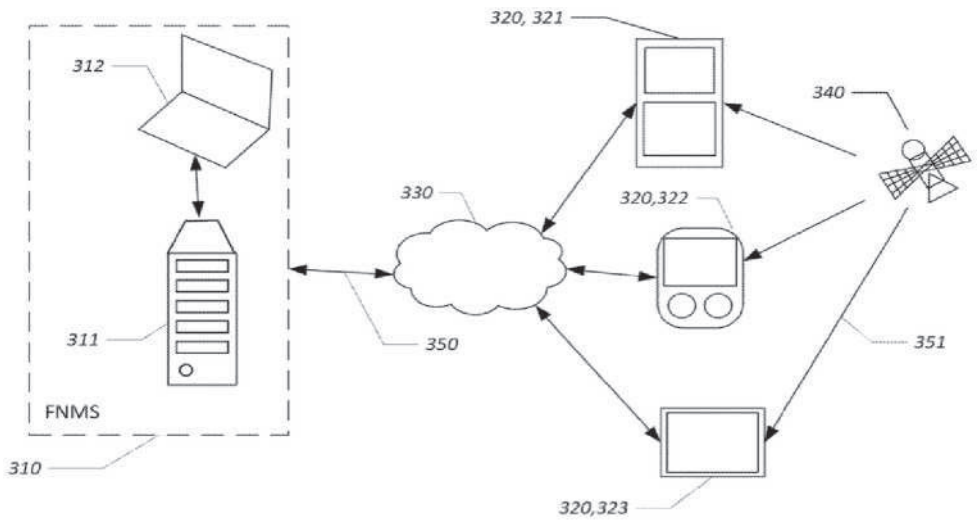


G. Geer

81. U.S. Patent Publication 2015/0262214A1 was filed February 10, 2015 by inventor Bradley Geer and issued on Sept. 17, 2015. It has a priority date of March 18, 2014 tied to Provisional Application No. 61/954,655.

82. This Application and disclosure relates to "a fan networking system (FNS), available through a software application, executing on fans' portable smart devices for an event to be held at a venue. A FNS ay offer event-customized services to fans, such as messaging, fan groups, mementos, coupons, 'friends', and contests." Abstract. This disclosure also proposes high resolution (HIRES) and low resolution (LORES) tracking as part of a geolocation service to provide options when if may or may not make sense to leverage the cost of precise geolocation. ¶[0057], [0058], and [0065].

83. Figure 3, shown below, provides a block diagram of the disclosed FNS/FNMS (Fan Networking System/Fan Networking Management System). Block 320 represents a personal smart device (e.g. a smartphone). Block 330 represents a wide-area network (e.g. the Internet or a cellular communication system). Block 340 represents a GPS (or similar) geolocation system.



H. Muhire

84. International Publication No. WO 2017/079838 was filed on Nov. 10, 2016 by inventors Augustin Muhire and Darlina Opara and published on May 18, 2017.

85. The application and disclosure related to a "system and method allowing a user to save, manage time, and budget over an application when said user makes a request through said application, including: a cloud computing server, said cloud computing server configured to store and operate a framework in communication with a portable electronic display device, said framework comprising a data layer having a connection with a business layer and a presentation layer, said business layer having a connection with a web server." Abstract. Example embodiments include a system for offering promotions and special offers from sellers in real time to a user's portable multifunctional device (e.g. iPad, notebook, etc.) to allow the device to display the current local discount offers." ¶[0032]. Figure

1, below, is a "block diagram of a system, in accordance with an embodiment of the present invention." ¶[0009].

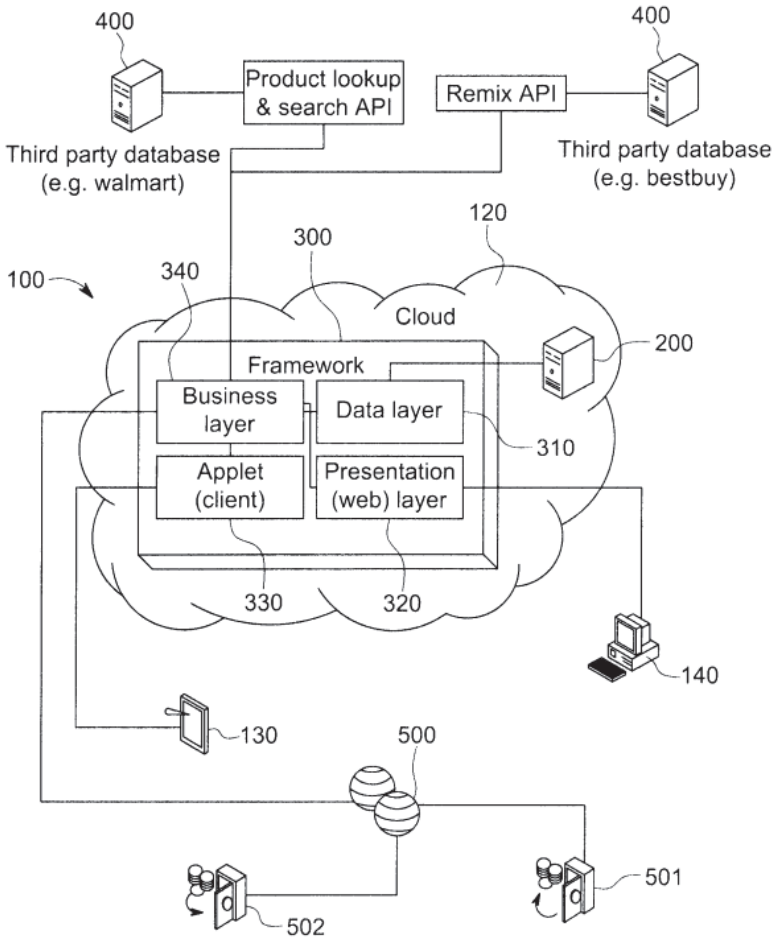


FIG. 1

I. Sehn

86. U.S. Patent No. 9,094,137 was filed Oc. 24, 2014 by inventor Timothy Sehn and issued Jul. 28, 2015.

87. The patent and disclosure relate to a "computer implemented method [that] includes creating an event gallery associated with an even using messages received from devices located within a geo-location fence. The messages are

scanned to identify a specific brand in a message." Abstract. Figure 1, shown below, "illustrates a system 100 configured in accordance with an embodiment of the invention. The system 100 includes a set of client devices 102_1 through 102_N and at least one server 104 connected via a network 106. The network 106 may be any combination of wired or wireless networks." Column 1:62-67.

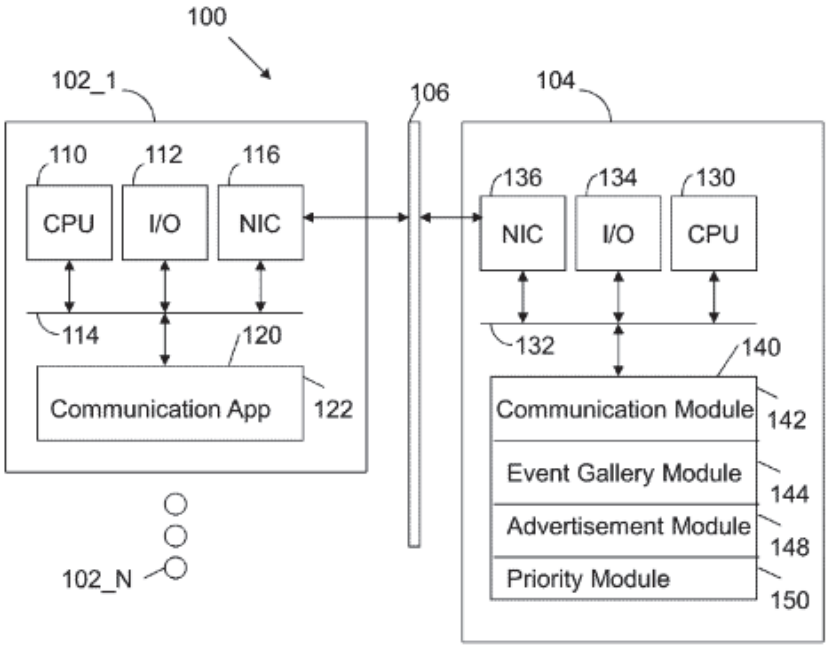


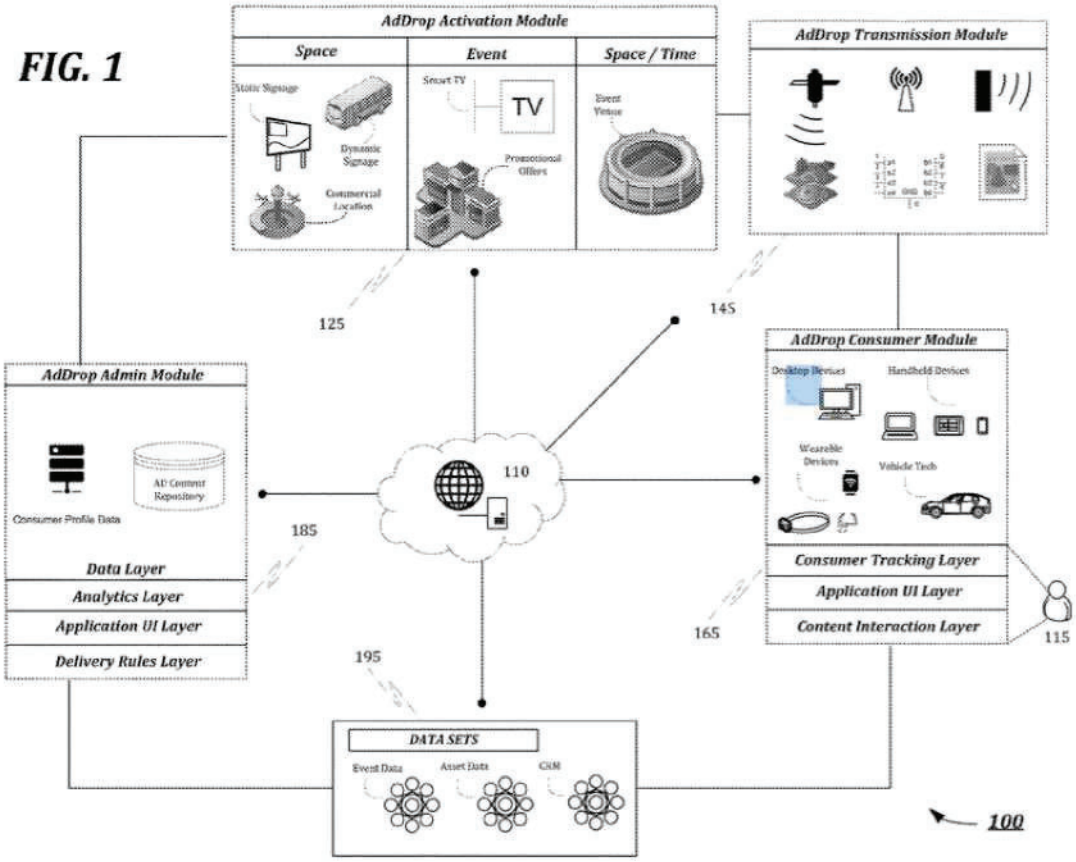
FIG. 1

VII. DESCRIPTION OF THE PATENTS-IN-SUIT AND CHALLENGED CLAIMS

A. '620 Patent

88. U.S. Patent 10,621,620 was filed on April 10, 2018 by inventor Douglas Pittman and issued April 14, 2020. It is a continuation-in-part of application 15/483,790 filed on April 10, 2017, and now patent number 10,521,822.

89. The '620 Patent is also focused on location-based advertising. Figure 1, shown below, displays the system of the '620 Patent.

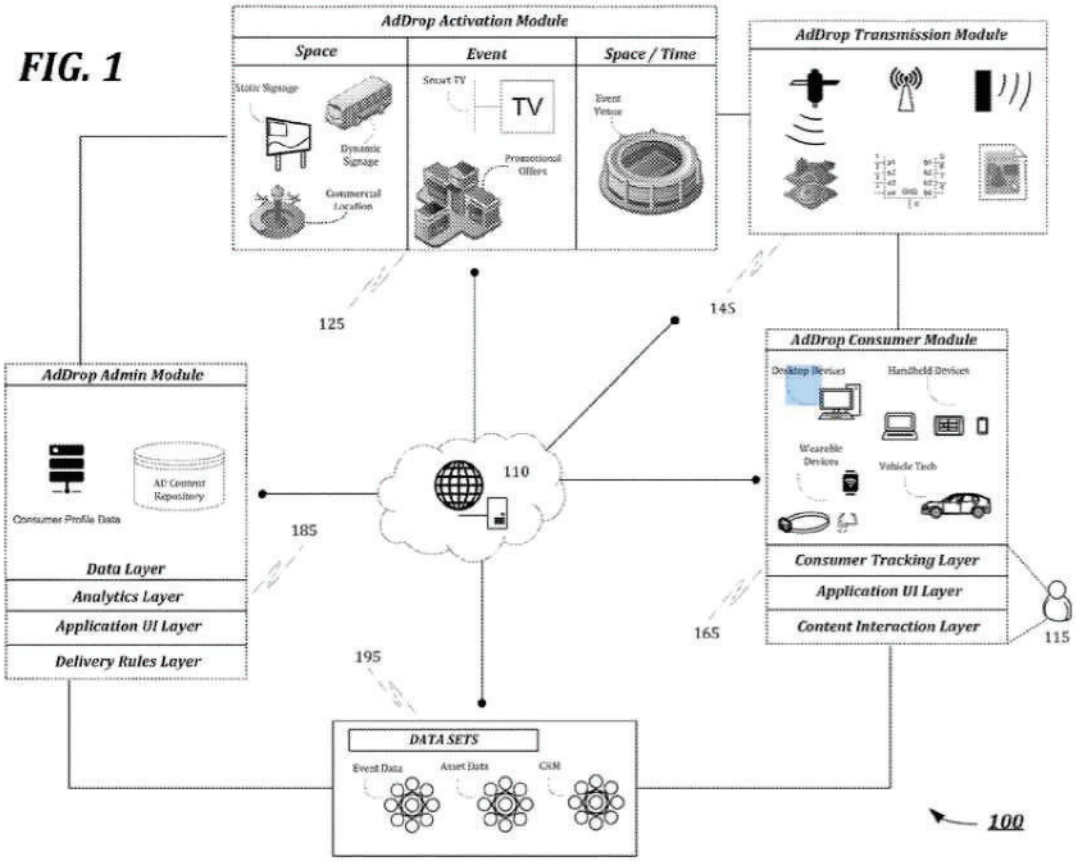


B. '108 Patent

90. U.S. Patent 10,692,108 B1 was filed on March 18, 2020 by inventor Douglas Pittman and issued on June 23, 2020. It is a continuation-in-part of application No. 15/950,019, filed on April 10, 2018, now patent number 10,621,620,

which is a continuation-in-part of application No. 15/483,790, filed on April 17, 2017, now patent No. 10,521,822.

91. The '108 Patent focuses on similar location-based technology as is described in the '620 Patent. As seen below in Figure 1, the system of the '108 Patent is identical to the system of the '620 Patent.



VIII. OPINIONS

92. My opinions concerning the claims of the patents below often include the relevant claim language indicated nearby, as a reference for ease in considering my opinions. However, my opinions have considered the actual language as listed

within the patent documents themselves. Of course, the natural similarities between different aspects of my discussion below can apply the same logic, and I incorporate my discussions into dependent claims concerning their parent claims, including intermediary claims.

A. '620 Patent

1. GROUND 1: VERIZON - §102; GROUND 2: VERIZON WITH KERR AND/OR GREER §103 – CLAIMS 28 AND 29

93. In my opinion, Verizon anticipates claims 28 and 29. For example, as discussed below, I note that Verizon discloses a system and method for delivering tailored content, such as advertisements to mobile devices, based on rules for location and other aspects such as profile data. To the extent that Verizon lacks express or elaborate discussion on aspects such as registration or responsive tracking, it is my opinion that Kerr and Geer, being similar sectors of technology, disclose registration and responsive tracking, respectively.

CLAIM 28

94. Verizon discloses each and every aspect of claim 1, including by its location-based content services to deliver tailored ads to a user's mobile device. *E.g.*, Verizon, Abstract, ¶¶[0014] ("location and time data, among other data, to send marketing content to the individuals"), [0020], [0067] (tailor marketing content).

(1) Claim 28, Preamble: A method, comprising:

(2) Element 28(a): registering asset data, wherein registering the asset data comprises at least one of the following:

(a) registering a first geolocation associated with one of the following:

(b) a physical asset, and

(c) a virtual asset;

95. Verizon discloses a method to include registering asset data, including a first geolocation, by registering disclosed displays. Verizon also discloses registering businesses, or other areas of interest. *E.g.*, Verizon, ¶¶[0026], [0028] ("geographical locations of, for example, businesses, parks, institutions, or […] mobile units 124, mobile devices 120, or even displays 114"), [0032], [0036], [0046]. In one example, Verizon tailors advertising content to location/proximity by proximity comparison between users' current location and the known geolocation of the relevant business or display. Verizon, ¶¶[0036] ("Location/Proximity module 206 may also compare the location of mobile unit 124 to displays 114 […] or displays at a particular business."), [0042], [0046]. The geolocation of interest is registered with Verizon's system, whether referring to display 114 or a business location, to facilitate Verizon's tailored-content distribution. *Id.*, ¶¶[0036], [0046].

96. It is also my opinion that Verizon discloses such registration by its acknowledgement that ads are provided by third party agencies, and categorized according to location/proximity. *Id.*, ¶[0028], [0034]-[0036]. This information is

asset data, and thus, the asset data is registered with the service provider to foster the operations discussed in Verizon. I understand that Verizon discloses personal displays that must be "previously registered" for receiving content. *See* Verizon, ¶[0067].

97. In my opinion, Verizon also discloses that geolocations pertain to physical assets, such as mobile vehicles, mobile devices, 122, 124, 116, displays 114 (*e.g.* billboards), and businesses. *E.g.*, Verizon, ¶¶[0036]. I note that Verizon's displays, whether on vehicles, billboards, or businesses are physical assets. Verizon also discusses expressly that its components can be virtual components. *Id.*, ¶[0031].

(3) Element 28(b): receiving media content to be associated with at least one registered asset,

98. Verizon discloses receiving media content, including advertisements, to be associated with at least one registered asset as recited in claim 28. *See, e.g.*, Verizon, ¶[0028] ("Ad agencies 104, 106 may provide marketing content to ad server 107 … The marketing content may be categorized or assigned criteria based on … business(es) associated with the marketing content … further categorized or assigned criteria based on preferred location of display … proximity to known geographical locations of, for example, businesses, parks, institutions, or proximity to other mobile units 124, mobile devices 120, or even displays 114."); [0034]-[0035], [0042]. It is my understanding that the display itself can be a business

marketing display, and further demonstrates the association of the content with the business itself. Verizon, ¶¶[0036] ("Location/Proximity module 206 may also compare the location of mobile unit 124 to displays 114 […] or displays at a particular business."), [0046].

(4) Element 28(c): specifying a plurality of rules for delivering the media content, wherein specifying the plurality of rules comprises specifying:

(a) a first delivery rule associated with at least one element of profile data corresponding with a recipient of the media content, and

99. Verizon discloses specifying rules at least by its criteria and/or requirements for delivering content with appropriate tailoring. *See, e.g.*, Verizon, ¶[0028] (the marketing content is categorized or assigned criteria). Verizon discloses, as an example, delivery of content dependent upon *user profile data*, including whether the user has a subscription and whether they have opted-in, their gender, financials, age, ethnicity, education, among other things. See, for example, Verizon at ¶[0048]. *See also*, ¶¶[0040], [0041], [0049] (Verizon considers user profiles and user settings before distributing marketing content) [0050], [0053]. Additionally, Verizon applies relevance weighting of a user's profile or settings in determining content delivery. *E.g., Id.*, [0041], [0050] ("user profile"). In my

opinion, Verizon's consideration of user profile data when determining whether to deliver content demonstrates the specifying the rule for delivering content as recited.

(5) 28(c)(ii): a second delivery rule associated with a second geolocation at which the recipient is tracked;

100. Verizon to discloses rules for the delivery of advertisement content also based on or associated with a second location. *See, e.g.*, Verizon, ¶¶[0042], [0043] (displaying on "mobile unit 124" "AD 1" at "location 1," "AD 2" at "location 2," and "AD 3" at "location 3."). For instance, I note as the user travels to the second location, Verizon's additional specified rule of content delivery updates the content according to the second location. This could also applied to any other location updating.

(6) Element 28(d): receiving an indication that the recipient is proximate to the first geolocation, comparing the first delivery rule and the at least one element of profile data associated with the recipient:

101. Verizon discloses receiving the indication proximate the first geolocation directed by the by execution of its rules. *See, e.g.*, Verizon, ¶¶[0023], [0036], [0042] ("signals may be transmitted via network 102"), [0043]. Verizon discloses, as an example, receiving user locations indicating location/proximity to areas of interest, such as displays or businesses, generates the delivery of related advertisement content. *Id.*, [0042], [0043]. I note that Verizon conducts comparison

between the first rule and profile data associated with the consumer, to determine whether to deliver the media content. *See, e.g.*, Verizon, ¶¶[0040], [0041], [0047] (matched), [0048], [0049] ("[D]ecision module may take into account user profiles and/or user settings before distributing marketing content."). Verizon's user settings may include a "do not track" or, alternatively, an "opt-in" option. [0050], FIG. 4. Thus, in my opinion Verizon receives user location and compares the user profile data with its rules to determine whether to deliver the marketing content.

(7) Element 28(e): tracking a location associated with the recipient in response to a matching comparison;

102. In my opinion, Verizon discloses tracking a recipient location responsive to a matching comparison as recited by its location-based operations and additional user activity tracking. *See, e.g.,* Verizon, ¶[0040], [0041] ("do not track" or "opt-in" "user settings"), [0050], [0053], [0069]. Verizon requires matching user profile to opt-in for allowing location tracking at ¶[0041], and location tracking requires opt-in matching. Therefore, newly opting-in, for example, while a user is nearby a geolocation, would, in my opinion, include an indication for a responsive start of Verizon's general location tracking. *Id.* Verizon also provides an example of a user consenting while walking down the street within appropriate proximity to receive ads. *Id.*, [0047]. Additionally, Verizon discloses tracking the user's location in response to matching between the user's activity profile data with its rules.

103. I note that Verizon discloses that users that physically approach a business location are additionally tracked because it indicates a user action in response to content. *E.g.*, Verizon, ¶¶[0040], [0050], [0053]. I understand that beyond Verizon's general operations for location tracking, Verizon tracks the user's actions or activity which indicates that the content was deemed relevant. *Id.*, ¶[0050], [0053]. Verizon teaches that these response actions include "physically travelling" to the business location, qualifying as a user having responded to the advertisement content, presumably as inference that the user was influenced by the advertisement. *Id.*, ¶[0053].

104. Verizon distinctly tracks user location at least by monitoring and retaining information as a "historical action". *Id.*, [0050]. In my opinion, such responsive user actions are tracked according to ads already provided by proximity to geolocations of interest. In one example, Verizon receives an initial indication that a user is near Newark airport. Under Verizon's historical action tracking, this indication causes additional location tracking regarding, for example, whether the user physically approaches the exemplary hotel, car rental, tourism, or "restaurant open for breakfast" in the ad. *Id.*, ¶¶[0042], [0053]. Verizon discloses this additional tracking of user location to understand whether legitimate responsive action has occurred, to retain information, including to make relevance adjustments as appropriate. *Id.*, ¶¶[0040], [0050]. In my opinion, to the extent that the matching

comparison pertains specifically to comparison of user profile data in item 28(d), opt-in and user-response-action information are each part of Verizon's user settings/profile and otherwise are user-specific, and thus qualify as user profile data. *Id.*, ¶¶[0041], [0050].

(8) Element 28(f): comparing the second delivery rule and the location in order to determine whether the recipient is proximate to the second geolocation; and

105. Verizon discloses comparing its second rule in executing its rules for general location-based ad servicing. *E.g.*, Verizon, ¶¶[0042], [0043]. In one example, as the Location/Proximity module 206 tracks the location of the mobile device, the module 206 determines whether the user reaches "location 2". *See, e.g.,* Verizon, ¶¶[0036], [0042]. I understand that Verizon's advertisement updates concerning location 2 occurs by comparison of the user's location/proximity relative to the second geolocation regarding another display, business, or other place of interest. A POSITA would understand this as the ongoing general location-based service that Verizon offers.

(9) Element 28(g): delivering, upon fulfillment of the first delivery rule and the second delivery rule, the media content to the recipient.

106. In my opinion, Verizon discloses delivering media content on fulfillment of the first and second rules. *See, e.g.,* Verizon, ¶¶[0041], [0042]

("marketing content ('AD 2') may be displayed at time 2 and location 2."), [0043], [0053]. I note that Verizon requires consent for ad tracking, and upon reaching the second geolocation, appropriate ads are provided when opting-in, fulfilling both rules. *Id.*, [0041], [0047]. Additionally, in my opinion, user action resulting in relevance weighting which raises weighting from zero fulfills user profile and location rules by activating that weighting. *Id.*, ¶¶[0040], [0050].

GROUND 2: VERIZON WITH KERR AND/OR GEER - Claim 28

107. Although, in my opinion, Verizon discloses each and every feature of claim 28 as discussed above, and incorporated here, I address any lack of express disclosure in Verizon concerning certain terms below as to obviousness. My discussions below are in addition to and as alternative manner of addressing claim 28, and not to the exclusion of Verizon's disclosure as understood by a POSITA.

108. In my opinion, to the extent that Verizon does not disclose "registering" its asset data under my discussions above concerning item 28(a), Kerr, in the same sector of technology, Kerr teaches robust administrator controls and/or access in providing targeted ads to users. *E.g.*, Kerr, Abstract. I understand that Kerr teaches such administrative control and/or access to provide registration of asset data including geolocation of businesses via a user interface. *E.g.*, Kerr, ¶¶[0064]-[0068] (administration), [0080], [0084] (interface), [0087], [0089], [0091]-[0092], [0096]-[0097], [0120] (relevance interface), [0121], [0125], [0128], [0133]-[0164], [0168]-

[0172], [0177]-[0183] (access); Figs. 4-9, 15, 19-25, 30-35. I understand Kerr

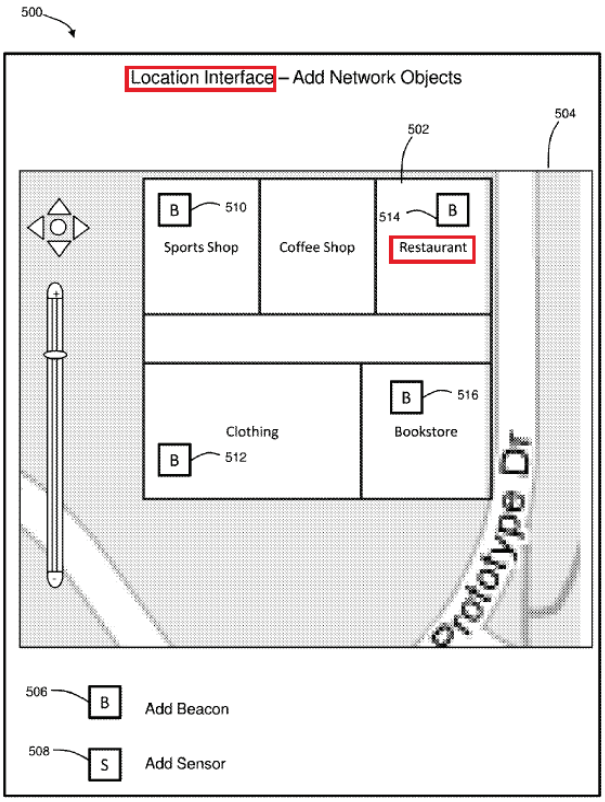


Figure 5

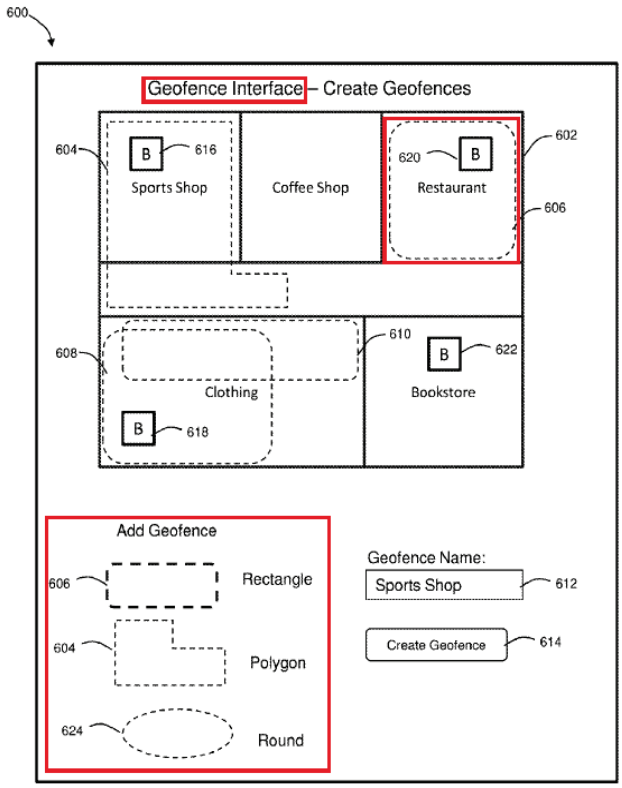


Figure 6

discloses robust interfacing and administration through its a content administration interface 110, where the interface is configured for registering asset businesses by geolocation including geofencing and related rules, which can be seen in annotated Figs., 5-6. I understand that Kerr discloses associating geolocations with received content and content distribution conditions which is indicated throughout its Figs. 3-10, 13-15, 35.

109. In my opinion, Kerr's interfacing allows registration of the assets, and provides all of the related benefits when having such an interface, such as ease and control in human-machine interfacing. *See, e.g.,* Kerr, ¶[0096] (registering with

association between geolocation and content). It is also my opinion that a POSITA would have implemented such registration aspects of Kerr into Verizon to promote ease of implementing of and adjusting requirements, ease of understanding distribution and location schemes of various sorts. Again, generally these interfaces, like Kerr's, can improve effectiveness in human-machine interfacing.

110. To the extent Verizon does not disclose tracking in response to an indication under my discussions above concerning Element 28(c), Geer, focused on the same sector of location-based advertising, teaches the activation of high resolution tracking ("HIRES") for increased precision based on the state or condition of the user, and the user's location or proximity to areas of interest. For example, depending on a state of the user relative to the event/location of interest, Geer activates the HIRES tracking. *E.g.*, Geer, ¶¶[0057] (changing resolution based on state), [0074] (fan/user state), [0079] (affiliation). I understand that Geer teaches that HIRES tracking provides better resolution, but can be turned off or switched to a lower resolution to preserve energy when unneeded. *E.g., id.*, ¶¶[0063]-[0065].

111. I understand that Geer discloses that HIRES tracking can be implemented when lower resolution tracking may be less desirable in terms of application when the user (i.e., "fan") is within proximity to the place of interest. In addition, I note Geer discloses consideration of the "state" of the fan, including whether they affiliate with a home team or have certain categorization. Geer,

Abstract (affiliate, category), ¶¶[0057], [0075]-[0076], [0079] (choice of interest or affiliation). I understand that Geer provides examples of the users' personalized state to include home or away team affiliation, fan type, and/or friends or relationships, all of which are personal to the user and constitute user profile data by their indication of the user's known data amounting to profiling. *Id.*, ¶¶[0074] (home team), [0079] (interests). Thus, in my opinion, Geer discloses prompting HIRES tracking when the user profile data, including affiliations, categories, or interests, match in comparison to content rules. It is my opinion that a POSITA would have implemented such tracking in response to of a user location, into Verizon, by Geer teachings, to improve resolution, conserve energy, and/or otherwise to reduce data loading, reduce processing, and/or for their associated benefits to overall accurate, low noise, efficient communications in providing targeted ads.

CLAIM 29

112. I incorporate here my discussions regarding Verizon, and Verizon with Kerr and/or Geer as to claim 28. In particular, claim 28 is nearly identical to claim 29, even with limitation-by-limitation correspondence, only differing as instructions of computer-readable medium of a method rather than as a method specifically. I understand this to have little or no effect on my opinions concerning application of the prior art to the claims. However, I have addressed specific differences in the language of claim 29 below.

(1) Element 29(a): registering asset data, wherein registering the asset data comprises at least one of the following:

113. Although I believe that Verizon discloses this limitation 29(a) as I have already discussed, nevertheless, to the extent that Verizon this is it, it is my opinion that Kerr further discloses registering as an administrative control as I discussed above concerning claim 28. In my opinion, POSITA would have implemented Kerr's disclosure into Verizon for the same reasons.

(2) a first delivery rule associated with a period of time; and a second delivery rule associated with a second geolocation at which a recipient is tracked during the period of time;

114. In my opinion, Verizon discloses a first rule associated with a period of time. I understand that Verizon discloses, as an example, rules of time periods such as hours of business operation at ¶[0028] (11-7pm), ¶[0065]. Verizon also discloses predetermined times or periods for content at ¶[0073]. I also note that Verizon discloses both specific time intervals ¶0054, and more general time periods such as breakfast at ¶[0042], concerning the time of day at ¶[0058], and also by general notions of content based on day, week, year which pertain to time at ¶[0060] and ¶[0073].

115. In my opinion, Verizon discloses the second rule concerning the time period expressly, e.g., at ¶[0039], concerning "whether to distribute marketing

content … when/how long to display/distribute … may take into account … time of day, day of the week, etc.", and also at ¶[0068] and ¶[0073]). Verizon also provides by example of time period specific location-based ads at ¶[0042] and ¶[0043]. Accordingly, in my opinion, a POSITA would have understood Verizon to disclose each and every aspect within claim 29.

(3) Elements 29(e): tracking a location associated with the recipient in response to a matching comparison;

116. I note that Claim 29 recites a matching comparison but omits reference to "comparing" in element 29(e) when relating it to 28(d). Thus, it appears that application of Verizon, and Verizon in view of Geer, as I have discussed concerning element 28(d), which I have incorporated here, also applies equally to element 29(e). Additionally, however, it is my opinion that other matching comparisons in Verizon can also disclose element 29(e) including by matching comparisons of time, location, subscription, and/or profile, among others, for example, user proximity to a first geolocation at ¶[0038], [0042], [0043].

117. Accordingly it is my opinion that Verizon anticipates claim 29. Alternatively, it is my opinion that Verizon and/or Kerr render claim 29 obvious.

2. GROUND 3: VERIZON ALONE - §103 – CLAIMS 1-6 & 11-27

118. It is my opinion that Verizon alone renders obvious claims 1-6 & 11-27. As discussed in detail below, Verizon's system and method for delivering

tailored content, such as ads, considering geolocation discloses all limitations. To the extent that Verizon does not disclose the limitations of content and tracking layers, in my opinion a POSITA would have implemented these aspects for their benefits to practical application.

CLAIM 1

(1) Claim 1: Correspondence

119. In my opinion, Verizon discloses all aspects of claim 1, but does not expressly mention content interaction and consumer tracking as layers. It is further my opinion that, to the extent that Verizon does not literally explain its operations using as distinct layers, a POSITA would have routinely implemented these features based on Verizon's architecture, and also under their skill and/or knowledge. I note that I have been informed to assume that claim 1 includes layers for the purpose of my consideration of the prior art.

120. I see that the features of claim 1 correspond with claim 28 for many elements, including exact correspondence between elements 1(a):28(a). I also see close correspondence between at least elements 1(b):28(b) and 1(c):28(c), and similar themes for other elements. I incorporate here my discussions concerning Verizon as to claim 28 are incorporated here, which demonstrate unpatentability of claim 1, and identify the location of all elements within the prior art, and I have

addressed specific differences in the language of claim 1 compared to claim 28 with additional detail below.

(2) Element 1(b): receiving media content to be associated with at least one registered asset, wherein the media content is configured to be operative with a content interaction layer and a consumer tracking layer to enable:

121. As I have already discussed above concerning claim 28, and specifically element 28(b), which I have incorporated here, I note that Verizon discloses receiving media content, and that content is to be associated with at least one registered asset. In my opinion, Verizon also discloses or suggests the use of layers as mentioned in claim 1 as I discuss in more detail below. *See, e.g.*, Verizon, ¶¶[0028] (marketing content), [0038], [0042].

122. It is my opinion that Verizon discloses its media content configured as operative with a content interaction layer and a consumer tracking layer as recited in claim 1. I understand that Verizon discloses software modules that include coding. *See, e.g.*, Verizon, ¶¶[0017], [0036] ("The description below describes modules that may include one or more servers, databases, subsystems and other components. As used here, the term module; may be understood to refer to non-transitory executable software, firmware, hardware, and/or various combinations thereof… Location/Proximity module 206 may comprise a WiFi, 3G, 4G, or

Bluetooth component, a GPS receiver/processor, and/or other components to track the location of the mobile unit and/or nearby mobile devices to yield location data.")

123. In my opinion, a POSITA would have appreciated that Verizon's modules can include logic, processors, software, and the like, such as those disclosed by Verizon, and that they routinely include software layers as groupings or divisions of code. These sorts of software layers can provide the ability for arranging the code or interface, such as through segmenting, organizing, sequencing, and/or indexing of various processing operations as Verizon discusses. A layered software architecture simplifies development, debugging, implementation, and/or updating of the software. For example, by having grouped sections of code, comments can be added within the code to provide guide points for viewing in understanding and working in the code. Additionally, in debugging, problems in the code may be more easily isolated where groupings of code concern similar functionality. Accordingly, the use of layers is routine practice and does not, in my opinion, distinguish from what Verizon discloses as I discuss more below.

124. I understand Verizon to disclose consumer location tracking and consumer interaction tracking as distinct operations. In one example, Verizon discloses location/proximity tracking under traditional location technologies such as 3G, 4G, or GPS. Verizon, ¶¶[0036], [0046]-[0047]. Verizon separately discloses consumer interaction with content as a part of its user profile/settings, for example

at ¶[0040], ¶[0050], and ¶[0053]. Verizon discloses, as an example, that when a user clicks on hyperlink within content that has been received, Verizon distinctly tracks the interaction and records related information for its relevance to future content provisioning. *Id.*, ¶¶[0053] (acted upon), [0050]. In my opinion, a POSITA would have understood Verizon's architecture of using separate operations in considering content interactions and location tracking for implementation within layers based on their individual operations as disclosed. *Id.*

125. I understand that even where location services can implicate user activity, Verizon treats these activities differently at least by the effect on user profile or settings and by weighting. *Id*. In my opinion, Verizon's processes for location tracking and considering content interaction are indicated as individual operations including unique functionalities that a POSITA would appreciate for implementation into differing layers of code by their functions as an interaction layer for detecting content interactions, and a tracking layer for tracking consumer location.

126. Accordingly, in my opinion, a POSITA would have found it obvious to have implemented Verizon's operations in different layers, as recited, and thus to receive media content configured and enable operations as recited. These layers would provide benefits of segmenting, organizing, sequencing, and/or indexing, affording ease in development, debugging, implementation, and/or updating to Verizon's tailored content provisions.

(3) interacting with a consumer of the media content in conjunction with, at least in part, the media content, and

127. In my opinion, Verizon discloses interacting with a consumer of the media content, as recited, by its consideration of consumer actions on the content. *See, e.g.*, Verizon, ¶¶[0040], [0047], [0050], [0053] ("acted upon"). In one example, Verizon interacts by considering if the user makes purchases, links to websites, obtained information, or otherwise takes action based on provided content for its relevance. *Id.*, ¶¶[0050], [0053]. These actions can be recorded as user profile information, and can be used in determining future content at least by affecting relevance weighting. Verizon, ¶¶[0040], [0050].

(4) tracking the consumer of the media content in conjunction with, at least in part, the media content;

128. In my opinion, Verizon discloses tracking the consumer of the media content. *See, e.g.*, Verizon, ¶¶[0036] ("Location/Proximity module 206 may comprise a WiFi, 3G, 4G, or Bluetooth component, a GPS receiver/processor, and/or other components to track the location of the mobile unit and/or nearby mobile devices to yield location data [and]… compare the location of mobile unit 124 to displays 114, such as billboards…to yield additional location or proximity data."), [0042], [0043], [0046]-[0047], [0076]. I understand that Verizon applies these locations of the mobile device to track the consumer, in conjunction with the media

content itself at least by the fact that location is used to provide the relevant content. *E.g.,* Verizon, ¶¶[0042], [0043].

(5) Element 1(c): specifying a plurality of rules for selecting the media content to deliver to the consumer, wherein specifying the plurality of rules comprises specifying:

(a) a first rule for delivering the media content, the first rule being associated with at least one element of profile data corresponding with the consumer, and

(b) a second rule for updating the media content, the second rule being associated with a second geolocation;

129. In my opinion, Verizon discloses specifying rules at least by its criteria/requirements for tailored content. *See, e.g.*, Verizon, ¶¶[0028] (categorized or assigned criteria), [0040], [0041], [0048]-[0049]. See my discussions above concerning Verizon's profile, categories, and criteria as to elements 28(b) and (c), and below concerning claim 11. I understand that Verizon discloses, as an example, selecting ad content dependent on elements of user profile data such as subscription/opt-in, and/or demographics such as age, gender, financials, etc., specific to the consumer. *See, e.g.*, Verizon, ¶¶[0040], [0041], [0049] (account user profiles/settings), [0050], [0053]. Thus, in my opinion, Verizon's consideration of

user profile data and/or information when determining when/how to select and deliver content specifies the rule for selecting content as recited.

130. Verizon discloses a second rule for updating content as recited. In one example, Verizon updates content based on the user moving from a first location to a second location. Verizon, ¶¶[0042], (displaying on "mobile unit 124" "AD 1" at "location 1," "AD 2" at "location 2," and "AD 3" at "location 3."). Verizon also discloses minor modifications to content as a rule associated with a second geolocation. Id., ¶[0043]. In my opinion, Verizon's requirement of unit 124 reaching location 2 specifies another rule of content delivery.

(6) Element 1(d): receiving an activation command for triggering a delivery of the media content, wherein receiving the activation command comprises at least one of the following:

(a) determining that a spatial trigger has occurred,

(b) determining that a time-based trigger has occurred, and

(c) determining that an event has occurred,

131. Verizon discloses receiving an activation command for delivery of content. Verizon's activation command can by receipt of determination of triggering as a of spatial trigger (e.g., Verizon, ¶¶[0036], [0042]-[0044]) and a time-based trigger (e.g., id., ¶¶[0028] (hours), [0042], [0043] [0054], [0060], [0065], [0073]).

Verizon's command can also include determination of event occurrence, such as by current events like news and weather at ¶[0028] and ¶[0073], and as user activity or (¶¶[0047], [0042], [0043], [0050], [0053]), as recited.

132. I understand that Verizon discloses spatial triggers by location/proximity, for example, where consumers are near a business of interest. (Id., ¶[0036] (radius of particular business), ¶[0028] and time-based triggers as hours of business operation). I see that Verizon discloses, as an example, traveling through or being stationed at Newark Airport around 7:00 AM may display advertisements relating to hotels, car rentals, tourism, nearby restaurants open for breakfast, etc. Id., ¶[0042]. I further understand that Verizon discloses event occurrence activation commands at least by news/weather/current events (¶¶[0028, [0073]), and user actions such as downloading or responding (¶¶[0047], [0053]).

(7) Element 1(e): comparing the first rule and the at least one element of profile data associated with the consumer in order to determine whether to deliver the media content to the consumer;

(8) Element 1(f): delivering the media content to a device associated with the consumer when the first rule is met;

133. Verizon discloses comparing the first rule and at least one element of profile data to determine whether to deliver content as recited. *See, e.g.*, Verizon, ¶¶[0040], [0041], [0044], and [0049] ("Importantly, the decision module may take

into account user profiles and/or user settings before distributing marketing content … 'do not track' (or, alternatively, an 'opt-in') option that may be enabled by the user via an application in mobile device 120"), for example.

134. Verizon considers whether user profiles match requirements in determining whether content can be delivered. Id., ¶¶[0047] (user profile comparator), [0049] (agreed). I understand Verizon discloses delivering the media content to a device associated with the consumer when the first rule is met. See for example, Verizon at the following paragraphs ¶¶[0040] (weight), [0042], [0043], [0044] (male/female), [0047] (matching allowing delivery, consent), [0048], [0049] (agreed), [0050] (relevance), [0056].

(9) Element 1(g): tracking a location associated with the consumer further to the delivery of the media content;

135. In my opinion, Verizon discloses tracking a location associated with the consumer further to the delivery of the media content. *See, e.g.,* Verizon, ¶¶[0042] (tracking consumer and displaying AD 2 at location 2 and AD 3 at location 3.), [0043], [0047]. Verizon also discloses, as an example, tracking location by known GPS or 3G/4G technologies. I understand that Verizon further discloses periodically acquiring location data of the mobile device representative of the user location. Verizon updates the locations and relevant ads as new locations are tracked. *Id.*, ¶¶[0042], [0043].

(10) Element 1(h): comparing the second rule and the location in order to determine whether to update the media content; and

136. In my opinion, Verizon discloses comparing the second rule and the location regarding updates as recited. For example, Verizon compares location and determines to update AD1 to AD2 when the second geolocation is tracked. Verizon, ¶¶[0036], [0042]. Verizon also discloses such update as a minor modification of AD1. *Id.*, ¶[0043].

(11) Element 1(i): updating the media content at the device associated with the consumer when the second rule is met.

137. In my opinion, Verizon discloses updating the media content at the device associated with the consumer when the second rule is met. *See, e.g.,* Verizon, ¶¶[0036], [0042] ("AD 2 may be displayed at…location 2… Then, as the van heads to Manhattan around 12:00 PM, mobile unit 124 may display marketing content for a local Japanese restaurant that has a current special on sushi, or a local business merely seeking to advertise its name."), [0043]. It is also my opinion that Verizon's content is updated when the mobile device is in proximity of the second geolocation (e.g., Manhattan, ¶¶[0042], [0043]).

138. Summarizing, in my opinion, Verizon achieves all limitations within claim 1.

CLAIM 2: The method of claim 1, wherein registering the asset data comprises registering a mobile asset, the mobile asset being associated a with location tracking technology.

139. It is my opinion that Verizon discloses a method to include registering asset data, in particular registering a mobile asset. *See, e.g.*, Verizon, ¶¶[0027], [0036] (mobile units, vehicles, mobile devices), [0044], [0054]. Location/Proximity module 206 can "track the location of mobile unit[s]," and "compare the location of mobile unit 124 to displays 114, such as billboards…to yield additional location or proximity data… "). I also understand that Verizon discloses various location tracking technologies including GPS. *Id.* A POSITA would have understood Verizon to include registering such mobile assets at least by their initial location tracking, and also by registering their communications identifiers, whether IMEI, MAC, or otherwise to support mobile communications.

CLAIM 3: The method of claim 2, further comprising:

(1) Element 3(a): tracking the mobile asset, and

(2) Element 3(b): updating a database with an up-to-date location data associated with the location tracking technology.

CLAIM 4: The method of claim 3, wherein tracking the mobile asset comprises accessing the database with the up-to-date location data and retrieving the up-to-date location data.

140. Verizon discloses tracking mobile assets. *See, e.g.,* Verizon, ¶¶[0027, [0036] ("Location/Proximity module 206 may comprise a WiFi, 3G, 4G, or

Bluetooth component, a GPS receiver/processor, and/or other components to track the location of the mobile unit and/or nearby mobile devices to yield location data."), [0076]. I understand that Verizon discloses updating a database with tracked, up-to-date location data of the mobile asset. *See, e.g.,* Verizon, ¶¶[0032]-[0033] (databases/modules), [0036] (tracking), [0050]. I further understand that Verizon discloses that any of the devices or modules, including the "Location/Proximity module 206" include databases connected thereto to store data such as location data received from the mobile device 120. *Id*.

141. Verizon discloses accessing and retrieving the up-to-date location data. Verizon, ¶¶[0036] (tracking location and determining whether to "distribute the marketing content" to the mobile device.), [0042] (displaying AD1, AD2, AD3 based on location determination). For example, storing, accessing, and retrieving location data within databases is a routine operation within location tracking, including in Verizon's use of GPS technologies. I note that databases including visitor location registry (VLR) databases are commonly applied in support of location services in storing, accessing, and retrieving the location data of interest, as discussed within U.S. 8,391,886, see e.g., Col. 5:50-52, which I understand is considered a part of Verizon. To the extent that Verizon does not expressly disclose database storage/retrieval within its location-tracking communications, in my opinion a POSITA would have implemented location data updating and tracking

with a database, as recited in claims 3 and 4, based on Verizon's architecture for database storage for its modules, to facilitate use of location data and/or for analysis of historical locations in providing tailored content. *See also* Verizon, ¶[0050] (historical actions).

CLAIM 5: The method of claim 3, wherein tracking the mobile asset comprises communicating with the location tracking technology associated with the mobile asset.

142. It is my opinion that Verizon discloses tracking the mobile asset including communicating with location tracking technology associated with the mobile asset. *See, e.g.,* Verizon, ¶¶[0027] (e.g., GPS), [0036] (e.g., GPS).

CLAIM 6: The method of claim 2, wherein receiving the activation command for triggering the delivery of the media content comprises determining that the consumer is in a spatial proximity to an up-to-date location of the mobile asset.

143. Verizon discloses triggering delivery on consumer proximity to an up-to-date location of a mobile asset. *See, e.g.,* Verizon, ¶¶[0028], [0036] (proximity with mobile unit), [0058] (content displayed within a viewing distance of mobile device), Figs. 2A-2B, 4. I understand in consideration of Verizon's mobile units, when a consumer is within proximity thereto, a delivery trigger provides tailored content. *Id*.

CLAIM 11: The method of claim 1, wherein delivering the media content comprises delivering a plurality of content types, wherein each of the plurality of content types is configured to be delivered based on tailored delivery rules.

144. Verizon discloses delivering a plurality of content types. For example, Verizon discloses video, image, audio, and other marketing content. *See, e.g.,*

Verizon, ¶¶[0038] (video, image, audio), [0042], [0049] ("types of marketing content … marketing content for coffee, clothes, 5-star restaurants, and theatrical productions, and only when the marketing content includes an incentive greater than 15% off. … goods or services relating to children and also local real estate offers … [h]ow the marketing content is present (format, transitions) may [be] dependent on the location."). In my opinion, Verizon discloses content types and delivery rules.

CLAIM 12: The method of claim 11, further comprising tailoring at least one of: a content type and a delivery rule to the at least one element of profile data associated with the consumer.

145. In my opinion, Verizon discloses tailoring content type and/or delivery rule based on user profile data as recited. *See, e.g.*, Verizon, ¶¶[0040], [0041], [0049] ("decision module may take into account user profiles and/or user settings before distributing marketing content to various mobile devices 120 … the user profile may also include the types of marketing content the user has agreed to receive or prefers to receive."), [0050] (relevance), [0067].

CLAIM 13: The method of claim 11, further comprising tailoring at least one of: a content type and a delivery rule to a characteristic of a device type associated with the consumer.

146. Verizon discloses tailoring content type and/or delivery rules considering characteristic of device type associated with the consumer. *See, e.g.,* Verizon, ¶¶[0016], [0017], [0025], [0036] (type), [0045] ("mobile unit 124 may be an individual consumer's vehicle… Implementing a display on individual consumer

vehicles has the potential to maximize advertisement exposure), [0050], [0067]. In one example, Verizon requires that the device type of the consumer be capable of display or otherwise communicating the ad. Id., ¶¶[0025], [0038] (video, audio), [0042], [0078]. In my opinion, Verizon tailors content and rules concerning interactivity in the device which must be interactive to allow hyperlink use. E.g., id., ¶¶[0050], [0053].

CLAIM 14: The method of claim 1, further comprising tracking at least one action associated with the consumer, wherein tracking the at least one action comprises communicating with the consumer tracking layer operated on at least one device associated with the consumer.

CLAIM 15: The method of claim 14, wherein tracking the at least one action comprises employing the consumer tracking layer to track at least one of the following:

(1) Element 15(a): location data,

(2) Element 15(b): sensor data,

(3) Element 15(c): telemetry data,

(4) Element 15(d): device usage data, and

(5) Element 15(e): a unique identifier.

147. It is my opinion that Verizon discloses tracking consumer actions via consumer tracking layer. *See,* Verizon ¶¶[0017], [0036], [0040], [0042], [0043], [0050], [0053]. As I discussed above concerning claim 1, Verizon discloses or achieves tracking consumer locations and movement via tracking layer for software benefits based on its location tracking operations, which includes operation on

consumer's personal devices to include locations, such as by GPS. Id., ¶¶[0036], [0044].

148. I understand and it is my opinion that Verizon's tracking layer would have been implemented on devices associated with the consumer via the subscribed server and/or mobile unit in proximity with the consumer (Verizon, ¶[0028], [0038]. Verizon also discloses consumer location tracking pertaining to responsiveness to ads in determining relevance. Id., ¶¶[0040], [0050], [0053].

149. I understand that Verizon discloses such tracking based on at least location and/or telemetry data. *See, e.g.,* Verizon, ¶¶[0027], [0036] (3G/4G, GPS), [0045] ("Proximity may be dependent on multiple factors including… speed/direction of travel of the mobile device, specifics of the mobile device user… rate of movement of mobile unit 124."). In my opinion, Verizon's location data is understood as telemetry data in context of such electronic devices, and Verizon's location technologies would apply unique identifiers such as IMEI/MAC numbers.

CLAIM 16: The method of claim 15, further comprising compiling analytics based on the at least one action.

150. In my opinion, Verizon discloses compiling analytics of the action, in particular analytics or data regarding the action (and/or movement) of the consumer. *See, e.g.,* Verizon, ¶¶[0032], [0033], [0036], [0039], [0040] (weight), [0050], [0053], [0066] (reports). I understand that Verizon discloses, as an example, assessing speed/direction. Verizon, ¶¶[0038], [0045], [0053], [0058]. I further understand that

Verizon discloses proximity and travel to businesses. *Id*. Each of such aspects comprises analytics as data interpretations from Verizon's tracking technologies such as 3G/4G and GPS. I understand Verizon further discloses generating reports, constituting analytics including user travel to businesses. Id., ¶¶[0040] (weight), [0053] (travel to business).

CLAIM 17: The method of claim 1, wherein delivering the media content comprises engaging a transmission module configured to transmit the media content when the consumer is within a physical proximity to the first geolocation.

151. Verizon discloses engaging a transmission module that transmits content when the consumer is proximate to the first location. *See, e.g.,* Verizon, ¶¶[0027] (wireless connections), [0034] (input/output module), [0040] (distribution module, direct distribution), [0046]. It is also my opinion that Verizon's various embodiments disclose transmission modules conducting communications, and also disclose such aspects by its examples of traveling between locations. Id., ¶¶[0042], [0043].

CLAIM 18: The method of claim 1, wherein determining that the spatial trigger has occurred comprises: receiving location data from the consumer tracking layer in operative communication with at least one device associated with the consumer.

CLAIM 19: The method of claim 18, further comprising, determining, based on the location data, that the recipient is in proximity to the first geolocation.

152. In my opinion, Verizon discloses determining that a spatial trigger and proximity by location data as recited. *See, e.g.,* Verizon, ¶¶[0027], [0032], [0038],

[0042], [0043], [0053]. I understand that Verizon achieves its consumer tracking layer in operative communication with a device associated with the consumer by its operation to determine relevant consumer location, for example, by 3G/4G or GPS technologies, implemented as the consumer tracking layer under a POSITA's skill and/or knowledge. *E.g., id.*, ¶¶[0027], [0036], [0038], [0053]. I see that Verizon's location data is received from the layer by its receiving location data from the device via the appropriate technology, and from the layer in determining the relevance of the location whether by proximity, speed/direction, or otherwise in applying the location data. *Id.* For example, the tracking layer acquires location information as the processor is actively receiving the location data at least to have the location data in temporary volatile memory in order to conduct its operations. Thus, the location data is received from the tracking layer in order to support other related processing operations. In my opinion, Verizon determines at least proximity based on consumer location data as recited. *See, e.g.,* Verizon, ¶¶[0032], [0036] (3G/4G, GPS, proximity to business), [0038], [0042], [0043].

CLAIM 20: The method of claim 1, wherein determining that the time-based trigger has occurred comprises at least one of the following: determining that a predefined time has been met, receiving a manual triggering event, and accessing schedule data from a data storage.

153. It is my opinion that Verizon discloses determining that a time-based trigger has occurred based on determining that a predefined time has been met. *See,*

e.g., Verizon, ¶¶[0028] (11-7pm), [0039], [0042], [0043], [0054], [0058], [0060], [0068], [0073] (predetermined times).

CLAIM 21: The method of claim 1, wherein determining that the time-based trigger has occurred comprises at least one of the following: receiving a designation of a time, and determining that the consumer is in a proximity to at least one of: the first geolocation and the second geolocation at the designated time.

154. In my opinion, Verizon discloses determining that a time-based trigger has occurred as recited. For example, I note that Verizon discloses consideration of operating hours (Verizon, ¶¶[0028] (11-7pm), [0065]). Verizon also discloses consideration of predetermined times or periods for content associated with geolocations (id., ¶[0073]). Lastly, I see that Verizon discloses consideration of specific time intervals (¶0054), and general time such as breakfast (¶¶[0042], [0058] (time of day), [0060] (content based on time, time of day) [0073].

155. I understand that Verizon discloses such times concerning the time period expressly (e.g., id., ¶[0039] (when/how long to display/distribute … time of day), [0068], [0073]), and by example of time specific location/proximity-based ads (e.g., id., ¶¶[0042], [0043]). In my opinion, Verizon receives such time designations routinely with location data for location services. *Id.*, ¶[0028]; *see also*, Ex. 1009, (Cellco), Col. 15:25-34 (absolute times).

CLAIM 22: The method of claim 1, further comprising specifying, for the media content, interactivity criteria.

156. Verizon discloses specifying interactivity criteria. *See, e.g.,* Verizon, ¶¶[0040], [0041]-[0043], [0047], [0050], [0053]. In addition to location requirements, I understand Verizon to disclose user interaction with content and related historical activities such as saving/sharing content, wishlist creation, purchases, hyperlink use, mapping, and/or travelling to related businesses as specifying interactivity criteria. *Id.*

CLAIM 23: The method of claim 1, further comprising receiving an indication that the consumer is moving at a particular path, towards the second geolocation and within a designated period of time.

157. It is my opinion that Verizon discloses receiving an indication that the consumer is moving at a particular path, for example, with speed/direction and/or towards a particular business location. *See, e.g.,* Verizon, ¶¶[0036] (speed/direction), [0042], [0043], [0047] (down the street), [0053] (particular business). Verizon's discloses time period, such as during business hours, also applies when determining content delivery. E.g., id., ¶[0028], [0042].

CLAIM 24: The method of claim 22, wherein specifying the interactivity criteria comprises specifying: a change in a physical location associated with the consumer, a particular destination to which the consumer must navigate, and a particular time period in which the consumer must fulfill the interactivity criteria.

158. In my opinion, Verizon discloses specifying interactivity criteria including change in location, destination and time period as recited by its examples and with specific criteria. *See, e.g.,* Verizon, ¶¶[0042] ("Newark Airport around

7:00 AM …Then, as the van heads to Manhattan around 12:00 PM, mobile unit 124 may display marketing content for a local Japanese restaurant that has a current special on sushi, or a local business merely seeking to advertise its name."), [0043], [0054] (predetermined times or intervals), [0073] (predetermined time). For instance, I see that Verizon discloses a required change in physical location (*i.e.* from Newark to Manhattan), a required destination (*i.e.* Manhattan), and a time period in which the consumer must travel to the destination (*i.e.* between 7:00 AM and 12:00PM). Moreover, I note that Verizon specifies travel to a particular business, also considering business hours, and change in location. Id., ¶[0053]; see also id., ¶[0028].

CLAIM 25: The method of claim 22, wherein tracking the location associated with the consumer comprises tracking the location relative to the interactivity criteria.

159. In my opinion, Verizon discloses that tracking the location associated with the consumer comprises tracking the location relative to the interactivity criteria at least by its response travel to related businesses. *See, e.g.,* Verizon, ¶¶[0042], [0043], [0050], [0053]. In one example, Verizon tracks consumer physical travel to a particular business as an action of interacting with ads. Id., ¶[0053].

CLAIM 26: The method of claim 25, further comprising tracking, via the consumer tracking layer, telemetry data.

160. I understand that Verizon achieves tracking telemetry data via the tracking layer. As I discussed above, Verizon achieves the recited tracking layer by

its individual location tracking and interactivity operations. Also discussed above, Verizon's location tracking applies telemetry data. E.g., Verizon, ¶[0036]; *supra*, Claim 15. Accordingly, in my opinion, a POSITA would have appreciated Verizon as applying telemetry data as location in its consumer tracking layer.

CLAIM 27: The method of claim 24, wherein updating the media content comprises updating the media content upon a fulfillment of the interactivity criteria.

161. In my opinion, Verizon discloses updating the media content upon a fulfillment of the interactivity criteria. I see that Verizon discloses, as an example, delivering media content on activity fulfillment including location/travel and content response. *See, e.g.,* Verizon, ¶¶[0041], [0042] ("marketing content ('AD 2') may be displayed at time 2 and location 2."), [0043], [0047] (updating by download), [0053]. I also understand that Verizon requires consent for ad tracking, and upon reaching relevant locations, appropriate ads are provided when opting-in. *Id.*, [0041]-[0043], [0047]. Additionally, I understand that user action, including clicking and traveling to businesses, can change relevance weighting, resulting in updating. *Id.*, ¶¶[0040], [0042]-[0043], [0050] (continuously monitored).

3. GROUND 4: VERIZON AND MUHIRE - §103

162. In my opinion, Verizon alone achieves all aspects of independent claim 1, as discussed above in Claim 1 incorporated here, under a POSITA's skill and/or knowledge in implementing layers, as discussed above.

163. Alternatively, it is my opinion that, to the extent that Verizon does not disclose software layers in exact terms, Muhire, focused in similar sector of technology, teaches the use of separate layers. *E.g.*, Muhire, ¶¶[0050] ("The cloud computing server 120 includes a database 200 and a framework 300. The framework 300 may be embodied as a multi-tier architecture including four layers/components: a data layer 310, a Web presentation layer 320, a client applet (small application) layer 330 and a business layer 340. The client applet layer 330 may be a Java™ applet that may connect an Android™ application (or Apple™ application or any other similar operating system application) to the other components of the framework 300."), [0052]-[0057].

164. In my opinion, a POSITA would have appreciated Muhire to disclose different layers, such as business layer and Web presentation layer, to provide cohesive and integrated distinct portions of its architecture. It is my opinion that a POSITA would have found it obvious to have implemented Verizon's operations for location tracking and consumer interaction as discussed above concerning claim 1, in different layers as taught by Muhire, and thus to receive media content configured and enable operations, for the benefits of segmenting, organizing, sequencing, and/or indexing, affording ease in development, debugging, implementation, and/or updating to Verizon's tailored content provisions. See my discussions above concerning the same concepts in paragraph 921.

165. I incorporate my discussions here concerning claims 2-6 and 11-27 over Verizon alone here, and it is my opinion that Verizon and Muhire render obvious claims 1-7 and 11-27.

4. GROUND 5: VERIZON ALONE OR WITH MUHIRE, FURTHER IN VIEW OF KERR - §103

166. In my opinion Verizon alone, or with Muhire, discloses all limitations of independent claim 1, as discussed above. Alternatively, it is my opinion that, to the extent that Verizon alone or with Muhire does not elaborately describe registering asset data, as discussed above, Kerr, focused in the same sector of technology, teaches robust administrator controls and/or access in targeted ads. *E.g.*, Kerr, Abstract. In my opinion, Kerr teaches such administrative control/access to provide registration of asset data including geolocation of businesses via a user interface. *E.g.*, Kerr, ¶¶[0064]-[0068] (administration), [0080], [0084] (interface), [0087], [0089], [0091]-[0092], [0096]-[0097], [0120] (relevance interface), [0121], [0125], [0128], [0133]-[0164], [0168]-[0172], [0177]-[0183] (access); Figs. 4-9, 15, 19-25, 30-35. I understand that Kerr discloses, as an example, robust interfacing/administration via a content administration interface 110, configured for registering asset businesses by geolocation including geofencing (Figs., 5-6), and rules as recited. I note that Kerr discloses associating geolocations with received content and content distribution conditions (Figs. 3-10, 13-15, 35).

167. I understand that Kerr's interfacing allows registration of the assets, and provides ease and control in human-machine interfacing. *See, e.g.,* Kerr, ¶[0096] (registering with association between geolocation and content). In my opinion, a POSITA would have implemented such registration aspects of Kerr into Verizon alone or with Muhire, achieving registration as recited in claim 1, to promote ease of implementing/adjusting requirements, ease of understanding distribution and location schemes, and/or for added effectiveness in human-machine interfacing in support of targeted content.

168. I incorporate here my discussions concerning claims 2-6 and 11-27 over Verizon alone, and Verizon with Muhire. Accordingly, it is my opinion that Verizon alone or with Muhire, further in view of Kerr render obvious claims 1-7 and 11-27.

5. GROUND 6: VERIZON WITH KERR (OR ALSO MUHIRE), FURTHER IN VIEW OF SEHN – CLAIMS 7-10 - §103

169. It is my opinion that Verizon alone, and together with Muhire and/or Kerr discloses all limitations of claim 1 on which claims 7-10 depend, and which I have incorporated here. I have been informed by FourSquare's attorneys about the printed matter doctrine. From this understanding, it is my opinion that Verizon's registration of brand assets such as digitized business names, which otherwise render obvious specific names, logos, designs as unpatentability distinct under the printed matter doctrine. I note that Verizon does not expressly disclose other aspects such

as ascertaining the brand asset within multimedia content, however, in similar technical sector, Kerr discloses business registration via administrative interface, and Sehn discloses registration of a business including digitized name and/or logo.

CLAIM 7: The method of claim 1, wherein registering the asset data comprises registering a brand asset, wherein the brand asset is comprised of a digitization of at least one of the following: a trade name, a trade design, a trade logo, and, a source-identifier associated with a brand.

CLAIM 8: The method of claim 7, further comprises: receiving a multimedia content, and processing the multimedia content to ascertain an object within the multimedia content that corresponds to the brand asset.

CLAIM 9: The method of claim 8, wherein receiving the activation command for triggering the delivery of the media content comprises ascertaining that the brand asset is present within the multimedia content.

CLAIM 10: The method of claim 8, wherein receiving the multimedia content comprises receiving the multimedia content comprising an image captured by the consumer.

170. It is my opinion that Verizon discloses registering a brand asset such as a trade name. *See, e.g.,* Verizon, ¶¶[0015] (digital), [0028] ("For example, marketing content associated with an ice cream shop may be categorized [by ad agencies 104, 106 or by ad server 107] according to the name … website of the ice cream shop…"). I understand that Verizon discloses that the ad agencies 104, 106 and/or ad servers 107 are categorizing the content based on the received name of the business which constitutes a trade name and/or source-identifier associated with a brand by its identification of the business itself.

171. Kerr discloses registration of assets, such as businesses, via administrative interface, and further teaches identifying location by image recognition of a user's photo to determine location as a unique identifier. Kerr, ¶¶[0136]-[0137], [0138] (location via user photograph). In my opinion, such photo recognition achieves the ascertained object corresponding to the business asset as recited in claim 8.

172. Additionally, I understand the unique identification of a business's location from a photograph leveraged to provide tailored content achieves the features of claims 7-10 in light of the printed matter doctrine which affords no patentable weight to non-functional information type, including presence of brand asset within photos in view of other identifications within photos. *See Praxair Distribution, Inc. v. Mallinckrodt Hosp. Prods. IP Ltd.*, 890 F.3d 1024, 1031-32 (Fed. Cir. 2018).

173. It is my opinion that, to the extent not provided by Verizon as modified by Kerr, registration of particular marks and/or ascertaining particular brand asset within a photo carries no patentable weight in claims 7-10. In my opinion, a POSITA would have found it obvious to incorporate Kerr's registration, and Sehn's teaching for identifying business names and logos for indication to receive related content. For example, Sehn teaches at Col. 5:33-49 to recognize a known brand, such as by text or logo within photo, and to responsively request content about the brand. A

POSITA would have understood Kerr's interface to provide benefits in administrative level control and access in consideration of additional identifiers, and Kerr's photo recognition to determine association with businesses to enhance subject user experience, to incorporate user-provided information sources, and/or to diversify user circumstances in consideration for tailored content provision. Sehn's brand recognition likewise would have afforded content specific extension of Kerr's image recognition aspects, further diversifying information sources, enhancing the user experience, and adding more user-specific details to the content provision in Verizon. Accordingly, in my opinion, claims 7-10 are rendered obvious over the art combinations discussed above, further in view of Sehn.

6. GROUND 7: ALCATEL AND KERR - §103

174. In my opinion, Alcatel and Kerr render claims 1-29 obvious. It is further my opinion that Alcatel discloses a system and method for delivering tailored content, such as ads, to a mobile device based on the direction of travel of the mobile device. In a similar area, Kerr discloses details to the notion of location-based tailoring of advertising content, including at the administrator level.

CLAIM 1

175. It is my opinion that Alcatel discloses virtually every limitation of claim 1, including consideration of geolocation and location-based content provisions. In my opinion, to the extent it is contended that Alcatel does not discuss particular

features such as profile data, a POSITA would have implemented these features based on Alcatel's philosophy, Kerr's disclosure, and/or POSITA's skill and/or knowledge.

(1) Claim 1, Preamble: A method, comprising:

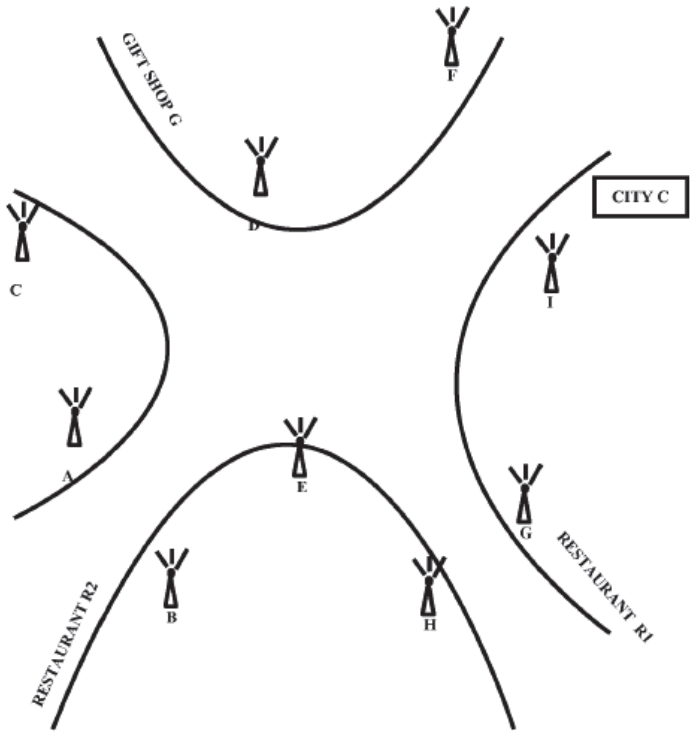
(2) Element 1(a): registering asset data, wherein registering the asset data comprises at least one of the following:

(a) registering a first geolocation associated with one of the following:

(b) a physical asset, and

(c) a virtual asset;

176. In my opinion, Alcatel discloses a method to include registering asset data, including first geolocation, as recited. *See, e.g.*, Alcatel, ¶¶[0002], [0004], [0007], [0015]-[0018], [0021], [0022]. Alcatel discloses, as an example, content delivery based on requirements from the advertiser/publishers. *Id.*, ¶¶[0017], [0019]-[0022]. Alcatel expressly bases these requirements on the geolocation of service base stations in communication with consumers' mobile devices (phones). *Id.*, [0017] (base station near road of interest), [0022], FIG. 3.



Alcatel – FIG 3.

177. I note that Alcatel discloses ads provided by publishers in commercial arrangement with the service provider, such that publisher specifications constitute registration at least when implemented by the service provider with geolocation. *Id.*, ¶[0017] (configures rules based on the location of the tracker base stations near the road). It is my opinion that a POSITA would have understood the asset data to have been registered with the service provider to foster the disclosure in Alcatel. For example, without having the asset data registered, it would not be readily available to support Alcatel's advertising platform.

178. Accordingly, in my opinion, Alcatel's registration of the base stations and/or places of interest (e.g., roads, restaurants) constitute registering geolocations

associated with physical assets as recited. Moreover, it is my opinion that Alcatel's delivering location-based content includes registering asset geolocations by making them accessible because comparison between consumer and geolocation determines whether/which content to deliver. *See also,* Alcatel, ¶[0022]. Accordingly, it is my opinion that this information must be registered as known, possessed, or otherwise accessible to the system to facilitate Alcatel's operations.

(3) Element 1(b): receiving media content to be associated with at least one registered asset, wherein the media content is configured to be operative with a content interaction layer and a consumer tracking layer to enable:

(a) interacting with a consumer of the media content in conjunction with, at least in part, the media content, and

(b) tracking the consumer of the media content in conjunction with, at least in part, the media content;

179. In my opinion, Alcatel discloses receiving media content as recited at least as advertisements from the publishers. *E.g.*, Alcatel, ¶¶[0002], [0016] (media content), [0017] (publishers/ads). Alcatel discloses its content as operative with a consumer tracking layer at least by software implementation of location-based content delivery. Id., ¶¶[0006], [0017], [0019], [0020], [0022]. I also note that Alcatel further discloses consumer interaction at least by enabling/disabling subscription service. Alcatel, ¶¶[0014], [0022].

180. However, in my opinion, to the extent that Alcatel lacks does not disclose consumer interaction as interaction with content specifically, Kerr, focused in the same technology sector, discloses tailored content delivery with location tracking (¶¶[0066]-[0067], [0071], [0074]) including user interaction to like/dislike and create content. *E.g.*, Kerr, ¶¶[0121], [0122], [0163] (user-created content), [0166]; FIGs. 32-33. A POSITA would have found it obvious to incorporate Kerr's user content interaction features into Alcatel to provide user-subjective information/feedback for improving the delivery accuracy, reducing noise, and enhancing efficiency in tailored communications.

181. In my opinion, a POSITA would have understood each of Alcatel and Kerr's disclosure of software implementation of their functionalities. *E.g.*, Alcatel, ¶¶ [0007], [0019] ("processing logic is adapted for deciding the direction of mobility of every mobile device based on the locations … determining content to be sent to the mobile device."); *e.g.*, Kerr, ¶¶[0064], [0070], [0077], [0173], [0174], FIG., 1A. I understand each Alcatel and Kerr disclose software implemented logic functionality to evaluate, determine, and calculate.

182. In my opinion, a POSITA would have appreciated that such logic software, such disclosed by Alcatel's subscription/enabling and location tracking and Kerr's likes/creation and location tracking, routinely include distinct software layers. Such software layers provide segmenting, organizing, sequencing, and/or

indexing of various processing operations as outlined in Alcatel. Such distinction in layers can afford ease in development, debugging, implementation, and/or updating.

183. It is my opinion that each Alcatel and Kerr indicate individual operations for considering content interactions and tracking consumer location that are implemented with layers based on their individual primary operations. *Id.* I note in one example, such processes as location tracking and considering consumer subscriptions are individual operations including unique functionalities that a POSITA would understand as implemented into differing layers of code by their functions as an interaction layer for detecting user interactions, and a tracking layer for tracking user location.

184. Accordingly, in my opinion, a POSITA would have found it obvious to have implemented Alcatel's (as modified with Kerr's content interaction for stated benefits above) operations in different layers, as recited, and thus to receive media content configured and enable operations as recited, for the benefits of segmenting, organizing, sequencing, and/or indexing, affording ease in development, debugging, implementation, and/or updating to tailored content provisions.

(4) Element 1(c): specifying a plurality of rules for selecting the media content to deliver to the consumer, wherein specifying the plurality of rules comprises specifying:

185. In my opinion, Alcatel discloses specifying rules for selecting content for delivery at least by its rules processor. *E.g.*, Alcatel, ¶[0017] ("rules processor 204 contains a set of rules for delivery of content. These rules are defined by the mobile service provider based on the content publisher's requirement. The content publishers can specify their requirements for content and send it along with the content to the mobile service provider network 103."). I note that Alcatel discusses publishers providing content and requirements, and service providers specifying rules based on the publisher specifications. *Id.*

(5) a first rule for delivering the media content, the first rule being associated with at least one element of profile data corresponding with the consumer, and

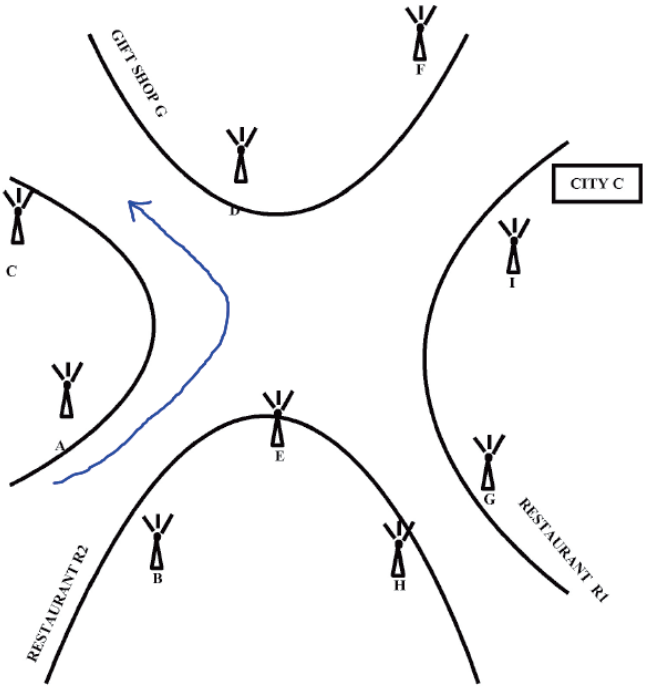
186. In my opinion, Alcatel discloses a content delivery rule, by consumer subscription/enablement. *See, e.g.*, Alcatel, ¶[0015], [0022]. I understand that Alcatel considers profile data for subscription/enable status when determining when/how to deliver content specifies a rule, subjective to each consumer, for delivering content. Id., ¶[0022]. Alternatively, to the extent that Alcatel does not disclose such items as profile data, it is my opinion that Kerr discloses specifying a content delivery rule for profile data. Kerr, ¶¶[0181] (e.g., age, gender), [0182] (select only content items: gender female).

187. In my opinion, a POSITA would have found it obvious to incorporate such rule concerning profile data, as taught by Kerr, to provide user-specific tailoring

of content for improvement in accuracy, reducing noise, and/or enhancing efficiency for communications.

(6) a second rule for updating the media content, the second rule being associated with a second geolocation;

188. Alcatel discloses specifying a rule updating for content based on an associated second geolocation as recited by its ongoing location-based services. *See, e.g.*, Alcatel, ¶¶ [0018], [0020]-[0022]. In one example, receiving other initial content from initial journeys, a consumer heading to the second geolocation associated with station C, from stations A and/or D, as shown annotated FIG. 3 below, results in updating of content for the gift shop. *Id.*, ¶[0020].



Alcatel – Annotated Fig. 3

189. It is my opinion that Alcatel's updated content rule is associated with the second geolocation according to proximity and by the content itself. *Id.*

(7) Element 1(d): receiving an activation command for triggering a delivery of the media content, wherein receiving the activation command comprises at least one of the following:

(a) determining that a spatial trigger has occurred,

(b) determining that a time-based trigger has occurred, and

(c) determining an event has occurred.

190. In my opinion, Alcatel discloses that delivery is triggered by a received activation command that includes determining that a spatial trigger, time-based trigger, and/or event has occurred. *E.g.*, Alcatel, ¶¶ [0017], [0020]-[0022]. In one example, Alcatel receives location information from the mobile device traveling along, and determines relevant spatial proximity and time determinations such as near a closed road 6AM-3PM (Alcatel, ¶[0017]), and under proximity to the stations within their times for gift shop G, restaurants R1, and Christmas event in City C (id., ¶[0020]). Additionally, at least Alcatel's Christmas event beginning constitutes an event occurrence. Alcatel, ¶[0020].

(8) Element 1(e): comparing the first rule and the at least one element of profile data associated with the consumer in order to determine whether to deliver the media content to the consumer;

191. In my opinion, Alcatel discloses comparing the first rule and the profile data element as recited at least by checking subscription status of consumer. Alcatel, ¶¶[0015], [0022] (check if user subscribed). Under modification with Kerr to consider additional profile data, it is my opinion that Kerr teaches such comparison as recited for specific delivery, and also for relevance values, to apply user-specific considerations in tailoring content for the benefits mentioned above. *Supra*, element 1(c); Kerr, ¶¶[0181] (e.g., age, gender), [0182] (select only content items: gender female), [0183] (relevance weighting); Figs. 32-33.

(9) Element 1(f): delivering the media content to a device associated with the consumer when the first rule is met;

192. In my opinion, Alcatel discloses delivering the media content when the first rule is met as recited. *See* Alcatel, ¶¶[0004], [0020], [0021], [0022] (check whether user has subscribed, and delivers appropriate content). Moreover, Kerr discloses such delivery, for example, by direct decision and by relevance weighting for the same user-specific benefits mentioned above. Kerr, ¶¶[0181] (e.g., age, gender), [0182] (select only content items: gender female), [0183] (relevance weighting); Figs. 32-33.

(10) Element 1(g): tracking a location associated with the consumer further to the delivery of the media content;

193. Alcatel discloses tracking a location associated with the consumer further to the delivery of the media content. *E.g.,* Alcatel, ¶¶[0017], [0020]-[0022]. I note that Alcatel discloses continuing tracking of location after delivery of content, by examples (¶[0020), and also by tracking between locations generally (¶[0018). *See* Alcatel, ¶[0002] (current). A POSITA would appreciate that Alcatel's operations are ongoing, such that upon achievement of one course of travel to receive a first ad, subsequent travel is tracked for further ads.

(11) Element 1(h): comparing the second rule and the location in order to determine whether to update the media content; and

194. In my opinion, Alcatel discloses comparing and updating the media content as recited by its overall location-based services. *E.g.,* Alcatel, ¶¶[0017], [0020]-[0022]. A POSITA would have appreciated that Alcatel's location tracking and comparison with the second rule continues on and that any of its non-limiting examples, apply continuously or in ongoing manner, and even simultaneously where applicable, according user travel. *Id., see also* Alcatel, ¶[0002] (current).

(12) Element 1(i): updating the media content at the device associated with the consumer when the second rule is met.

195. Alcatel discloses updating content when the second rule is met at least by its overall location-based services. *E.g.,* Alcatel, ¶¶[0020]-[0022]. As I discussed above, Alcatel's location-tailored content service continues amid the user's travel,

and updates according to that travel. In one example, having delivered initial content from a given station X as the second geolocation in a first direction, further travel triggering delivery of content near station X would update accordingly, including under changed circumstances such as current news, weather, promotions etc. Alcatel, ¶¶[0002], [0022]. Additionally, Alcatel would likewise update for wholly new ads, for example, if direction of travel regarding station X dictated accordingly. Alcatel, ¶[0022] (simultaneous operations); *see also* Kerr, ¶¶[0071], [0074]. I am of the opinion that a POSITA would understand updating within the normal course of Alcatel's discussions.

Additional Evidence of Obviousness

196. To the extent that Alcatel does not expressly disclose "registering" asset data, for example, by affirmative act, alternatively, it is my opinion that Kerr teaches such administrative control/access to provide registration of asset data including geolocation of businesses via a user interface. *E.g.*, Kerr, ¶¶[0064]-[0068] (administration), [0080], [0084] (interface), [0087], [0089], [0091]-[0092], [0096]-[0097], [0120] (relevance interface), [0121], [0125], [0128], [0133]-[0164], [0168]-[0172], [0177]-[0183] (access); Figs. 4-9, 15, 19-25, 30-35. Kerr discloses, as an example, robust interfacing/administration via a content administration interface 110, configured for registering asset businesses by geolocation including geofencing (annotated Figs., 5-6), and rules.

197. In my opinion, a POSITA would have implemented such registration aspects of Kerr into Acatel to promote ease of implementing/adjusting requirements, ease of understanding distribution and location schemes, and/or for effectiveness in human-machine interfacing in support of targeted content.

CLAIM 11: The method of claim 1, wherein delivering the media content comprises delivering a plurality of content types, wherein each of the plurality of content types is configured to be delivered based on tailored delivery rules.

198. In my opinion, Alcatel discloses delivering a plurality of content types as recited. *See, e.g.,* Alcatel, ¶¶[0002], [0017], [0020]. I understand that Alcatel discloses, as an example, content types such as news, weather, promotions, maps, including examples of road closures and advertisements. *Id.*, ¶¶[0002], [0016], [0020]. I also understand that Alcatel discloses configuring content for proper format, regardless of its type. *Id.*, [0017] (format). Thus, it is my opinion that Alcatel discloses delivery of the plural types of content by tailored delivery rules as recited, at least by its availability to deliver multiple content communications, for example, presuming a common location interest. Id., ¶¶[0017], [0020], [0022]; (where Road X is nearby a restaurant of interest, both content types would be provided by their tailored rules according to Alcatel's process).

CLAIM 12: The method of claim 11, further comprising tailoring at least one of: a content type and a delivery rule to the at least one element of profile data associated with the consumer.

199. Alcatel discloses tailoring content type and/or delivery rule as recited, at least by user subscription/enabling. *See, e.g.*, Alcatel, ¶¶[0015], [0022]. I understand that Alcatel tailors at least content type for subscribers, which also constitutes tailoring of a delivery rule by denying delivery as appropriate. *Id.*, ¶[0022]. Under additional or alternative reliance on Kerr for profile data, *supra* element 1(c), I understand that Kerr tailors content type and/or delivery rule by profile data, as recited, for example according to age or gender. In my opinion a POSITA would have found it obvious to apply such tailoring in Alcatel as modified by Kerr for additional subjective-user consideration in targeting content for accuracy, reduced noise, and/or efficiency in communications.

CLAIM 13: The method of claim 11, further comprising tailoring at least one of: a content type and a delivery rule to a characteristic of a device type associated with the consumer.

200. In my opinion, Alcatel discloses tailoring content type by device characteristic as recited, by its configuring content "in a format which can be sent to the mobile device." (Alcatel, ¶[0017]). In my opinion, Alcatel further discloses delivery rule by device characteristic at least as whether the device is associated with a subscribed/enabled user (*id.*, ¶¶[0014], [0022]). I note, in one example, out of format content must be tailored for mobile devices, and non-subscriber devices are prevented by tailored rule from content delivery.

CLAIM 14: The method of claim 1, further comprising tracking at least one action associated with the consumer, wherein tracking the at least one action

comprises communicating with the consumer tracking layer operated on at least one device associated with the consumer.

CLAIM 15: The method of claim 14, wherein tracking the at least one action comprises employing the consumer tracking layer to track at least one of the following:

(1) Element 15(a): location data,

(2) Element 15(b): sensor data,

(3) Element 15(c): telemetry data,

(4) Element 15(d): device usage data, and

(5) Element 15(e): a unique identifier.

201. It is my opinion that Alcatel, as modified, achieves tracking an action and communicating with the consumer tracking layer of the consumer's device as recited by its location-based services communicated from personal mobile devices. *E.g.*, Alcatel, ¶¶[0017] (base stations, GPS), [0020]-[0022] (location via device). As I explained above concerning claim 1, the consumer action moving between stations is tracked according to software operations, implemented via consumer tracking layer on devices associated with consumer by subscription. I note that Alcatel achieved such tracking based on at least location and/or telemetry data. Alcatel, ¶¶[0017]-[0018] (base stations, GPS). It is my opinion that Alcatel's location data is understood as telemetry data in context of such electronic devices, and Alcatel's location technologies would apply unique identifiers such as IMEI/MAC numbers. *See also* Kerr, ¶[0073]

CLAIM 16: The method of claim 15, further comprising compiling analytics based on the at least one action.

202. In my opinion, Alcatel discloses compiling analytics of the action, in particular analytics or data regarding the action of the consumer moving between base stations 105. *See, e.g.,* Alcatel, ¶¶[0006], [0018] ("mobility information of mobile devices 107 which have subscribed for content delivery based on direction of mobility service… path illustrating the location and direction of movement of a subscribed mobile device 107 user can be inferred drawn using the location of tracker base stations."), [0022]. I understand Alcatel discloses analytics as mobility based on the action of consumer movement between stations. Alternatively, to the extent that Alcatel does not disclose concerning analytics, Kerr discloses relevance weight analytics, including location relevance. Kerr, ¶¶[0138] (location relevance), [0141] (relevance and analytics), Figs. 19, 25B.

203. In my opinion, a POSITA would have implemented Kerr's analytics of tracked action into Alcatel to facilitate evaluation of available data, subject-location consideration, and/or in implementing various factors for relevance in tailored content provision.

CLAIM 17: The method of claim 1, wherein delivering the media content comprises engaging a transmission module configured to transmit the media content when the consumer is within a physical proximity to the first geolocation.

204. In my opinion, Alcatel discloses engaging a transmission module that transmits content when the consumer is proximate to the first location. *E.g.,* Alcatel, ¶¶ [0004] ("When a mobile device … comes into an area covered by base station A, content related to restaurant R1 is sent."), [0021] (user travelling on the highway passes tracker base station E and content delivered about restaurant R1). I understand that content is delivered by transmission modules such as tracker module 101, via interface 205, and also via transmission modules of the network 103 when in proximity of restaurant R1 and the associated base station. I note that Alcatel's location-based services continue concerning second and further geolocations accordingly.

CLAIM 18: The method of claim 1, wherein determining that the spatial trigger has occurred comprises: receiving location data from the consumer tracking layer in operative communication with at least one device associated with the consumer.

CLAIM 19: The method of claim 18, further comprising, determining, based on the location data, that the recipient is in proximity to the first geolocation.

205. In my opinion, Alcatel, as modified, discloses determining that a spatial trigger occurrence via the consumer tracking layer in operative communication device as recited including proximity determination. *E.g.*, Alcatel, ¶¶[0017], [0020]. Alcatel discloses determining, based on the location data that the recipient is in proximity to the first geolocation. *See, e.g.,* Alcatel, ¶¶ [0004], [0018], [0021] ("mobile device travels on the highway and comes into an area covered by base

station A."). As modified to include the consumer tracking layer, I note that Alcatel's location data is received from layer in communication with the device by its receiving location data from the device into the layer of the system in operative communication with the phone device. *Id.*, ¶[0017] (stations, GPS). The tracking layer acquires location information as the processor is actively receiving the location data at least to have the location data in temporary volatile memory in order to conduct its operations. Thus, the location data is received from the tracking layer in order to support other related processing operations.

CLAIM 20: The method of claim 1, wherein determining that the time-based trigger has occurred comprises at least one of the following: determining that a predefined time has been met, receiving a manual triggering event, and accessing schedule data from a data storage.

206. It is my opinion that Alcatel discloses determining the time-based trigger based on predefined time, and accessing schedule data. *E.g.,* Alcatel, ¶¶[0016] (showtimes), [0017] (6AM-3PM), [0020] (0800-2130).

CLAIM 21: The method of claim 1, wherein determining that the time-based trigger has occurred comprises at least one of the following: receiving a designation of a time, and determining that the consumer is in a proximity to at least one of: the first geolocation and the second geolocation at the designated time.

207. It is my opinion that Alcatel discloses determining the time-based trigger based on receiving a designation of a time and proximity to the first and second geolocations as recited. *E.g.,* Alcatel, ¶¶[0016] (showtimes), [0017] (6AM-3PM, near), [0020] (0800-2130, route proximity). In my analysis, I assume that

location services include indications of time. *See Cellco*, Col. 15:25-34 (absolute times).

CLAIM 22: The method of claim 1, further comprising specifying, for the media content, interactivity criteria.

CLAIM 24: The method of claim 22, wherein specifying the interactivity criteria comprises specifying: a change in a physical location associated with the consumer, a particular destination to which the consumer must navigate, and a particular time period in which the consumer must fulfill the interactivity criteria.

CLAIM 25: The method of claim 22, wherein tracking the location associated with the consumer comprises tracking the location relative to the interactivity criteria.

CLAIM 26: The method of claim 25, further comprising tracking, via the consumer tracking layer, telemetry data.

CLAIM 27: The method of claim 24, wherein updating the media content comprises updating the media content upon a fulfillment of the interactivity criteria.

208. It is my opinion that Alcatel discloses interactivity criteria as recited as movement between stations and criteria for interaction to subscribe/enable service, but lacks specific discussion concerning interaction criteria with the media content once provided. *E.g.,* Alcatel, ¶¶[0017], [0020]-[0022]. However, I note that Kerr discloses thumbs up/down and "clicks" response to content, and relevance weighting thereon. Kerr, ¶¶[0121]-[0127], [0128] (clicks). In my opinion, a POSITA would have implemented such interaction criteria to provide subject-user feedback for improvements to accuracy, reduced noise, and/or efficiency in targeted

communications. Alcatel discloses specifying interactivity criteria including change in location, particular destination, and particular time period at least by its examples where it takes a specific route to a destination, within the applicable time period. Alcatel, ¶[0020], [0022]. Alcatel's tracking is relative to the interactivity criteria as the criteria is the path of travel itself and includes location data understood as telemetry data in context of such electronic devices. Alcatel's location technologies would apply unique identifiers such as IMEI/MAC numbers. As I have discussed Alcatel modified to include layers above, Alcatel would naturally apply such specifics in its consumer tracking layer. Additionally, Alcatel's ongoing operations updates media content upon fulfilling its routes as interactivity criteria. Alcatel, ¶[0020].

CLAIM 23: The method of claim 1, further comprising receiving an indication that the consumer is moving at a particular path, towards the second geolocation and within a designated period of time.

209. It is my opinion that Alcatel discloses receiving an indication that the consumer is moving at a particular path, towards the second geolocation and within a designated period of time as recited. *E.g.,* Alcatel, ¶¶[0018] (path), [0020], Fig. 3.

7. GROUND 8: ALCATEL AND KERR, FURTHER IN VIEW OF MUHIRE - §103

CLAIMS 1 & 11-27

210. In my opinion, Alcatel as modified with Kerr achieves all limitations of independent claim 1, as discussed above, under a POSITA's skill and/or knowledge in implementing layers, as discussed above

211. Alternatively, to the extent that Alcatel/Kerr does not disclose software layers in exact terms Muhire, focused on a similar sector of technology, teaches the use of separate layers. *E.g.*, Muhire, ¶¶[0050] ("The cloud computing server 120 includes a database 200 and a framework 300. The framework 300 may be embodied as a multi-tier architecture including four layers/components: a data layer 310, a Web presentation layer 320, a client applet (small application) layer 330 and a business layer 340. The client applet layer 330 may be a Java™ applet that may connect an Android™ application (or Apple™ application or any other similar operating system application) to the other components of the framework 300."), [0052]-[0057].

212. In my opinion, a POSITA would have understood Muhire to disclose different software layers, such as business layer and Web presentation layer, to provide cohesive and integrated distinct portions of its architecture. Additionally, a POSITA would have found it obvious to have implemented Alcatel's operations, as modified by Kerr, for location tracking and consumer interaction as discussed above concerning claim 1, in different layers as taught by Muhire, and thus to receive media content configured and enable operations as recited, for the benefits of segmenting,

organizing, sequencing, and/or indexing, affording ease in development, debugging, implementation, and/or updating to Verizon's tailored content provisions

213. I incorporate here my discussions concerning claims 1 and 11-27 over Alcatel and Kerr. Accordingly, in my opinion, Alcatel and Kerr, further in view of Muhire render obvious claims 1 and 11-27.

8. GROUNDS 9 & 10: ALCATEL & KERR / ALCATEL, KERR, & MUHIRE, EACH FURTHER IN VIEW OF VERIZON - §103

CLAIMS 2-6 & 22-27

214. It is my opinion that Alcatel as modified with Kerr achieve all limitations of independent claim 1, as discussed above, under a POSITA's skill and/or knowledge in implementing layers, as discussed above, and alternatively with Muhire. I note that Alcatel does not disclose a mobile asset as recited in claim 2 from which claim 3-6 depend. Alcatel as modified with Kerr, discloses the interaction criteria of claim 22 as content interaction, but lacks discussion of content interaction as travel as in claim 24.

215. However, it is my opinion that Verizon discloses mobile assets and approaching businesses as interaction which a POSITA would have incorporated to allow repositioning of Alcatel's stations for flexibility and/or adaptability to transient conditions like shows/events, and to improve accuracy, reduce noise, and enhance efficiency in communications by user-subjective feedback, respectively.

216. I incorporate my discussions of Verizon's disclosure of each of these features of claims 2-6 and 22-27, concerning Verizon alone or in view of other art. It is my opinion that a POSITA would have modified the combinations of Alcatel with Kerr, and Alcatel with Kerr and Muhire to render obvious claims 2-6 and 22-27 for the reasons highlighted in the paragraph just above.

9. GROUND 11: ALCATEL, KERR, & VERIZON / ALCATEL, KERR, VERIZON, & MUHIRE, EACH FURTHER IN VIEW OF SEHN - §103

CLAIMS 7-10

217. In my opinion, Alcatel as modified with Kerr achieves all limitations of independent claim 1, as discussed above, under a POSITA's skill and/or knowledge in implementing layers, as discussed above, and alternatively with Muhire. It is my opinion that Alcatel as modified with Kerr registers brand assets. These assets could include digitized business names (Kerr, ¶¶[0097] ("Sports Shop"), Figs. 2 (Penguin Paddock), 8, 31-32, 33 (Nevada Bar)). These render obvious specific names, logos, designs as unpatentability distinct under the printed matter doctrine. *See Praxair Distribution, Inc. v. Mallinckrodt Hosp. Prods. IP Ltd.*, 890 F.3d 1024, 1031-32 (Fed. Cir. 2018).

218. I understand that Alcatel as modified does not expressly disclose other limitations such as ascertaining the brand asset within multimedia content, however, Kerr discloses business registration via administrative interface including use of

identifying location by image recognition of a user's photo to determine location as a unique identifier corresponding to the business asset as recited in claim 8. Kerr, ¶¶[0136]-[0137], [0138] (location via user photograph). Sehn discloses brand recognition, including digitized name and logo within a photo, and requesting content about the brand at Col. 5, lines 33-48.

219. Thus, in my opinion, a POSITA would have found it obvious to incorporate Kerr's registration, and Sehn's teaching for business names and logos, for the benefits in administrative level control and access (see supra, section A(5)) in consideration of additional identifiers. This could be combined with Kerr's photo recognition to determine location associated with business to enhance subject user experience, into Alcatel as modified, to incorporate user-provided information sources, and/or to diversify user circumstances in consideration for tailored content provision.

220. Accordingly, in my opinion, claims 7-10 are rendered obvious over the art combination Alcatel, Kerr, Verizon discussed above, and also Alcatel, Kerr, and Verizon discussed above, each further in view of Sehn.

10. GROUND 12: ALCATEL ANTICIPATES CLAIMS 28 AND 29 - §102

INDEPENDENT CLAIM 28

221. It is my opinion that Alcatel directly teaches each and every limitation of claim 28, including by its location-based content provisions. I incorporate here my discussions concerning Alcatel as to claim 1.

(1) Claim 28, Preamble: A method, comprising:

(2) Element 28(a): registering asset data, wherein registering the asset data comprises at least one of the following:

(a) 28(a)(i): registering a first geolocation associated with one of the following:

(b) 28(a)(i)(1): a physical asset, and

(c) 28(a)(i)(2): a virtual asset;

222. In my opinion, Alcatel discloses a method to include registering asset data, including first geolocation, as recited. *See, e.g.*, Alcatel, ¶¶[0002], [0004], [0007], [0015]-[0018], [0021], [0022]. I note in one example, Alcatel discloses content delivery based on requirements from the advertiser/publishers (*Id.*, ¶¶[0017], [0019]-[0022]), and expressly bases such requirements on the geolocation of base stations in communication with consumers' mobile devices (phones). *Id.*, [0017] (base station near road of interest), [0022], Fig. 3. I understand that Alcatel's base stations concern relevant geolocations of interest, and physical assets, like restaurants R1, R2, (id. ¶¶[0015], [0016], [0021], Fig. 3). I also understand that

Alcatel discloses mobile devices registered at each base station 105, and registered by subscribing to the service. Alcatel, ¶¶[0015], [0018].

(3) Element 28(b): receiving media content to be associated with at least one registered asset,

223. It is my opinion that Alcatel discloses receiving media content as recited at least from publishers. *E.g.*, Alcatel, ¶¶[0002], [0016], [0017], [0020]-[0022].

(4) Element 28(c): specifying a plurality of rules for delivering the media content, wherein specifying the plurality of rules comprises specifying:

(a) 28(c)(i): a first delivery rule associated with at least one element of profile data corresponding with a recipient of the media content, and

(b) 28(c)(ii): a second delivery rule associated with a second geolocation at which the recipient is tracked

224. In my opinion, Alcatel discloses specifying rules for selecting content for delivery at least by its rules processor. E.g., Alcatel, ¶[0017] ("rules processor 204 contains a set of rules for delivery of content. These rules are defined by the mobile service provider based on the content publisher's requirement. The content publishers can specify their requirements for content and send it along with the content to the mobile service provider network 103."). I understand that Alcatel

discusses publishers providing content and requirements, and service providers specifying rules based on the publisher specifications. *Id*.

225. It is my opinion, Alcatel discloses a content delivery rule as recited, by consumer subscription/enablement, and considers subscription/enabled status when determining when/how to deliver content. Alcatel, ¶[0015], [0022]. Alcatel discloses a second delivery rule associated with a second geolocation as recited by its ongoing location-based services. *E.g.*, Alcatel, ¶¶ [0018], [0020]-[0022]. In one example, a consumer heading to the second geolocation associated with station C, from stations A and/or D, as shown annotated FIG. 3 above, results in delivery of content for the gift shop. *Id.*, ¶[0020].

(5) Element 28(d): receiving an indication that the recipient is proximate to the first geolocation, comparing the first delivery rule and the at least one element of profile data associated with the recipient:

226. In my opinion, Alcatel discloses receiving indication of proximity and comparing as recited. *E.g.*, Alcatel, ¶¶[0015], [0017], [0020]-[0022]. In one example, Alcatel receives location information from the mobile device traveling along, and determines proximity to a first geolocation such as near a closed road 6AM-3PM. Alcatel, ¶[0017]. Alcatel discloses that indication of proximity to base stations occurs at each station. I*d.*, ¶¶[0018] (each station registers; GPS), [0020]. I

understand that Alcatel also discloses comparing the profile data as subscription/enablement, *Id.*, ¶[0022] (checks).

(6) Element 28(e): tracking a location associated with the recipient in response to a matching comparison;

(7) Element 28(f): comparing the second delivery rule and the location in order to determine whether the recipient is proximate to the second geolocation; and

(8) Element 28(g): delivering, upon fulfillment of the first delivery rule and the second delivery rule, the media content to the recipient.

227. Alcatel discloses tracking a location associated with the recipient in response to a matching comparison at least by noting the same. Alcatel, ¶¶[0015], [0022]. I also understand that Alcatel discloses checking whether subscription/enabled tracking exists for each user, and that for non-subscribers/disabled, "location information of the mobile device 107 is not noted." *Id.*, ¶[0022] With matching comparison of subscription/enabled, I understand that Alcatel tracks user location by noting the same and processing content delivery. *Id.*.

228. In my opinion, Alcatel continues to determine content according to the location received, and when comparison reveals proximity to the second geolocation corresponding to a route of interest as fulfilling the second rule, e.g., A, D, C base stations finishing with C (Alcatel, ¶[0020]), Alcatel delivers content.

INDEPENDENT CLAIM 29

229. My discussion regarding Alcatel as to claim 28. In particular, I understand that much of claim 28 is identical to claim 29, with limitation-by-limitation correspondence, except as instructions of computer-readable medium of a method rather than directly as a method. This appears to have little or no effect on the application of the prior art to the claims. However, specific differences in the language of claim 29 are addressed here, including the first rule as a time period and the second rule also considering the time period, each of which Alcatel discloses.

(1) Elements 29(c)(i) & (ii): a first delivery rule associated with a period of time; and a second delivery rule associated with a second geolocation at which a recipient is tracked during the period of time;

230. In my opinion, Alcatel discloses a first rule associated with a period of time. Alcatel discloses, as an example, specific time periods 6AM-3PM for road closures, 900-1800, 800-2130, and 00-2359 hours for various store, restaurant, and event examples. Alcatel, ¶¶[0017], [0020]. I note Alcatel likewise discloses its proximity rule applied at this time period as a second rule, where relevant travel to trigger the particular course to the gift shop, restaurant, or Christmas event, must reach the final base station as the second geolocation within the relevant hours. *Id.*, ¶¶[0020].

(2) Elements 29(e): tracking a location associated with the recipient in response to a matching comparison;

231. I note that Claim 29 recites a matching comparison but omits reference to "comparing" in element 29(e) equated to 28(d). It appears to me that my application of Alcatel as to element 28(d), which I incorporate here, applies equally to element 29(e). Additionally, however, I note other matching comparisons in Alcatel also discloses element 29(e) including by matching comparisons of time, location, subscription, and/or profile, among others, for example, a user travel along a path defined by base stations A, D, C. Alcatel, ¶[0020]..

11. GROUND 13: ALCATEL IN VIEW OF KERR AND/OR GEER - CLAIMS 28 AND 29 - §103

232. Although Alcatel discloses each and every limitation of claims 28 and 29 as discussed above and incorporated here, I address lack of disclosure of certain terms below through an obviousness discussion.

233. To the extent that Alcatel does not disclose "registering" its asset data under the discussions above concerning items 28(a) or 29(a), Kerr, focused in the same sector of technology, teaches robust administrator controls and/or access in targeted ads. *E.g.*, Kerr, Abstract. Kerr teaches such administrative control/access to provide registration of asset data including geolocation of businesses via a user interface. *E.g.*, Kerr, ¶¶[0064]-[0068] (administration), [0080], [0084] (interface), [0087], [0089], [0091]-[0092], [0096]-[0097], [0120] (relevance interface), [0121], [0125], [0128], [0133]-[0164], [0168]-[0172], [0177]-[0183] (access); Figs. 4-9, 15, 19-25, 30-35. I note in one example, Kerr discloses robust

interfacing/administration via a content administration interface 110, configured for registering asset businesses by geolocation including geofencing (annotated Figs., 5-6). Kerr discloses associating geolocations with received content and content distribution conditions (Figs. 3-10, 13-15, 35).

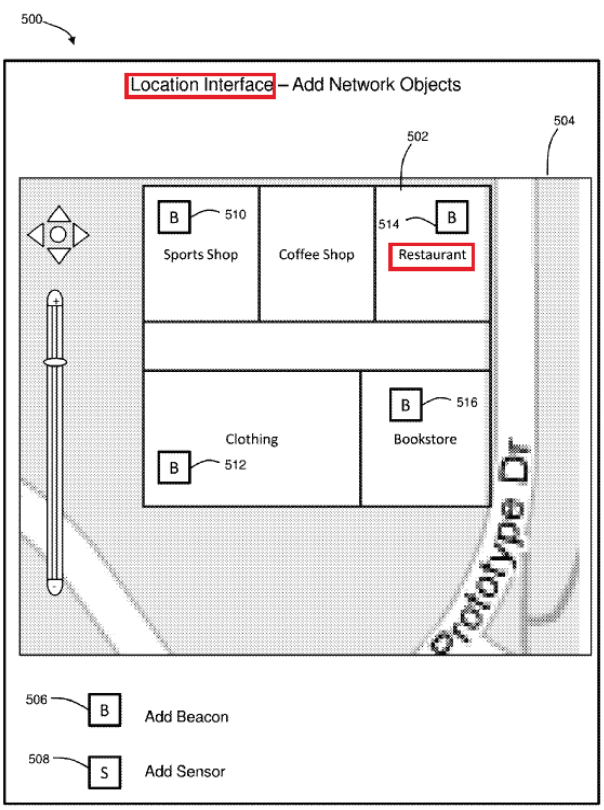


Figure 5

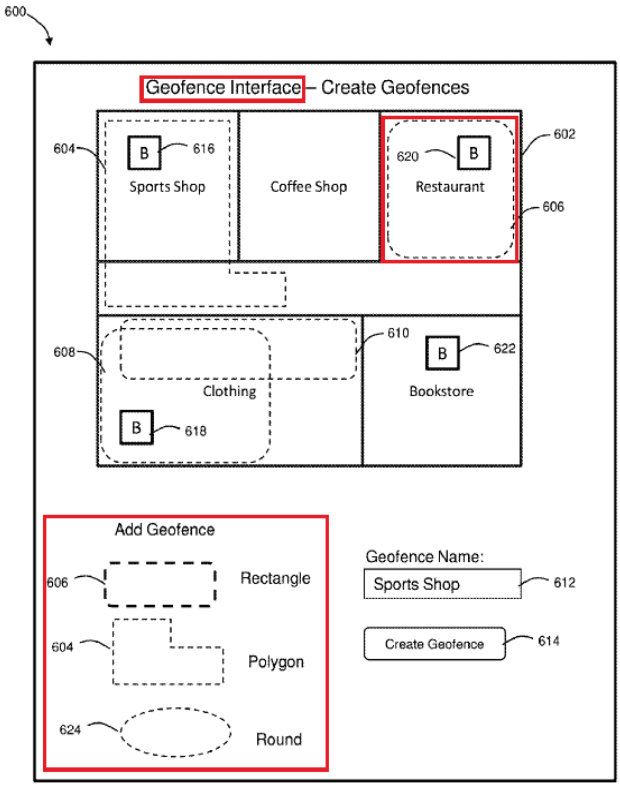


Figure 6

234. I note that Kerr's interfacing registers the assets, and provides ease and control in human-machine interfacing. *See, e.g.,* Kerr, ¶[0096] (registering with association between geolocation and content). In my opinion, a POSITA would have implemented such registration aspects of Kerr into Alcatel to promote ease of implementing/adjusting requirements, ease of understanding distribution and

location schemes, and/or for increased effectiveness in human-machine interfacing in support of targeted content.

235. To the extent that Alcatel does not disclose responsiveness in tracking under the discussions above concerning items 28(c) or 29(c), Geer, focused in a similar area of location-based advertising, discloses activation of high-resolution tracking ("HIRES") for increased precision depending on a state of the user relative to the event/location of interest. *E.g.*, Geer, ¶¶[0057] (changing resolution based on state), [0074] (fan/user state), [0079] (affiliation). I understand that Geer teaches that HIRES tracking provides better resolution but can be turned off or switched to lower resolution to preserve energy when unneeded. *E.g., id.*, ¶¶[0063]-[0065].

236. For example, I note that Geer teaches that HIRES tracking can be implemented instead of lower resolution tracking, when the user (i.e., "fan") is within proximity to the place of interest, and in consideration of the "state" of the fan, including whether they affiliate with a home team or have certain categorization. Geer, Abstract (affiliate, category), ¶¶[0057], [0075]-[0076], [0079] (choice of interest or affiliation). Geer provides examples of the users' personalized state to include home/away team affiliation, fan type, and/or friends or relationships, all of which are personal to the user as user profile data. *Id.*, ¶[0074] (home team), [0079] (interests). Thus, I understand Geer to disclose prompting HIRES tracking when the

user profile data, including affiliations, categories, or interests, match in comparison to content rules.

237. In my opinion, a POSITA would have implemented such responsive tracking of user location as recited in Verizon, as Geer teaches, to improve resolution and/or conserve energy, as Geer teaches, and/or otherwise to reduce data loading and/or processing, and/or for their associated benefits to content accuracy, low noise, and efficient communications in targeted ads.

238. Summarizing, claims 28 and 29 are obvious over Alcatel with Kerr and/or Geer.

B. '108 Patent

1. (GROUNDS 1, 2, 4) – VERIZON ALONE / VERIZON AND CREEMER OR SCOFIELD - CLAIM 1

CLAIM 1

(1) Claim 1, Preamble: A method comprising:

(2) Element 1(a): specifying a content distribution campaign, the content distribution campaign comprising;

(a) a geolocation, and

(b) media content associated with the geolocation;

239. I understand that Verizon discloses a method comprising specifying a content distribution campaign in that Verizon establishes its communication platform including specification of requirements concerning geolocation and related

media content. *E.g.*, Verizon, Abstract ("method for displaying marketing content at predetermined locations … distributed to a mobile device."), ¶¶[0002] (presenting advertisements based on the location), [0015] (content), [0028] (advertiser content, geographical locations of businesses or displays), [0036] (proximity), [0038] (content), [0042] (geolocations and associated content), [0054] ("businesses associated with marketing content"), [0065], Figs. 1-9. A POSITA would understand that Verizon's disclosure indicates that the term "geolocation" is synonymous with "location", as Verizon discusses locations in the context of "geographical" locations.

240. Verizon as discloses specification of content for delivery such that as the user/consumer travels from place to place associated media content are communicated responsively according to the campaign. *E.g.,* Verizon, ¶¶[0042], [0043], [0053], [0054]. Verizon also discloses its media content itself to include advertisements, coupons, and related communications. *E.g., id.*, ¶¶[0042], [0043], [0050].

(3) Element 1(b): specifying a plurality of rules for the content distribution campaign, wherein specifying the plurality of rules comprises:

(a) specifying a first rule corresponding to a period of time,

(b) specifying a second rule corresponding to at least one element of profile data associated with a consumer, and

(c) specifying a third rule corresponding to a course of travel associated with the consumer;

241. Verizon discloses its specification of rules corresponding to period of time, profile data, and course of travel, as cited in claim 1. For example, Verizon discloses its content rules to correspond to relevant hours of store operation (Verizon, ¶¶[0028] (11am-7pm), [0042] (breakfast/lunch, evening), [0058]), and also specifying "predetermined times or intervals" (*id.*, ¶[0054], *see also id.*, ¶[0047]). Verizon also discloses specifying rules corresponding to user/consumer profile data as recited. *E.g.*, Verizon, ¶¶[0040] (user profiles and/or settings, preferences), [0041] (user settings), [0047], [0048] (age, ethnicity, employment status, income, education, languages, URLs, cookies, identity), [0049], [0050], [0053], [0055]-[0056], [0066]-[0067].

242. I understand that Verizon further discloses specifying rules corresponding to consumer course of travel as recited. *E.g.*, Verizon, ¶¶[0036] (speed/direction of travel), [0042], [0045], [0053] (physical travelling), [0058]-[0060].

243. As an example, Verizon discloses that the consumer's course of travel affects the content delivery including by speed and/or "direction of travel" (*id.*, ¶¶[0036], [0045]).

244. Verizon also discloses that the consumer's course of travel affects the content delivery including proximity to interests during travel (*id.*, ¶¶[0028], [0036], [0036], [0042] (near), [0044] (nearby), [0054] (proximity to various businesses associated with marketing content), [0065], [0071]-[0072]).

245. Additionally, Verizon discloses that the consumer's course of travel affects the content delivery including manner of travel (*id.*, ¶¶[0058] (street/highway, walking/driving), [0047] (walking)). Accordingly, a POSITA would appreciate that Verizon's disclosure regarding speed, direction, proximity, and manner of travel all constitute "course of travel" indicators. Determining a "course of travel" would necessarily take into account at least one or more of these parameters.

246. Therefore, Verizon discloses each aspect of this limitation on its own.

247. I note that to the extent that Verizon's rules for speed/direction, proximity, and/or manner of travel do not disclose a course of travel, Creemer, focused on the same sector of technology, discloses targeted-content delivery including rules corresponding to a consumer's course of travel by consideration of the user's path of travel. Creemer, ¶¶[0062]-[0064], Fig. 8.

248. For example, I understand that Creemer discloses applying user position and time information to determine rate of travel "along the user's path," and also averages "for the overall journey." *Id.*, ¶[0062].

249. I also note that Creemer discloses consideration of the user's direction *Id.*, ¶¶[0063] ("along the user's path."), [0064] ("user's rate and direction of travel along segments of the user's path, or for the overall journey.").

250. Creemer further discloses consideration of mode of transportation such as whether a user is walking or riding in a vehicle in content distribution. *Id.*, ¶[0065], Fig. 8.

251. Additionally, I understand that Creemer also discloses consideration of "estimated future position" in content provisioning which can be based on the path information already available. Id., ¶[0068]; *see also id.,* [0071].

252. In my opinion, Creemer illustrates Verzion's speed/direction, proximity, and/or manner of travel as course of travel. A POSITA would have been motivated to implement Creemer's more complete consideration of the consumer's path of travel into Verizon to promote precision, consideration of user circumstances, refinement of information, and/or otherwise to improve accuracy, reduce noise, and/or promote efficiency in targeted communications. *See* Creemer, Abstract, ¶¶[0010]-[0015];.

253. Alternatively, in the same sector of technology, I understand that Scofield discloses course of travel determination by its determination of traffic patterns, navigational paths, and/or user trails for content. *E.g.*, Scofield, Cols 3:42-47 (navigational paths and/or user trails for directing advertising content), 4:43-55,

5:23-32 (order in which locations visited), 5:33-54 (paths), 6:3-13 9 ("how (e.g., by what geographic path, trail, or avenue) a mobile device user is traveling between locations."), 6:19-36 (path/time/location), 6:48-56, 8:42-45, 9:15-45, 11:40-12:24 (deviations), 14:42-50, 16:39-63 (different paths, weighting), 17:34-41, 18:40-47, 19:1-28, 20:16-48, 21:21-25.

254. Scofield applies the user's path (or "trail") to determine desirable advertisements. Cols. 4:43-55, 5:17-32.

255. Scofield expansively considers such paths as consumer courses of travel including the user's movements generally. *Id.*, Cols. 5:33-6:36.

256. Additionally, Scofield discloses its consumer paths to provide targeting of advertising and to increase visibility for businesses. In my opinion, a POSITA would have been motivated to incorporate such course of travel specifics into the system of Verizon to increase accuracy, reduce noise, and/or otherwise promote efficiency in targeted communications. Scofield, Col. 4:56-5:16.

(4) Element 1(c): receiving a first indication that the consumer is at a first location within a radius of the geolocation;

257. Verizon discloses receiving such first indication by describing proximity to the geolocation.

258. For example, I understand that Verizon discloses determining content based on the device being within a radius about the geolocation of interest. *E.g.*,

Verizon, ¶¶[0036] (location/proximity including radius from display 114), [0039] (proximity), [0044], [0046], [0052] (location/proximity module), [0055], [0071]-[0072].

259. I understand that, based on receiving proximity within the radius of the geolocation, Verizon determines appropriate marketing content for distribution. *Id.*, ¶[0065], [0071]-[0072].

260. Verizon's examples of traveling proximate to geolocations, such as Newark airport and Manhattan, or "location 1" and "location 2", corresponds to receiving a first indication indicating that the consumer is within the proximity of the geolocation. *Id., e.g.,* ¶[0041]-[0044]. It is my opinion that, to the extent that Verizon does not elaborately describe such aspects in exact terms of the claim, a POSITA, such as, for example, myself, would have appreciated that the system of Verizon must receive some type of "indication", such as instructions, a GPS ping on an internal map, or the like, when the mobile unit 124 reaches "location 1", "location 2", etc. Otherwise, the system would not be able to actively update the advertising content based on the time and location.

(5) Element 1(d): assessing, in response to the first indication, the at least one element of profile data associated with the consumer;

261. I understand that Verizon discloses assessing as recited at least by its located-based content delivery. For example, in Verizon's examples, the user is

traveling near location 1, location 2, and location 3. Verizon, ¶¶[0042]-[0043], FIG. 4 (450).

262. I understand that Verizon's receiving indication that the user's mobile device has come into proximity with the geolocation of interest causes the system to undertake its content consideration, which takes into account, for example, consumer profile data. *Id.*, ¶¶[0040], [0047] (comparator), [0048] (address, email, gender, financials, age, language), [0049]-[0056], [0067]-[0068], [0076]-[0076], FIG. 8.

263. I understand that Verizon indicates such responsive profile data assessment to avoid irrelevant information. *Id.*, ¶[0067] (inundation). It is my opinion that, to the extent it is contended that Verizon does not describe responsive assessment, a POSITA, such as, for example, myself, would have appreciated that the system of Verizon furthers the assessment of whether to deliver content once an indication is received from an exemplary first location (*i.e.* "location 1") that the mobile unit 124 is in that area. In other words, the assessment of profile data, and thus the determination of whether to deliver content to the mobile unit 124, must be responsive to the mobile unit 124 being located at location 1. In my opinion, this is true because if the user were to change his or her profile settings immediately after reaching location 1, Verizon's disclosure makes clear that such a change would be taken into account for delivering content. Verizon makes clear that consideration of

user profile data would occur in response to an indication that the user is located at location 1.

(6) Element 1(e): receiving a second indication that the consumer is at a second location;

(7) Element 1(f): determining the course of travel based, at least in part, on an analysis of the first location and the second location;

264. Verizon discloses receiving a second indication and determining the course of travel according to the execution of its rules corresponding to consumer course of travel. *E.g.*, Verizon, ¶¶[0036] (speed/direction of travel), [0042]-[0043], [0045], [0053] (physical travelling), [0058]-[0060].

265. For example, I understand that Verizon discloses that the consumer's course of travel affects the content delivery including by speed and/or direction of travel (*id.*, ¶¶[0036], [0045]).

266. Verizon also discloses that the consumer's course of travel affects the content delivery including proximity to interests during travel (*id.*, ¶¶[0028], [0036], [0036], [0042] (near), [0044] (nearby), [0054] (proximity to various businesses associated with marketing content), [0065], [0071]-[0072]),

267. Additionally, Verizon discloses that the consumer's course of travel affects the content delivery and manner of travel (*id.*, ¶¶[0058] (street/highway, walking/driving), [0047] (walking).

268. In my opinion, a POSITA would have appreciated Verizon's location tracking system, using GPS, to discuss comparison of discrete locations indicating course of travel, or would have implemented it as an application of known techniques to yield predicable results. *Id.*, ¶¶[0027], [0036]. Specifically, I understand that, to the extent Verizon does not disclose its tracking to include comparison of first and second locations, a POSITA would have appreciated Verizon's implicit disclosure of speed and location tracking via known technologies such as GPS to disclose this detail. A POSITA, would have appreciated that tracking technologies, using GPS, commonly compare discrete location point differences to determine course such as by speed and direction. Specifically, such systems will utilize the coordinates of a moving object at a first point and the coordinates of the moving object at a second point to determine a difference between the coordinates, thus indicating the distance traveled as well as the direction of travel. A POSITA would see this as an application of known techniques for predictable results, as suggested by Verizon itself in applying location/proximity tracking, such as by 3G/4G, GPS or similar technologies.

269. Furthermore, in my opinion, continuing from above, to the extent that Verizon does not discuss execution of its rules for course travel, Creemer and Scofield disclose such receiving and determining.

270. For example, I understand that Creemer discloses consideration of first and second locations of the consumer's mobile device to determine the user's path as the course of travel. Creemer, ¶¶[0062]-[0066], FIG. 8.

271. I understand that Creemer also discloses such comparison to apply the user's path for consideration in targeted content. *Id.*, ¶¶[0059]-[0066].

272. Alternatively, I also understand that Scofield discloses analyzing periodic position information to determine "how (e.g., by what geographic path, trail, or avenue) a mobile device user is traveling between locations. Scofield, Cols. 5:55-6:13, 6:14-36. Such periodic information indicates at least first and second locations indicated from the mobile device to the remote system. *Id.*, Cols. 6:14-36.

273. In my opinion, a POSITA would have been motivated to incorporate the receiving and determining taught by Creemer and/or Scofield into the system of Verizon in relation to the execution of the rules, to provide increasing precision, consideration of user circumstances, refinement of information, visibility, and/or otherwise to improve accuracy, reduce noise, and/or promote efficiency in targeted communications.

(8) Element 1(g): establishing that the consumer is eligible for the content distribution campaign when the plurality of rules is satisfied.

274. I understand that Verizon discloses such establishing as recited, at least by its delivery of content upon satisfaction of the rules. For example, Verizon

discloses delivery of content under conditions satisfying its rules (e.*g.*, Verizon, ¶¶[0042], [0043], FIG. 4), including appropriate aspects of the user profile (e.g., id., ¶¶[0047]-[0049]). *See also* Element 1(b).

275. Verizon's general intent to provide targeted content indicates its rules-based content determination and delivery.

276. To the extent that Verizon does not disclose sufficient detail, in my opinion, a POSITA would have been motivated to incorporate a rule of course of travel and determining such course of travel based on an analysis of the first location and the second location, as recited, as taught by one or both of Creemer and Scofield as discussed above to improve precision, consideration of user circumstances, refinement of information, visibility, and/or otherwise to improve accuracy, reduce noise, and/or promote efficiency in targeted communications.

CLAIM 2: The method of claim 1, wherein specifying the third rule corresponding to the course of travel associated with the consumer comprises specifying a destination as the second location.

277. I understand that Verizon discloses the limitation specifying a destination as a rules criteria. *E.g.*, Verizon, ¶¶[0028] (e.g., businesses, addresses, parks, institutions, locations, ice cream shop), [0035], [0039], [0042] (e.g., airport, Manhattan, theater district, Times Square), [0058], [0065], [0071]. For example, Verizon discloses that destinations can be general areas such as when the user "heads

to Manhattan." (*Id.*, [0042]) and also specific businesses as destinations such as Newark airport. Id., [0042].

278. To the extent that Verizon does not disclose these end points as target destinations, I understand that each of Creemer and Scofield disclose specifically a destination as the second location to anticipate relevant information.

279. For example, I understand that Creemer discloses specifying a destination as part of the course of travel. Creemer, Abstract, ¶¶[0015], [0018] (destination), [0068] (future position), [0071] (common point).

280. I understand that Creemer also discloses prediction of destination and likely future positions according to rate, direction, and/or manner of travel to determine destination as a course of travel of the user, for basis of providing content. *Id.*, ¶[0068].

281. Alternatively, Scofield discloses specifying a destination as part of its course of travel. *E.g.*, Scofield, Cols. 5:33-54, 6:3-36 (analyzing user's "past movements" to "determine those locations that may be considered a part of the user's current path, pattern or trail and uses those locations to determine a next destination"), 8:54-9:5 (airport destination and content for vendors nearby destination), 9:35-57 (display device may be considered "associated with a path when the device is located at virtually any location viewable from a user traveling along a path or trail between a current location for the mobile device user and the

predicted destination); 12:41-53 (A-D), 14:42-66, 16:39-64 (multiple paths/destination), 19:7-29 (hops, traveling to destination), FIG. 3.

282. I note that Scofield also discloses determining a destination of the course of travel and selects appropriate content specific to the course of the travel and/or the destination itself. *Id.*, 6:3-36, 8:54-9:5 (ads concerning destination).

283. In my opinion, a POSITA would have been motivated to incorporate the recited specifying of a third rule including a destination as the second location, as taught by one or more of Creemer and Scofield, in the system of Verizon in furtherance of precision, consideration of user circumstances, refinement of information, visibility, and/or otherwise to improve accuracy, reduce noise, and/or promote efficiency in targeted communications concerning end points of travel.

CLAIM 3: The method of claim 1, further comprising providing a first aspect of the media content associated with the content distribution campaign when the following delivery rules are satisfied: the first rule corresponding to the period of time, and the second rule corresponding to the at least one element of profile data associated with the consumer.

CLAIM 4: The method of claim 3, further comprising tracking the consumer during the course of travel.

CLAIM 5: The method of claim 3, further comprising providing a second aspect of the media content associated with the content distribution campaign when the third rule associated with the second location is satisfied.

284. Verizon discloses providing a first aspect of the media, tracking the consumer, and providing a second aspect of the media, as recited in claims 3-5. I understand that Verizon's continuous updating of initial content based on the

location of the mobile unit 124 corresponds to these limitations. *E.g.*, Verizon, ¶¶[0034], [0036], [0042] (real time updating; "track[ing] the location of the …mobile device…Proximity may be dependent on . . . speed/direction of travel of the mobile device, specifics of the mobile device user."), [0043] (minor modification of Ads), [0051]. I note that Verizon provides examples, including providing a first aspect of advertisement content AD1 near a first location (Newark airport), tracking the user as his or her device travels from location 1 to location 2, and providing a second aspect of advertisement content AD2 as the device approaches Manhattan. *Id.*, ¶[0043].

285. In my opinion, Verizon teaches that particular content is provided, including as AD1. Verizon also applies rules for time (*e.g., id.*, ¶¶[0028], [0042]) and profile data (*e.g., id.*, ¶¶[0039], [0040]), in particular taking both into account when determining to deliver content, such as, for example, the first aspect of the content (AD1) at the first location. A POSITA would understand such initial content may constitute the "first aspect of the media content."

286. Verizon further discloses such location-based updating both as subsequent Ads of different types, such as wholly different businesses (*id.*, ¶[0042]), and also as small updates to original Ads such as referring to different locations of the same business (¶[0043]). A POSITA would understand these different ads or updated ads may constitute the "second aspect of the media content."

CLAIM 6: The method of claim 3, further comprising, receiving a third indication that the consumer has interacted with the first aspect of the media content during the course of travel.

287. I understand that Verizon discloses an indication of user interaction with the content. For example, Verizon discloses user action on received ad content by clicking links, inquiring, saving, sharing, or approaching related businesses. *E.g.*, Verizon, ¶¶[0038], [0040], [0046], [0047], [0050] (hyperlink, updating user profile), [0053] (act upon, traveling to business location); [0057] (wishlist), [0066].

288. In one example, Verizon specifically discusses that the user may "download to the mobile device 120 marketing content that was just seen while the user was walking down the street." *Id.*, ¶[0047]. Verizon discloses such acquiring of content by saving/storing to the mobile device as acting on the content, and includes at least receiving the indication including the request signal from the mobile device at the same time. *Id.*, ¶[0053]. It is my opinion that, to the extent that Verizon does not disclose the limitations in exact terms, a POSITA, such as, for example, myself, would have appreciated that the system of Verizon must receive some type of "indication" that the user has interacted with the content, which may be during the course of travel. Otherwise, the system would not be able to actively update the advertising content based on the time, location, and user interaction, as required by the disclosure of Verizon.

CLAIMS 7 & 10

(1) Claim 7. The method of claim 6, wherein specifying the first rule comprises specifying a limited timeframe, during the course of travel, in which the consumer has to interact with the first aspect of the media content.

(2) Claim 10. The method of claim 7, further comprising providing a second aspect of the media content associated with the content distribution campaign when the third rule associated with the second location is satisfied.

289. Verizon discloses the recited specifying a limited timeframe as presenting content in predetermined intervals. Verizon, ¶¶[0028] (11am-7pm), [0042] (breakfast/lunch, evening), [0047] (predetermined amount of time; download while walking down the street), [0054] (interval). I note that Verizon's updating of content during the course of travel presents limited time for user interaction including viewing, saving, sharing, etc. For example, as the user is walking down the street, a limited timeframe exists for acting on the ad before another ad would be presented as proximity dictates. *E.g.*, Verizon, ¶¶[0034], [0038] (frames), [0042] (real-time), [0043], [0046], [0051], [0053].

290. In my opinion, Verizon discloses providing the second aspect as recited by its routine updating of initial content based on second location. *E.g.*, Verizon, ¶¶[0034], [0042], [0043] (minor modifications), [0051]. Such second aspects are

disclosed by each of Verizon's wholly new ads and modified ads. *Id.*, ¶¶[0042], [0043].

CLAIM 8: The method of claim 6, further comprising tracking the consumer during the course of travel in response to the third indication.

291. I understand that Verizon discloses user interaction with the content, including responsively tracking the consumer during the course of travel as recited. *E.g.*, Verizon, ¶¶[0040], [0046], [0047] (predetermined amount of time; download while walking down the street), [0050] (URL clicks and weighting), [0053] (act upon); [0057] (wishlist), [0066]. Verizon discloses responsively tracking of the consumer during travel, and particularly tracking of user activity when the user interacts with 'acts upon' content. For example, I note that Verizon discloses content containing hyperlinks/URLs causes recording when clicked by the consumer. Verizon, ¶¶ [0050] (acted upon, wishlist, historical actions), [0053].

292. In an application, as the consumer travels along, I understand that content URLs can be presented and when clicked cause recording for use in content tailoring. Verizon, ¶¶ [0050] (retain information, history, historical actions), [0053]. Verizon notes that a consumer 'acting upon' content includes clicking website links, e-shopping, mapping locations of businesses, and physically traveling to businesses. Verizon, ¶[0053]. A POSITA would understand that Verizon's assessment of profile data, and thus the determination of whether to deliver content to the mobile unit 124, must be responsive to the mobile unit's movement. In my opinion, this is true

because if the user were to change his or her profile settings immediately after reaching location 1, Verizon's disclosure makes clear that such a change would be taken into account for delivering content. As such, Verizon makes clear that consideration of user profile data would occur in response to an indication of user movement.

293. In my opinion, Verizon implements such rules including by weighting of consumer actions in determining content distribution. *Id.*, ¶[0050] (weighted in determining market content for distribution). Accordingly, in my opinion, Verizon discloses responsive tracking of consumer activity when the consumer interacts with content. Further activity within Verizon's process includes updating and tracking as the user travels. *E.g.*, Verizon, ¶¶[0042]-[0043].

CLAIM 9: The method of claim 8, wherein tracking the consumer during the course of travel comprises receiving, from a mobile computing device associated with the consumer, at least one of the following:

(1) location data,

(2) sensor data,

(3) telemetry data,

(4) device usage data, and

(5) a unique identifier.

294. As I discussed above concerning claim 8, Verizon's consumer tracking includes tracking of location data (e.g., Verizon, ¶[0040]) and device usage data at least such as clicking URLs, e-shopping, mapping locations of businesses, and

physically traveling to businesses via the consumer's mobile device. *E.g.,* Verizon, ¶¶[0040], [0050], [0053].

295. A POSITA would have appreciated Verizon to conduct location tracking at least by location, telemetry data, and unique identifiers of the mobile devices such as IMEI, and also by sensor data at least by Verizon's use of short-range communications such as Bluetooth. Verizon, ¶[0027].

CLAIMS 11 & 12

> **(1) 11. The method of claim 1, wherein specifying the first rule comprises specifying a limited timeframe, during the course of travel, in which the consumer is eligible to receive the media content associated with the content distribution campaign.**
>
> **(2) 12. The method of claim 3, wherein specifying the first rule comprises specifying a limited timeframe, during the course of travel, in which the consumer is eligible to receive a second aspect of the media content associated with the content distribution campaign.**

296. Although claims 11 and 12 differ as claim 12 depends from intermediate claim 3 and concerns a second aspect, the application of the prior art in my opinion is similar, and thus, these claims are addressed together.

297. As I discussed above concerning claim 7, I understand that Verizon discloses presenting content in predetermined intervals, affording limited timeframe for user interaction. Verizon, ¶¶[0047] (predetermined amount of time; download

while walking down the street), [0054] (interval), [0065] (expiration, time). Verizon's updating of content during the course of travel presents limited time for consumer interaction including viewing, saving, sharing, etc. *E.g.*, Verizon, ¶¶[0034], [0042] (realtime), [0043], [0046], [0047] (predetermined amount of time; download while walking down the street), [0051], [0053]. These timeframes are specified as during the course of travel at least by their limited time for viewing in conjunction with proximity requirements, and by Verizon's specific disclosure to show content as the user is "walking down the street." *E.g.,* Verizon, ¶[0047], [0065].

298. In my opinion, Verizon discloses such aspects to include media content and a second aspect of media content under its routine content provision and updating, where all related content would be time limited, for example, by applicable business operation hours. *E.g.*, Verizon, ¶¶[0034], [0042], [0043] (minor modifications), [0047], [0051], [0065] (operation hours).

INDEPENDENT CLAIM 13

299. Verizon alone discloses all limitations within independent claim 13. Many of the limitations are disclosed on the same basis as above concerning independent claim 1 and its dependent claims, and all statements, evidence, and analysis concerning Verizon, Creemer, and/or Scofield regarding claims 1-12 are incorporated by reference here. Particular aspects of claim 13 which can benefit

from further identification of their disclosure within Verizon are underlined and addressed below.

(1) 13. A method comprising: specifying a content distribution campaign comprising media content associated with a geolocation;

300. I understand that Verizon discloses a method comprising specifying a content distribution campaign in that Verizon establishes its communication platform including specification of requirements concerning geolocation and related media content. *E.g.*, Verizon, Abstract ("method for displaying marketing content at predetermined locations … distributed to a mobile device."), ¶¶[0002] (presenting advertisements based on the location), [0015] (content), [0028] (advertiser content, geographical locations of businesses or displays), [0036] (proximity), [0038] (content), [0042] (geolocations and associated content), [0054] ("businesses associated with marketing content"), [0065], Figs. 1-9. A POSITA would understand that Verizon's disclosure indicates that the term "geolocation" is synonymous with "location", as Verizon discusses locations in the context of "geographical" locations.

301. I understand Verizon as disclosing specification of content for delivery such that as the user/consumer travels from place to place associated media content are communicated responsively according to the campaign. Verizon, ¶¶[0042], [0043], [0053], [0054]. Verizon discloses its media content itself to include

advertisements, coupons, and related communications. *E.g., id.*, ¶¶[0042], [0043], [0050].

(2) Element 13(b): specifying a plurality of rules for the content distribution campaign, wherein specifying the plurality of rules comprises:

(a) specifying the geolocation,

(b) specifying a period of time, and

(c) specifying at least one action to be performed by a consumer;

302. In comparison to claim 1, in my opinion, claim 13 recites specifying the geolocation as a sub-feature of specifying rules rather than the campaign itself. It is my opinion the difference does not have meaningful distinction in the claims, and is not directly explained within the specification.

303. Verizon's specifying of geolocation also meets the limitation as a sub-feature of rules. Verizon discloses its communication platform to be defined by rules/requirements, including geolocation and time periods. Verizon, ¶¶[0028] (advertiser content, geographical locations of businesses or displays), [0036] (proximity), [0042] (geolocations and associated content), [0054] ("businesses associated with marketing content"), [0065], FIGs. 1-9. Also, Verizon discloses its content rules to correspond to relevant hours of store operation (Verizon, ¶¶[0028] (11am-7pm), [0042] (breakfast/lunch, evening), [0058]), and also specifying "predetermined times or intervals" (*id.*, ¶[0054], *see also id.*, ¶[0047]). I note that a

POSITA would understand that Verizon's disclosure indicates that the term "geolocation" is synonymous with "location", as Verizon discusses locations in the context of "geographical" locations. Also, I note that Verizon discloses specification of content for delivery such that as the user/consumer travels between/from geolocations. Verizon, ¶¶[0042], [0043], [0053], [0054]

304. Verizon also discloses content distribution campaign rules including specifying an action by the consumer, at least by disclosing communications based on how/whether the consumer "acted upon" content. For example, Verizon's rules for content distribution concern consumer actions to click links, add to wishlists, and other "historical actions" Verizon, ¶¶[0040], [0043] (updating), [0046], [0047], [0050] (links, wishlist, historical actions, weighting), [0053] (act upon); [0057] (wishlist), [0066]. Verizon implements such rules including by weighting of consumer actions in determining content distribution. *Id.*, ¶[0050].

(3) Element 13(c): receiving a first indication that the consumer is within a radius of the geolocation;

(4) Element 13(d): tracking the consumer in response to receiving the first indication to determine whether the consumer has performed the at least one action;

305. Verizon discloses receiving indication and responsive consumer tracking as recited. For example, I understand that Verizon discloses user action on received media content. *E.g.*, Verizon, ¶¶[0040], [0046], [0050], [0053] (act upon);

[0057] (wishlist), [0066]. In my opinion, Verizon's examples of traveling proximate to geolocations, such as Newark airport and Manhattan, or "location 1" and "location 2", corresponds to receiving a first indication indicating that the consumer is within the proximity of the geolocation. *Id., e.g.,* ¶[0041]-[0044]. It is my opinion that, to the extent that Verizon does not disclose the limitations in exact terms, a POSITA, such as, for example, myself, would have appreciated that the system of Verizon must receive some type of "indication", such as instructions, a GPS ping on an internal map, or the like, when the mobile unit 124 reaches "location 1", "location 2", etc. Otherwise, the system would not be able to actively update the advertising content based on the time and location. I understand Verizon also discloses responsive tracking to consider the consumers' acts upon content. Verizon, ¶¶[0050] (acted upon, retain information, historical actions), [0053]. Verizon notes that consumers 'acting upon' content includes e-shopping, mapping locations of businesses, and physically traveling to businesses. Verizon, ¶[0053]. As discussed in element 1(d), it is my opinion that, to the extent it is contended that Verizon does not describe responsive assessment, a POSITA, such as, for example, myself, would have appreciated that, for example, the system of Verizon furthers the assessment of whether to deliver content once an indication is received from an exemplary first location (*i.e.* "location 1") that the mobile unit 124 is in that area. In other words, the assessment of consumer action, and thus the determination of whether to deliver

content to the mobile unit 124, must be responsive to the mobile unit 124 being located at location 1. In my opinion, this is true because, for example, if the user were to take an action immediately after reaching location 1, Verizon's disclosure makes clear that such an action would be taken into account for delivering content. As such, Verizon makes clear that consideration of user action would occur in response to an indication that the user is located at location 1.

306. I further understand that, in practice, Verizon provides media content as the consumer enters the radius of the geolocation, e.g., Manhattan, and consumer actions are tracked, including to determine when the consumer travels to the business location for content tailoring. *Id.*, [0042], [0053]. Accordingly, once the initial content is provided when the device is within an initial geofence radius, Verizon's system will responsively track the consumer activity to determine performance of the action. This would include the system weighing factors for ad tailoring. *Id.*, [0042], [0053]. I note further activity within Verizon's process includes updating and tracking as the user travels. Thus, consumers not traveling to the business location may be classified as to not 'act upon' the content. *E.g.*, Verizon, ¶¶[0042]-[0043].

(5) Element 13(e): establishing that the consumer is eligible for the content distribution campaign when the plurality of rules is satisfied.

307. It is my opinion Verizon discloses establishing eligibility based on satisfying rules including relevance weighting. *E.g.*, Verizon, ¶¶[0040], [0050], [0053]. Verizon discloses its operations in terms of the rules/requirements and describes their execution by example, including culminating in delivery of the appropriate content. *E.g., id.*, ¶¶[0042], [0043]. I note that Verizon's general intent to provide targeted content indicates its rules-based content determination and delivery.

CLAIM 14: The method of claim 13, wherein specifying the at least one action comprises specifying at least one of the following:

(1) a target destination; and

(2) a particular path towards the target destination.

308. As I discussed above concerning claim 1, in my opinion Verizon discloses specifying user action including target destinations and/or paths thereto including travel through airports and specific cities, districts, and businesses. Verizon, ¶¶[0042] (Newark airport, Manhattan, [0043] (minor updating), [0053] (travelling to business location), [0054] (airport). Verizon tracks the consumer acting upon content by traveling to a particular business location, and by mapping particular directions to that business. *Id.*, ¶¶[0053]; *see also id.*, ¶[0043]. Accordingly, it is my opinion Verizon discloses the consumers' particular path to a target destination as a rule specified under its campaign for content distribution.

309. However, as I discussed above concerning Element 1(b), to the extent that Verizon does not disclose its end points as target destinations, or rules for speed/direction, proximity, and/or manner of travel to be distinctly specified as a particular path towards the target destination, each of Creemer and Scofield do disclose these features. S*ee* Creemer, ¶¶[0062]-[0064], Fig. 8; *see also e.g.*, Scofield, Cols 3:42-47 (navigational paths and/or user trails for directing advertising content).

310. In my opinion, a POSITA would have been motivated to incorporate the recited specifying target destination as the second location, as taught by one or more of Creemer and Scofield, to provide precision, consideration of user circumstances, refinement of information, visibility, and/or otherwise to improve accuracy, reduce noise, and/or promote efficiency in targeted communications concerning paths and end points of travel.

CLAIM 15: The method of claim 13, further comprising:

(1) receiving a second indication that the consumer is engaged in a potential fulfillment of the at least one action.

311. Verizon discloses receiving a second indication as the user continues travel and/or as the user interacts content. For example, Verizon discloses that clicking hyperlinks/URLs, obtaining information, adding goods to virtual cart, and/or traveling towards businesses can be indications worthy of greater relevance

weight in tailoring content and indicating greater likelihood for consumer actions. Verizon, ¶¶[0019], [0044], [0050] (acted upon, wishlist, historical actions), [0053]. A POSITA would understand that any of these movements or actions could be considered "potential fulfillment" of the action condition.

CLAIM 16: The method of claim 15, wherein receiving the second indication comprises establishing that the consumer is performing at least one of the following actions: moving at a particular path, towards a target destination, and within the period of time.

312. The arguments, evidence, and analysis concerning claim 14, including references to claim 1, are incorporated here by reference, and in my opinion disclose and/or render obvious the moving at a particular path, towards target destination, and within the period of time. *See e.g.*, Verizon, ¶¶[0042] (Newark airport, Manhattan, [0053] (travelling to business location), [0054] (airport); *see also* Creemer, ¶¶[0062]-[0064], FIG. 8; *see also e.g.*, Scofield, Cols. 3:42-47 (navigational paths and/or user trails for directing advertising content).

313. I note that Verizon applies periods of time rules/requirements requiring receipt of indication of the same during travel to achieve required actions (*e.g.*, Verizon, ¶¶[0028] (11am-7pm), [0034], [0036] (speed/direction), [0042], [0043], [0046], [0051], [0053], [0058]),

314. I also note that Verizon applies periods of time rules/requirements requiring receipt of indication of the same during travel to achieve also specifying "predetermined times or intervals" (*id.*, ¶[0054], *see also id.*, ¶[0047]).

CLAIMS 17, 18, & 19

(1) Claim 17: The method of claim 13, further comprising:

(a) providing a first aspect of the media content in response to the first indication.

(2) Claim 18: The method of claim 17, further comprising providing, upon a fulfillment of the at least one action, a second aspect of the media content.

(3) Claim 19: The method of claim 18, wherein the second aspect of the media content comprises a modification of the first aspect of the media content.

315. I understand that Verizon discloses providing a first aspect in response to a location indication, providing a second aspect in response to a user action, and that the second aspect differs from the first aspect. *E.g.*, Verizon, ¶¶[0034], [0036], [0042] (location-based content), [0043], [0051]. Verizon provides examples, including AD1 received near the airport, and other advertisements can also constitute a first aspect of media content. *Id.*, ¶[0043]. It is my opinion that Verizon further discloses its location-based communications to constitute second aspects, such as subsequent ads of different types for wholly different businesses (¶[0042]) and also as small updates to original ads such as referring to different locations of the same business (¶[0043]) or a different frame of an advertisement (¶[0038]).

316. A POSITA would understand that Verizon discloses providing a second aspect of the medial upon fulfillment of a user action. First, in some examples, Verizon teaches that content delivery is based on how/whether the consumer "acted upon" content. For example, Verizon's rules for content distribution concern consumer actions to click links, add to wishlists, and other "historical actions" Verizon, ¶¶[0040], [0043] (updating), [0046], [0047], [0050] (links, retain information, historical actions, weighting), [0053] (act upon); [0057], [0066]. Verizon also implements such rules including by weighting of consumer actions in determining content distribution. *Id.*, ¶¶[0040], [0050] (weighted in determining market content for distribution). Thus, a user action may result in updated content or relevance, or in other words, a "second aspect" of media content.

317. As another example, Verizon discloses modifying the first aspect of content by updating a first advertisement with "minor modifications" to a second or third advertisement with tailored content. *See,* Verizon, ¶¶[0042], [0043] (AD 2 and/or AD 3 may be substantially similar to AD 1 but have "minor modifications."). Such an update may occur after the user or device moves from location 1 to location 2, such movement being considered a "user action". I also note Verizon may update a discount offer/code and different location for the same business. *Id.* Accordingly, Verizon discloses aspects as modifications to the first advertisement.

INDEPENDENT CLAIM 20: A method comprising:

(1) defining at least one of the following for a registered asset:

(a) a physical asset, and

(b) a virtual asset;

318. It is my opinion Verizon discloses the method including defining at least a physical asset (e.g., a billboard) for a registered asset. *E.g.*, Verizon, ¶¶[0028] (e.g., businesses, addresses, parks, institutions, locations, ice cream shop), [0035], [0039], [0042] (e.g., airport, Manhattan, theater district, Times Square), [0058], [0065], [0071]. Verizon's system delivering location-based content includes making asset geolocations accessible because the system compares the consumer location with the asset geolocation to determine whether/which content to deliver. Accordingly, this information must be known, possessed, or otherwise accessible to the system to facilitate Verizon's operations, and thereby "registered" as assets.

(2) defining a media content associated with the registered asset, the media content comprising a first message and a second message;

319. I understand Verizon discloses defining media content to include first and second messages, such as subsequent ads of different types (e.g., wholly different businesses concerning the same asset (e.g., ¶[0042] airport, hotels, restaurants)); small updates to original ads referring to different locations of the same business (¶[0043] (minor modifications)); updating different promotions for the

same business, or different locations of a franchise(¶[0043]); or a different frame of an advertisement. (¶[0038]).

(3) Element 20(c): defining a consumer audience segment to be delivered the media content;

320. Verizon defines a consumer audience segment. By simply performing user selection and/or assessing user profiles, Verizon performs this function. For example, Verizon discloses consideration of user settings and/or profile characteristics such as name, address, gender, financials, demographics, options. *See,* Verizon, ¶¶[0047] (user profile comparator), [0048]-[0050], Fig. 4 (450). I note that Verizon's content tailoring includes such definition of consumer segment also by its general location-based services which consider user location/proximity/actions in determining the audience segment for targeted ads. E.g., Verizon, ¶¶[0042], [0043], [0053].

(4) Element 20(d): defining a set of rules for providing the media content to the consumer audience segment, the set of rules comprising:

(a) a first rule corresponding a consumer's location in association with the registered asset, and

(b) a second rule corresponding to at least one action performed by a consumer during a course of travel related to the consumer's location in association with the registered asset;

321. Verizon discloses defining rules by its general location-based content delivery which considers consumer location/proximity and consumer actions for providing targeted ads. *E.g.*, Verizon, ¶¶[0028], [0036], [0040], [0042], [0043], [0050], [0053], [0054], [0058]. For example, Verizon discloses location/proximity based content tailoring. Verizon, ¶¶[0036] (consumer location relative to asset billboard/display), [0042], [0043], [0054].

322. In particular, I understand that Verizon's content is provided during travel near a geolocation, such as a business, and its consumer interaction likewise includes actions during the course of travel. *E.g., id.*, ¶¶[0042], [0043], [0047] (download while walking down street), [0058]. Verizon's content rules include actions such as clicking the ads received based on location or traveling to the ad's business during consumer travel in relation to the asset. A POSITA would understand that Verizon also teaches that action may include the user's travel itself, from one location to another location.

323. Additionally, Verizon discloses consumer activity rules when the consumer "acts upon" content. For example, in addition to its rules for general location-based ads, Verizon discloses rules concerning consumers clicking content hyperlinks, saving, sharing, inquiring about content, and when consumers physically travel to businesses offering ads. Verizon, ¶¶ [0050] (acted upon, wishlist, historical actions, weighting), [0053] (physically traveling).

(5) Element 20(e): receiving a first determination that the first rule has been satisfied;

(6) Element 20(f): associating the first message with the consumer upon the first rule being satisfied;

(7) Element 20(g): receiving a second determination that the second rule has been satisfied; and

(8) Element 20(h): associating the second message with the consumer upon the second rule being satisfied.

324. I understand that Verizon's general location-based rules disclose receiving/associating first and second rules and messages. For example, in Verizon's walk though example, Verizon would generate a first AD 1 when the first rule of location were satisfied by traveling to Manhattan, and AD 2 when the user acts to travel closer to Times Square as the asset within Manhattan. I understand that Verizon also discloses receiving the recited determinations in at least that its unit 107 and/or server 124 receives such internal determinations executed by its logic modules, and otherwise as the interface modules, network, and/or mobile devices receive such determinations as outbound communications from the unit/server.

325. A POSITA would understand that Verizon's disclosure for updating in the form of "minor modifications" to earlier advertisements constitutes a second message. Verizon, ¶[0043] (minor modification of ads). I further understand that Verizon discloses that real time updates in content to a different incentive-promotion

or to a different location of a business concerning distinct messages regarding the same registered asset, and delivery of the messages constitutes the recited associating steps. For example, the system "weighing" user preferences and modifying the content to be delivered accordingly would be akin to "associating" the upcoming content to the user. *See,* Verizon ¶[0040]. In my opinion Verizon associates such messages both by sending content, and distinctly by retaining the information as historical user actions. Verizon, ¶¶[0050], [0053].

CLAIM 21: The method of claim 20, wherein defining the set of rules further comprises defining at least one additional rule specifying the following:

> **(1) the consumer's relative presence at a first location associated [sic] a delivery of the first message;**
>
> **(2) the consumer's relative presence at a second location associated with a delivery of the second message;**
>
> **(3) the consumer's path from the first location to the second location; and**
>
> **(4) a period of time in which the consumer traveled from the first location to the second location.**

326. Verizon discloses its defining of rules to include the consumer's relative presence at first and second locations, the path between, and time period, at least by its pathway and time-delimited examples. *E.g.*, Verizon, ¶¶[0036] (speed/direction of travel), [0042], [0045], [0053] (physical travelling), [0058]-[0060]. It is my understanding Verizon discloses its content rules to correspond to

relevant hours of store operation (Verizon, ¶¶[0028] (11am-7pm), [0042] (breakfast/lunch, evening), [0058]), and also specifying "predetermined times or intervals" (*id.*, ¶[0054], *see also id.*, ¶[0047]).

327. I understand that Verizon discloses rules concerning general location-based content delivery (e.g., Verizon, ¶[0042]), and updating of the communication with a second message having "minor modifications" (Verizon, ¶[0043]).

328. Verizon's general or updated rules apply to rules in claim 20 and rules in claim 21. For example, Verizon's minor modifications update discloses definition of the at least one additional rule where the consumer's presence at Newark Airport provides a first message such as an airport entrance coffee bar advertisement, and walking from an entrance towards a particular terminal would cause an update to a new location of the coffee bar near the terminal, where the path between locations, during hours of operation, and/or in consideration of speed/direction of travel (id., ¶[0036]). *Id.*, ¶[0043] .

329. Verizon, in my opinion, discloses that the consumer's path affects the content delivery including by speed and/or direction of travel (*id.*, ¶¶[0036], [0045]), proximity to interests during travel (*id.*, ¶¶[0028], [0036], [0036], [0042] (near), [0044 (nearby), [0054] (proximity to various businesses associated with marketing content), [0065], [0071]-[0072]), and manner of travel (*id.*, ¶¶[0058] (street/highway, walking/driving), [0047] (walking).

330. To the extent that Verizon does not disclose its rules for speed/direction, proximity, and/or manner of travel to be distinctly specified as a path, Creemer, in the same sector of technology, discloses targeted-content delivery including rules corresponding to a consumer's path of travel. Creemer, ¶¶[0062]-[0064], Fig. 8. For example, I note that Creemer discloses applying first and second user positions and time to determine rate of travel "along the user's path," and also averages "for the overall journey." *Id.*, ¶¶[0062], [0063] (user's direction "along the user's path."),[0064] ("user's rate and direction of travel").

331. In my opinion Creemer further discloses consideration of mode of transportation (e.g., walking or in a vehicle) in content distribution (¶[0066], FIG. 8) and "estimated future position" in content provisioning which can be based on the path information already available. Id., ¶[0068]; *see also id.,* [0071]. Creemer illustrates Verzion's speed/direction, proximity, and/or manner of travel to disclose the consumer's path.

332. A POSITA would have been motivated to incorporate Creemer's more complete consideration of the consumer's path into Verizon to promote precision, consideration of user circumstances, refinement of information, and/or otherwise to improve accuracy, reduce noise, and/or promote efficiency in targeted communications. *See* Creemer, Abstract, ¶¶[0010]-[0015].

333. Alternatively, Scofield, in the same sector of technology, discloses the rule for the consumer's path by its traffic patterns, navigational paths, and/or user trails for content. *E.g.*, Scofield, Cols 3:42-47 (navigational paths and/or user trails for directing advertising content), 4:43-55, 5:23-32 (order in which locations visited), 5:33-54 (paths), 6:3-13 9 ("how (e.g., by what geographic path, trail, or avenue) a mobile device user is traveling between locations."), 6:19-36 (path/time/location), 6:48-56, 8:42-45, 9:15-45, 11:40-12:24 (deviations), 14:42-50, 16:39-63 (different paths, weighting), 17:34-41, 18:40-47, 19:1-28, 20:16-48, 21:21-25. For example, Scofield applies the user's path (also referred to trail) to determine desirable advertisements. Cols. 4:43-55, 5:17-32. Scofield expansively considers such paths including the user's movements in general. *Id.*, Cols. 5:33-6:36.

334. Scofield discloses its consumer paths to provide targeting of advertising and to increase visibility for businesses, and it is my opinion a POSITA would have been motivated to incorporate such courses of travel in the system of Verizon to increase accuracy, reduce noise, and/or otherwise promote efficiency in targeted communications. Scofield, Col. 4:56-5:16.

CLAIM 22: The method of claim 21, further comprising providing the media content to the consumer.

335. I understand that Verizon discloses providing the media content as recited, for example, upon updating. *E.g.*, Verizon, ¶¶[0042], [0043], [0047]. For example, I note Verizon's discloses such content providing by example walkthrough

[0042], and also in disclosure of other details such as the ability to download additional content [0047], [0053].

CLAIM 23: The method of claim 22, wherein providing the media content comprises:

> **(1) providing the first message when the at least one additional rule has not been satisfied, and**
>
> **(2) providing the second message when the at least one additional rule has been satisfied.**

336. I understand that Verizon discloses providing the first and second messages as recited at least by updating with minor advertisement modifications. For example, Verizon provides an exemplary scenario in which an advertisement for the entrance coffee bar is presented when user is near the airport entrance, but when travel towards the particular terminal does not occur, the additional rule is unsatisfied, and thus no second message is provided. Verizon, ¶0042], [0043]. However, once the consumer passes through TSA and physical approaches the terminal, the additional rule is satisfied and the updating location of the coffee bar is provided in the updated advertisement. *Id.*,¶[0043].

2. (GROUNDS 3 & 5) - VERIZON ALONE / VERIZON AND CREEMER OR SCOFIELD, FURTHER IN VIEW OF GEER DISCLOSES RESPONSIVE TRACKING

CLAIMS 13-19

337. As I discussed above, it is my opinion that Verizon and Creemer and/or Scofield discloses "tracking the consumer in response to receiving the first

indication," in claim 13. However, to the extent that these references do not disclose a direct response to the first indication, in the area of location-based communications, I understand that Geer discloses activation of high-resolution tracking ("HIRES") when a user crosses a geofence boundary for increased precision near the location of interest, while reducing phone battery consumption farther away from that location. *E.g.*, Geer, ¶[0064] ("FNMS 310 detects 1010 that fan 200 is within OZ 833 […] transmits 1020 an instruction to FNA 510 to use HIRES tracking. FNA 510 demands 1030 the geolocation system 570 of PSD 320 to use HIRES tracking. The geolocation system 570 initiates 1040 HIRES tracking if it is not in that mode already."); *see also id.*, ¶¶[0005], [0057], [0058] (battery life), [0065], FIG. 8.

338. In my opinion, a POSITA would have been motivated to incorporate the location-responsive user tracking disclosed in Geer into Verizon, to adjust resolution appropriately, to reduce data loads, and/or to save power consumption.

3. GROUND 6 - ALCATEL AND VERIZON

Claim 1

(1) Claim 1, Preamble: A method comprising:

(2) Element 1(a): specifying a content distribution campaign, the content distribution campaign comprising;

(a) a geolocation, and media content associated with the geolocation;

339. Alcatel discloses a method comprising specifying a content distribution campaign as recited in claim 1 by its establishment of its communication platform including specifications and rules concerning geolocation and related content. *E.g.*, Alcatel, Abstract, ¶¶[0007], [0017]. I note that a POSITA would understand that Alcatel's disclosure indicates that the term "geolocation" is synonymous with "location", as Alcatel discusses locations in the context of "geographical" locations. I note, for example, that Alcatel discloses that rules are defined for content delivery based on requirements from the advertiser/publishers. *Id.*, ¶¶[0017], [0019]-[0022]. Alcatel's delivery rules are specifically based on the geolocation of base stations. *Id.*, [0017] (base station near road of interest), [0022] ("Based on mobility history [] and content repository [] the rules processor 204 checks [] if there is any content to be sent."). Alcatel's base stations include geolocations of interest, such as restaurants, gift shops, or cities of interest in Alcatel's examples. Alcatel, ¶¶[0015], [0016], [0021]. I understand that Alcatel discloses the media content can include advertisements, weather, traffic, or any other information "beneficial to the user," with examples such as movies schedules, road closures, shop/restaurant ads, seasonal events, concerning the geolocation.

(3) Element 1(b): specifying a plurality of rules for the content distribution campaign, wherein specifying the plurality of rules comprises:

(a) specifying a first rule corresponding to a period of time,

(b) specifying a second rule corresponding to at least one element of profile data associated with a consumer, and

(c) specifying a third rule corresponding to a course of travel associated with the consumer;

340. Alcatel discloses its rules to include period of time and course of travel, as recited in claim 1. Alcatel teaches in one example that its rules are "based on the days specified, time specified[,] and the location of the tracker base stations near the road." *Id.*, ¶[0017]. In other examples, Alcatel indicates time and course of travel among its criteria including "0900-1800 hrs," "0800-2130 hrs," and "0000-2359 hrs," and courses of travel such as along base stations "A->D->C," "I->E OR I->G AND NOT (H->G)," "A->B->E->F->I." *Id.*, [0020]-[0022].

341. Alcatel also utilizes profile data and suggests users treated differently by their different characteristics. This can include, for example, subscribers vs. non-subscribers (*e.g.*, Alcatel, ¶¶[0018]-[0022]). As described in Alcatel's exemplary walkthrough, subscriptions are checked and non-subscribers are not activated for content delivery. *Id.*, [0015] (enabled/disabled); [0022] ("[I]f the mobile device user has subscribed…"). In my opinion, Alcatel's subscription being individualized to the consumer constitutes a profile data element. *Id.*

342. To the extent that Alcatel lacks detail on profile data, I understand that Verizon discloses specifying a rule corresponding to user profile data. *E.g.*, Verizon, ¶¶[0040] (user profiles and/or settings, preferences), [0041] (user settings), [0047], [0048] (age, ethnicity, employment status, income, education, languages, URLs, cookies, identity), [0049], [0050], [0053], [0055]-[0056], [0066]-[0067]. .

343. In my opinion, a POSITA would have been motivated to incorporate rules concerning at least one element of profile data associated with a consumer, as taught by Verizon, by Alcatel's guidance, and/or to tailor content to the consumer, to increase accuracy, reduce noise, and/or otherwise to improve communications based on user specific information.

(4) Element 1(c): receiving a first indication that the consumer is at a first location within a radius of the geolocation;

344. In my opinion, Alcatel discloses receiving a first indication of the consumer at a first location within a radius. Alcatel, ¶¶[0015] (base station area coverage; "areas of any size"), [0018] (registering mobile device with each station; path illustrating the location and direction; GPS coordinates from mobile device 107), [0020]-[0021] (*e.g.*, location within coverage of station), FIG. 4a (*see e.g.*, 401-406). A POSITA would understand that pinging the base station or receiving messages from the base station constitute receiving location information, identifying consumers and identifying them as targets via their mobile devices, and determining

the course of travel. A POSITA would appreciate that a radio frequency coverage area of a base station commonly includes a coverage area defined by a circle having a radius. For example, I note the consumer being within Alcatel's radius of base station A receives such an indication by the system. *E.g.*, Alcatel, ¶[0020]. A presence within the base station coverage defines presence within the radius of the location of interest such as a restaurant. *Id.*

345. It is my opinion, to the extent Alcatel does not disclose a radius, Verizon provides a radius to provide appropriate range of interest. *E.g.*, Verizon, ¶[0036] (location/proximity including radius from display 114). In my opinion, a POSITA would have been motivated to incorporate receiving an indication, as taught by Verizon, to assist in identifying consumer presence in the area of interest, and/or in Alcatel. Even further, it is my opinion that, to the extent that Alcatel does not disclose the limitation, a POSITA, such as, for example, myself, would have appreciated that the system of Alcatel must receive some type of "indication", such as instructions, a GPS ping on an internal map, or the like, when the mobile device 107 reaches the base station 105, either from the device or from the base station. Otherwise, the system would not be able to actively update the advertising content based on the time and location.

(5) Element 1(d): assessing, in response to the first indication, the at least one element of profile data associated with the consumer;

346. In my opinion Alcatel considers user subscription responsive to the first indication. *E.g.*, Alcatel, ¶¶[0018]-[0022]. Alcatel expressly checks for user subscription when the mobile device is detected by the tracker base station. *Id.*, ¶[0022]. Accordingly, in incorporating elements of profile data further into Alcatel, attributes such as age, ethnicity, employment status, income, education, etc. as in Verizon, in my opinion a POSITA would have implemented assessing in claim 1 in conformance with Alcatel's architecture and/or to allow updating, divided process, and/or as hierarchical design in tailored content. It is my opinion that, to the extent it is contended that Alcatel does not disclose responsive assessment, a POSITA, such as, for example, myself, would have appreciated that, for example, the system of Alcatel furthers the assessment of whether to deliver content once an indication is received from an exemplary first location of a first base station that the mobile device 107 is in that area. In other words, the assessment of profile data, and thus the determination of whether to deliver content to the mobile device 107, must be responsive to the mobile device 107 being located at the first base station. In my opinion, this is true because if the user were to change his or her profile settings immediately after reaching location 1, Alcatel's disclosure makes clear that such a change would be taken into account for delivering content. As such, Alcatel makes clear that consideration of user profile data would occur in response to an indication that the user is located at the first base station.

(6) Element 1(e): receiving a second indication that the consumer is at a second location;

(7) Element 1(f): determining the course of travel based, at least in part, on an analysis of the first location and the second location;

347. I understand that Alcatel discloses receiving a second location and determining travel based partly on first and second locations, as recited, by its identification of courses of travel such as along base stations "A->D->C," "I->E OR I->G AND NOT (H->G)," "A->B->E->F->I." *Id.*, [0020]-[0022]. Continuing Alcatel's first example above, comparing the indication of station D to station A, Alcatel determines the course of travel between those stations, accordingly. Alcatel, ¶¶[0017], [0020]-[0022]. In my opinion, a POSITA would have appreciated Alcatel's location tracking system, using GPS, to disclose comparison of discrete locations indicating course of travel, or would have implemented the same as application of known techniques to yield predicable results. Specifically, I understand that, to the extent Alcatel does not disclose its tracking to include comparison of first and second locations, a POSITA would have appreciated Alcatel's implicit disclosure of direction and location tracking via the use of known technologies such as GPS to disclose this detail. A POSITA would have appreciated that tracking technologies commonly use GPS to compare discrete location point differences to determine course such as by speed and direction. Specifically, such

systems will utilize the coordinates of a moving object at a first point and the coordinates of the moving object at a second point to determine a difference between the coordinates, thus indicating the distance traveled as well as the direction of travel. Nevertheless, such implementations would have been implemented in Alcatel as application of known techniques for predictable results, as suggested by Alcatel itself in applying location/proximity tracking, such as by 3G/4G, GPS or similar technologies.

(8) Element 1(g): establishing that the consumer is eligible for the content distribution campaign when the plurality of rules is satisfied.

348. I understand that Alcatel discloses establishing consumer eligibility by the rules as summarized in the limitation. Alcatel ¶¶[0017], [0020]-[0022]. For example, Alcatel teaches that a consumer's eligibility at least includes satisfying a location-based rule. Alcatel ¶¶[0019]-[0021]. Alcatel also discloses that meeting requirements for subscription and course of travel can establish consumer eligibility and allow available relevant content to be sent to the consumer. *Id.*, ¶¶[0015]-[0022].

CLAIM 2

(1) The method of claim 1, wherein specifying the third rule corresponding to the course of travel associated with the consumer comprises specifying a destination as the second location.

349. I understand that Alcatel discloses the course of travel including specifying a destination as recited including by various examples of specific base stations, roads, or other areas of interest. Alcatel, ¶¶[0017], [0019]-[0022]. For example, I understand that Alcatel discloses courses of travel along the base stations, including specifying the final base station as the destination, such as base station C, E, G, or I. Each exemplary course includes an example destination such as a gift shop, restaurant, or city event each corresponding with the final base station. *Id.*

350. To the extent that Alcatel does not discuss a specific destination as the second location, I understand that Verizon discloses specifying such destination as rules criteria. *E.g.*, Verizon, ¶¶[0028] (e.g., businesses, addresses, parks, institutions, locations, ice cream shop), [0035], [0039], [0042] (e.g., airport, Manhattan, theater district, Times Square), [0058], [0065], [0071]. Although, Alcatel discloses such a feature, alternatively, in my opinion, a POSITA would have been motivated to incorporate specifying a destination as the second location, as taught by Verizon, to increase accuracy, reduce noise, promote efficiency, and/or as recognition of venue desirability in communicating tailored content.

CLAIMS 3-5

(1) Claim 3: The method of claim 1, further comprising providing a first aspect of the media content associated with the content distribution campaign when the following delivery rules are satisfied: the first rule corresponding to the period of time, and

the second rule corresponding to the at least one element of profile data associated with the consumer.

(2) Claim 4: The method of claim 3, further comprising tracking the consumer during the course of travel.

(3) Claim 5: The method of claim 3, further comprising providing a second aspect of the media content associated with the content distribution campaign when the third rule associated with the second location is satisfied.

351. Alcatel discloses providing the first aspect of content when first and second rules are satisfied, further tracking. I also understand Alcatel as providing a second aspect of content when the third rule is satisfied, by carrying out its content delivery service. Alcatel, ¶¶[0018], [0020]-[0022]. For example, Alcatel discloses an example in which a user is within the relevant proximity, during the appropriate time, content concerning both restaurants R1 and R2 can be sent to the consumer's mobile device. Alcatel, ¶¶[0020]-[0022]. A POSITA would understand that the device reaching the first base station B in the example of ¶[0021] corresponds to the claimed first and second rules, in particular because the device must arrive at the first base station B at a certain period of time (*i.e.* at 7:30PM, or another time as specified in Rules 1-3), and that the user has subscribed to the content delivery service.

352. I understand that Alcatel's content delivery system continues to execute, including tracking, for example, a consumer's course of traveling from I to E. In my opinion, ads for either restaurant R1 or R2 are relevant based on their proximity, direction, and/or the consumer's subscription. The consumer reaching station G, the additional resolution in the consumer's course of travel makes more reliable communications about restaurant R1 over R2. I note that Alcatel's station G corresponding with a specific second location of interest satisfies the third rule concerning the second location and provides recognition that R1 is no longer appropriate given the consumer's higher resolution of direction.

353. With similar understanding, in my opinion, Alcatel's express mention that although traveling from base station G to H negates restaurant R1, content can still be communicated concerning R2, even with both R1 and R2 first communicated while traveling westward in FIG. 3. *Id.*

354. To the extent that Alcatel lacks this disclosure, I understand that Verizon expressly discusses such routine updating of initial content based on second location. *E.g.*, Verizon, ¶¶[0034], [0042] (real-time updating), [0043] (minor modification of Ads), [0051]. Verizon discloses location-based updating, such as ads for wholly different businesses (¶[0042]); updates to original ads referring to different locations of the same business (¶[0043]); or a different frame of an advertisement(¶[0038]). Such updating, and particularly under the third rule

concerning a second location, in my opinion would have afforded increased accuracy, reduced noise, and/or increase efficient communications in tailored content with updated information.

CLAIM 6

(1) The method of claim 3, further comprising, receiving a third indication that the consumer has interacted with the first aspect of the media content during the course of travel.

355. Alcatel discloses at least some type of consumer interaction by allowing the user to enable or disable their subscription. Alcatel, ¶¶[0015], [0022]. However, to the extent that Alcatel lacks this disclosure, I understand that Verizon discloses such indication of user interaction with the content. For example, Verizon discloses user action on received ad content by clicking links, inquiring, saving, sharing, or approaching related businesses. *E.g.*, Verizon, ¶¶[0038], [0040], [0046], [0050] (hyperlink), [0053] (act upon, traveling to business location); [0057] (wishlist), [0066]. Verizon discloses downloading content while the user walks down the street by saving/storing to the mobile device as acting on the content and includes at least receiving the indication including the request signal from the mobile device at the same time. *Id.*, ¶¶[0047], [0053]. In my opinion, a POSITA would have been motivated to incorporate Verizon's indication of user interaction with content in the system of Alcatel to provide increased accuracy, reduced noise, and/or efficient

communications in tailored content based on reaction and otherwise at Alcatel's motivation for user interaction.

CLAIMS 7 & 10

> **(1) Claim 7: The method of claim 6, wherein specifying the first rule comprises specifying a limited timeframe, during the course of travel, in which the consumer has to interact with the first aspect of the media content.**
>
> **(2) Claim 10: The method of claim 7, further comprising providing a second aspect of the media content associated with the content distribution campaign when the third rule associated with the second location is satisfied.**

356. I understand that Alcatel repeatedly discloses limited timeframes for its location-based content. Alcatel, ¶¶[0017] (6AM-3PM), [0020]-[0022] (0800-2130 hrs, 0000-2359 hrs, 22nd , 23rd and 24th of December 2010, 7:30PM, 7:35PM). A POSITA would understand Alcatel as suggesting that a user interaction with the content must occur within a predetermined timeframe. For example, the user must subscribe or unsubscribe from the content delivery service during the time frame of delivery. Additionally, a POSITA would understand Alcatel as suggesting that user interaction may include a user moving in a direction from one base station toward another, which must occur in the timeframe allotted by Alcatel's rules in order for content regarding the second location to be delivered. To the extent that Alcatel does not disclose this limitation, it is my opinion that Verizon discloses presenting

content in predetermined intervals, affording limited timeframe for user interaction. Verizon, ¶¶[0038], [0047] (predetermined amount of time; download while walking down the street), [0054] (interval). Also, in my opinion, both Alcatel and Verizon's updating of content during the course of travel presents limited time for user interaction including viewing, saving, sharing, etc. *E.g.*, Verizon, ¶¶[0034], [0038] (frames), [0042] (real-time), [0043], [0046], [0051], [0053]. In my opinion, a POSITA would have been motivated to incorporate such limited timeframes to improve timing accuracy, reduce nuisance, and/or to enhance efficiency in communications of tailored content as new communications arise.

357. I understand Alcatel discloses the providing of second aspect of media content as discussed above concerning claim 5 and is incorporated here. To the extent that Alcatel does not disclose this limitation, in my opinion, Verizon expressly discusses such routine updating of initial content based on second location. *E.g.*, Verizon, ¶¶[0034], [0042], [0043] (minor modifications), [0051]. Such updating, and particularly under the third rule concerning a second location, would have afforded increased accuracy, reduced noise, and/or increase efficiency communications in tailored content including updated content.

CLAIM 8

(1) The method of claim 6, further comprising tracking the consumer during the course of travel in response to the third indication.

358. As I mentioned above, I understand that Alcatel tracks the consumer's location and suggests tracking at least by subscribership and travel. *See,* Alcatel, ¶¶[0015], [0020], [0022]. In my opinion, a POSITA would have been motivated to incorporate Verizon's indication of user interaction with the content, including responsive tracking the consumer during the course of travel. *E.g.*, Verizon, ¶¶[0040], [0046], [0047] (predetermined amount of time; download while walking down the street), [0050] (URL clicks and weighting), [0053] (act upon); [0057] (wishlist), [0066]. Verizon discloses responsive tracking of the consumer during travel, and particularly tracking of user activity when the user interacts with (i.e., "acts upon") content. For example, Verizon discloses content containing hyperlinks/URLs to cause recording when clicked by the consumer. Verizon, ¶¶ [0050] (acted upon, wishlist, historical actions), [0053]. It is my opinion that, to the extent it is contended that Alcatel does not disclose this limitation, a POSITA, such as, for example, myself, would have appreciated that, for example, the system of Alcatel furthers the assessment of whether to deliver content once an indication is received from an exemplary first base station that the mobile device 107 is in that area. In other words, the assessment of profile data, and thus the determination of whether to deliver content to the mobile device 107, must be responsive to the mobile device 107 being located at the first base station. In my opinion, this is true because, for example, if the user were to suddenly change his or her course of travel

immediately after reaching the first base station, Alcatel's disclosure makes clear that such a change would be taken into account for delivering content. As such, Alcatel makes clear that tracking would occur in response to an indication that the user is located at the first base station.

359. In an application, as the consumer travels along, content URLs can be presented and when clicked cause recording for use in content tailoring. I understand that Verizon also notes that consumer "acting upon" content includes clicking website links, e-shopping, mapping locations of businesses, and physically traveling to businesses. Verizon, ¶[0053]. Accordingly, in my opinion Verizon discloses responsive tracking of consumer activity when the consumer interacts with content, as recited. Further activity within Verizon's process includes updating and tracking as the user travels. *E.g.*, Verizon, ¶¶[0042]-[0043].

360. In my opinion, a POSITA would have been motivated to incorporate Verizon's responsive consumer tracking during the course of travel in furtherance of increased accuracy, reduced noise, and/or efficient communications in tailored content and otherwise at Alcatel's suggestion for user interaction.

CLAIM 9

(1) The method of claim 8, wherein tracking the consumer during the course of travel comprises receiving, from a mobile computing device associated with the consumer, at least one of the following:

(a) location data,

(b) sensor data,

(c) telemetry data,

(d) device usage data, and

(e) a unique identifier.

361. As I discussed above concerning claim 8, I understand that Verizon's consumer tracking includes *location data* (*e.g.*, Verizon, ¶[0040]) and tracking of *device usage data* at least such as clicking URLs, e-shopping, mapping locations of businesses, and physically traveling to businesses via the consumer's mobile device. In my opinion, a POSITA would have been motivated to combine both Alcatel and Verizon to conduct location tracking at least by location, telemetry data, and unique identifiers of the mobile devices such as IMEI, and also by sensor data at least by Verizon's use of short-range communications such as Bluetooth. Verizon, ¶[0027].

CLAIMS 11 & 12

(1) Claim 11: The method of claim 1, wherein specifying the first rule comprises specifying a limited timeframe, during the course of travel, in which the consumer is eligible to receive the media content associated with the content distribution campaign.

(2) Claim 12: The method of claim 3, wherein specifying the first rule comprises specifying a limited timeframe, during the course of travel, in which the consumer is eligible to receive a second aspect of the

media content associated with the content distribution campaign.

362. Although claims 11 and 12 differ as claim 12 depends from intermediate claim 3, I note that the application of the prior art is similar, and thus, these claims are addressed together.

363. I understand that Alcatel repeatedly discloses limited timeframes for its content for consumer reception. Alcatel, ¶¶[0017] (6AM-3PM), [0020]-[0022]. However, to the extent that Alcatel does not disclose the limitation, I understand that Verizon discloses presenting content in predetermined intervals, affording limited timeframe for user interaction. Verizon, ¶¶[0047] (predetermined amount of time; download while walking down the street), [0054] (interval). Both Alcatel and Verizon's updating of content during the course of travel presents limited time for consumer interaction including viewing, saving, sharing, etc. *E.g.*, Verizon, ¶¶[0034], [0042] (realtime), [0043], [0046], [0051], [0053].

364. I understand that these timeframes are specified as during the course of travel at least by their limited time for viewing in conjunction with proximity requirements, and by Verizon's specific disclosure to show content as the user is "walking down the street." Verizon, ¶[0047], [0065]. Verizon discloses features that include media content and a second aspect of media content under its routine content provision and updating, where all related content would be time limited, for

example, by applicable business operation hours. *E.g.*, Verizon, ¶¶[0034], [0042], [0043] (minor modifications), [0047], [0051], [0065] (operation hours).

365. In my opinion, a POSITA would have been motivated to incorporate such limited timeframes as recited to improve timing accuracy, reduce nuisance, and/or to enhance efficiency in communications of tailored content.

366. I also understand that Alcatel discloses the recited providing of second aspect of media content as discussed above concerning claims 5 and 10 incorporated here. To the extent that Alcatel does not disclose the limitation, it is my opinion Verizon expressly discusses such routine provision and updating of initial content. *E.g.*, Verizon, ¶¶[0034], [0042], [0043] (minor modifications), [0051], [0065] (operation hours). Such updating would have afforded increased accuracy, reduced noise, and/or increase efficiency communications in tailored content for updated information.

INDEPENDENT CLAIM 13

367. Alcatel and Verizon together disclose all limitations as recited within independent claim 13. Many of the limitations can be considered on the same basis as above concerning independent claim 1 and its dependent claims, and all arguments, evidence, and, therefore, analysis concerning Alcatel and Verizon regarding claims 1-12 are incorporated by reference herein. Particular aspects of

claim 13 which can benefit from further identification of their disclosure within the combination of Alcatel and Verizon are underlined and addressed below.

(1) 13. A method comprising:

(2) Element 13(a): specifying a content distribution campaign comprising media content associated with a geolocation;

368. I understand that Alcatel discloses a method comprising specifying a content distribution campaign by virtue of its content delivery service that includes specifications and rules concerning geolocation and related media content. *E.g.*, Alcatel, Abstract, ¶¶[0007], [0017]. I note that a POSITA would understand that Alcatel's disclosure indicates that the term "geolocation" is synonymous with "location", as Alcatel discusses locations in the context of "geographical" locations. Alcatel discloses that rules are defined for content delivery based on requirements from the advertiser/publishers. *Id.*, ¶¶[0017], [0019]-[0022]. Alcatel's delivery rules are specifically based on the geolocation of base stations. *Id.*, [0017] (base station near road of interest), [0022] ("Based on mobility history [] and content repository [] the rules processor 204 checks [] if there is any content to be sent."). Alcatel's base stations include geolocations of interest, such as restaurants, gift shops, or cities of interest in Alcatel's examples. Alcatel, ¶¶[0015], [0016], [0021]. I understand that Alcatel discloses the media content can include advertisements, weather, traffic, or any other information "beneficial to the user," with examples

such as movies schedules, road closures, shop/restaurant ads, seasonal events, concerning the geolocation.

369. In my opinion Alcatel's base stations concern relevant interest geolocations, such as restaurants of interest in Alcatel's examples. Alcatel, ¶¶[0015], [0016], [0021]. Alcatel discloses the content for consideration can include media content, such as advertisements, weather, traffic, or any other information "beneficial to the user," with examples such as movies schedules, road closures, shop/restaurant ads, seasonal events, concerning the geolocation.

(3) Element 13(b): specifying a plurality of rules for the content distribution campaign, wherein specifying the plurality of rules comprises:

(a) specifying the geolocation,

(b) specifying a period of time, and

(c) specifying at least one action to be performed by a consumer;

370. It is my opinion, in comparison to claim 1, claim 13 recites specifying the geolocation as a sub-feature of specifying rules rather than the campaign itself. It is my opinion that the difference does not appear to have meaningful distinction in the claims and is not directly explained within the specification.

371. I understand that Alcatel's specifying of geolocation also meets the limitation as a sub-feature of rules. Alcatel discloses its communication platform to be defined by rules, including geolocation and time. *E.g.*, Alcatel, Abstract,

¶¶[0007], [0017]. For example, I note Alcatel discloses that rules for content delivery are based on the geolocations of base stations. *Id.*, [0017] (base station near road of interest), [0022] (based on mobility history and content repository the rules processor 204 checks if there is any content to be sent). I also note that Alcatel's base stations themselves are geolocations of interest, such as restaurants, gift shops, or cities of interest in Alcatel's examples. Alcatel, ¶¶[0015], [0016], [0021]. Accordingly, it is my opinion Alcatel's specific knowledge of the base station geolocations corresponds to specifying of the geolocation by rule.

372. I understand that Alcatel further discloses a content distribution campaign rule including specifying an action by the consumer. Specifically, Alcatel discloses that the user may "act" by subscribing or unsubscribing to the service, or simply by traveling from one location to another location. Alcatel, ¶¶[0015], [0022] ("checks (402) if the mobile device user has subscribed," and "checks [] to determine the direction of movement"). I note, to the extent that Alcatel does not disclose its subscription or travel as specifying a rule of consumer action, in my opinion, Verizon discloses such aspects at least by its disclosing communications based on how/whether the consumer "acted upon" content. For example, Verizon's rules for content distribution concern consumer actions to click links, add to wishlists, and other "historical actions" Verizon, ¶¶[0040], [0043] (updating), [0046], [0047], [0050] (links, wishlist, historical actions, weighting), [0053] (act upon); [0057]

(wishlist), [0066]. Verizon implements such rules including by weighting of consumer actions in determining content distribution. *Id.*, ¶[0050].

373. In my opinion, a POSITA would have been motivated to incorporate the recited specifying at least one action, as taught by Verizon, in the system of Alcatel for improving accuracy, reducing noise, improving efficient communications, and/or at Alcatel's suggestion for user action in tailored communications.

(4) Element 13(c): receiving a first indication that the consumer is within a radius of the geolocation;

(5) Element 13(d): tracking the consumer in response to receiving the first indication to determine whether the consumer has performed the at least one action;

374. I understand that Alcatel discloses the first indication as discussed above concerning claim 1, and suggests the responsive user tracking at least by its subscription/opting in (Alcatel, ¶¶[0015], [0022]) A POSITA would understand that pinging the base station or receiving messages from the base station constitute receiving location information, identifying consumers and identifying them as targets via their mobile devices, and determining the course of travel. A POSITA would appreciate that a radio frequency coverage area of a base station commonly includes a coverage area defined by a circle having a radius. For example, I note that the consumer being within Alcatel's radius of base station A receives such

indication by the system. E.g., Alcatel, ¶[0020]. Additionally, presence within the base station coverage defines presence within the radius of the location of interest such as a restaurant. Id. However, to the extent that does not disclose this limitation, it is my opinion that Verizon discloses receiving indication and responsive consumer tracking. For example, Verizon discloses user action on received media content. E.g., Verizon, ¶¶[0040], [0046], [0050], [0053] (act upon); [0057] (wishlist), [0066]. Verizon discloses responsive tracking to consider the consumers' acts upon content. Verizon, ¶¶[0050] (acted upon, retain information, historical actions), [0053]. Verizon notes that consumers 'acting upon' content includes e-shopping, mapping locations of businesses, and physically traveling to businesses. Verizon, ¶[0053].

375. In practice, Verizon provides media content as the consumer enters the radius of the geolocation, e.g., Manhattan, and consumer actions are tracked, including to determine when the consumer travels to the business location for content tailoring. *Id.*, [0042], [0053]. Accordingly, once the initial content is provided by occupying the geofence radius, it is my opinion Verizon responsively tracks the consumer activity to determine performance of the action, as recited, including as it weighs on Verizon's ad tailoring. *Id.*, [0042], [0053].

376. Further activity within Verizon's process includes updating and tracking as the user travels, and thus it is my opinion consumers not traveling to the

business location may be considered that they did not 'act upon' the content. *E.g.*, Verizon, ¶¶[0042]-[0043]. In my opinion, a POSITA would have been motivated to incorporate such indication of user interaction with content in furtherance of increased accuracy, reduced noise, and/or efficient communications in tailored content and otherwise at Alcatel's suggestion for user interaction in tailoring content.

(6) Element 13(e): establishing that the consumer is eligible for the content distribution campaign when the plurality of rules is satisfied.

377. Alcatel discloses establishing eligibility when the rules described above are satisfied, in particular regarding the user action (*i.e.* subscribing or traveling), the period of time (as set out in the various rules of Alcatel), and the location rules. For example, Alcatel discloses that subscription, location, and time requirements must be met in order to fulfil content publication to the user. Alcatel, ¶[0022] (walkthrough of content delivery); *see also, id.*, ¶¶[0017]-[0021].

378. Similarly, in my opinion Verizon's disclosure establishes eligibility based on satisfying rules including relevance weighting, and thus would suggest that a POSITA would have been motivated to incorporate its relied-upon aspects in similar manner in combination with Alcatel. *E.g.*, Verizon, ¶¶[0040], [0050], [0053].

CLAIM 14

(1) The method of claim 13, wherein specifying the at least one action comprises specifying at least one of the following:

(a) a target destination; and

(b) a particular path towards the target destination.

379. As I have discussed above, I understand that Alcatel discloses specifying consumer action at least as subscriptions/opting in and by travel. *Supra*, _; Alcatel, ¶¶[0017], [0020]-[0022]. Alcatel's disclosure of specific paths for user travel include particular paths towards target destinations because its routes include final base stations in the relevant area of stores, restaurants, and season events. Alcatel, ¶¶[0020]-[0021] (e.g., A,D,C concerning gift shop G; I, E or I, G concerning restaurant R1; A, B, E, F, I concerning city event C).

380. Alternatively, it is my opinion that to the extent that Alcatel does not disclose specific target destinations, I understand that Verizon discloses specifying user action including target destinations and/or paths to travel along. Such paths include travel through airports and specific cities, districts, and businesses. Verizon, ¶¶[0042] (Newark airport, Manhattan, [0043] (minor updating), [0053] (travelling to business location), [0054] (airport).

381. I understand that Verizon tracks the consumer acting upon content by traveling to a particular business location, and by mapping particular directions to that business. *Id.*, ¶¶[0053]; *see also id.*, ¶[0043] (minor modifications). I note

Verizon provides examples, including providing a first aspect of advertisement content AD1 near a first location (Newark airport), tracking the user as his or her device travels from location 1 to location 2, and providing a second aspect of advertisement content AD2 as the device approaches Manhattan. *Id.*, ¶[0043].

382. Accordingly, it is my opinion, Verizon discloses the consumers' particular path to a target destination as a rule specified under its campaign for content distribution. A POSITA would have been motivated to incorporate such specifying of paths and/or destinations in the system of Alcatel to facilitate accuracy, noise reduction, and/or efficiency in tailored communications, including by improved resolution.

CLAIM 15

> **(1) The method of claim 13, further comprising:**
>
> > **(a) receiving a second indication that the consumer is engaged in a potential fulfillment of the at least one action.**

383. I understand that Alcatel's architecture for base station locations discloses the recited receiving of a second indication by design. For example, I note Alcatel's examples of tracking device movement involve pinging base stations A-I, and as resolution increases, potential fulfilment of continued travel is inferred and applied for content tailoring. Alcatel, ¶¶[0020]-[0022]. A POSITA would understand that pinging the base station or receiving messages from the base station

constitute receiving an indication by identifying consumers and identifying them as targets via their mobile devices and determining the course of travel. Additionally, a POSITA would understand that a user's movement away from a first location (base station B, for example) to a target destination (such as toward base station E and Restaurant 1) would constitute a "potential fulfillment" of a user action (*i.e.* moving to the second restaurant, Restaurant 1).

384. Alternatively, in my opinion, Verizon discloses receiving such indication as continued travel and as the user interacts with or 'acts upon' content. For example, I note Verizon discloses that clicking hyperlinks/URLs, obtaining information, adding goods to virtual cart, and/or traveling towards businesses can indicate likelihood for consumer fulfillment of actions, such as purchasing. Verizon, ¶¶[0019], [0044], [0050] (acted upon, wishlist, historical actions), [0053]. These acts can be indications of increased relevance weight in tailoring content. *Id.*

385. A POSITA would have been motivated to incorporate such predictive aspects to provide accuracy, reduced noise, and/or efficiency in tailoring communications in consideration of predictive user actions.

CLAIM 16

(1) The method of claim 15, wherein receiving the second indication comprises establishing that the consumer is performing at least one of the following actions: moving at a particular path,

towards a target destination, and within the period of time.

386. The statements, arguments, evidence, and analysis concerning claim 14 are incorporated here by reference, and in my opinion disclose and/or render obvious a particular path and towards target destination. *See e.g.*, Verizon, ¶¶[0042] (Newark airport, Manhattan, [0053] (travelling to business location), [0054] (airport).

387. Additionally, as I have discussed above, Alcatel discloses time of action as relevant to its content tailoring. *Id.*, ¶[0017, [0021] ("0900-1800 hrs," "0800-2130 hrs," and "0000-2359 hrs"). Verizon, likewise, in my opinion, indicates considers period of time of movement in updating of content during the course of travel. *E.g.*, Verizon, ¶¶[0034], [0042], [0043], [0046], [0051], [0053].

388. In my opinion, a POSITA would have been motivated to incorporate such path, movement, and time as beneficial in the system of Alcatel to provide improved accuracy, reduced noise, and/or enhanced efficiency in tailoring communications particular to user actions.

CLAIM 17

(1) The method of claim 13, further comprising:

(a) providing a first aspect of the media content in response to the first indication.

389. Alcatel discloses providing the first aspect of content responsive to the first indication under its content delivery based on entering proximity of an

appropriate base station. Alcatel, ¶¶[0017], [0020]-[0022]. In my opinion, from Alcatel's Rule 2 example, when a user is within the relevant proximity of the base station E having traveled from base station I, content concerning both restaurants R1 and R2 can be sent to the consumer's mobile device. Alcatel, ¶¶[0020]-[0022].

390. Once the consumer reaches station G, the additional resolution in the consumer's course of travel makes more reliable communications about restaurant R1 over R2. As another example, Alcatel provides a scenario in which information regarding Restaurant 2 is given at base station B (a "first aspect" of the content), and then information regarding Restaurant R1 and Restaurant R2 are given when the device 107 travels toward and nears base station E. In my opinion Alcatel's restaurant information, in particular a first restaurant or other business located at a firstly encountered base station, constitutes the first aspect provided responsive to the first indication of entering the base station coverage area.

CLAIM 18

(1) The method of claim 17, further comprising providing, upon a fulfillment of the at least one action, a second aspect of the media content.

391. Alcatel discloses action fulfillment responsive to the providing of a second aspect. For example, as I mentioned above concerning claim 17, having received information about both restaurants R1 and R2, subsequent travel only relevant to R1 would yield only content concerning R1. The combined information

regarding both restaurants R1, R2 may constitute a second aspect (differing from the first aspect that only includes a single restaurant's information). As discussed above, the action may be the device moving in the direction from one base station to another base station that would necessitate delivery of the second aspect of the content.

392. Alternatively, I understand that Verizon discloses the limitations at least by its teachings to tailor communications based on how/whether the consumer "acted upon" content. For example, I note Verizon's rules for content distribution concern consumer actions to click links, add to wishlists, and other "historical actions" Verizon, ¶¶[0038], [0040], [0043] (updating), [0046], [0047], [0050] (links, wishlist, historical actions, weighting), [0053] (act upon); [0057] (wishlist), [0066].

393. It is my opinion Verizon implements such rules including by weighting of consumer actions in determining content distribution. *Id.*, ¶¶[0038] (frames), [0040], [0050] (weighted in determining market content for distribution). Thus, subsequent user action resulting in updated content or relevance as taught by Verizon yields a second aspect of media content.

394. In my opinion, a POSITA would have been motivated to incorporate specifying at least one action, as taught by Verizon, into Alcatel in the spirit of improving accuracy, reducing noise, improving efficient communications, and/or at Alcatel's suggestion for updates and user action in tailored communications.

CLAIM 19

(1) The method of claim 18, wherein the second aspect of the media content comprises a modification of the first aspect of the media content.

395. I understand that updating of Alcatel's restaurants, and similarly, updating of Verizon's content on user actions constitutes a modification of the first aspect of media content at least by changing the first aspect to concern the new information. It is my opinion Verizon discloses updating a first advertisement with "minor modifications" to a second or third advertisement with tailored content. Verizon, ¶¶[0042], [0043] (AD 2 and/or AD 3 may be substantially similar to AD 1 but have minor modifications.). For example, Verizon may update a discount offer/code and different location for the same business. *Id.*

396. I understand that Verizon also discloses multiple frames concerning a particular content. Verizon, ¶[0038]. Accordingly, to the extent Alcatel does not disclose that its updating is a second aspect of the media content, in my opinion, a POSITA would have been motivated to incorporate Verizon's teachings of this feature in the system of Alcatel as modifications to the particular first advertisement to improve accuracy, reduce noise, and/or improve efficiency in tailored communications considering real or local variations in conditions.

INDEPENDENT CLAIM 20

(1) Claim 20: A method, comprising:

(2) Element 20(a): defining at least one of the following for a registered asset:

(a) a physical asset, and

(b) a virtual asset;

397. It is my opinion that Alcatel discloses a method to include defining at least a physical asset as a registered asset. For example, Alcatel's base stations and their associated points of interests, such as restaurants, stores, and events, constitute physical assets registered for tailored content publication. *E.g.*, Alcatel, ¶¶[0016]("base stations located on the major access to and from the shopping and leisure locations"), [0017], [0019]-[0022]. Alcatel's asset definitions are provided by the publishers and implemented into rules. *Id.*, ¶[0017]. Alcatel's system of delivering location-based content includes making asset geolocations accessible because the system compares the consumer location with the asset geolocation to determine whether/which content to deliver. Accordingly, this information must be known, possessed, or otherwise accessible to the system to facilitate Alcatel's operations, and thereby "registered" as assets.

(3) Element 20(b): defining a media content associated with the registered asset, the media content comprising a first message and a second message;

398. It is my understanding Alcatel defines media content, such as ads and text, including by defining content in conjunction with rules. I understand that Alcatel's publishers define the content and delivery requirements which are used to define the rules of the rules processor. *See,* Alcatel, ¶¶[0017], [0019]. Alcatel

teaches that the service provider "configures the contents and requirements sent by the content publishers [...] based on location of different tracker base stations." *Id.,* ¶[0017]. Accordingly, Alcatel's media content is defined in association with particular location based on the asset.

399. Alcatel's media may include first and second messages. For example, a first message may include a first piece of content associated with a first restaurant (*i.e.* Restaurant 2 in example of ¶[0021]) and a second message may include a second piece of content associated with a second restaurant (*i.e.* Restaurant 1 in example of ¶[0021]). Yet, to the extent that Alcatel lacks express or elaborate disclosure of first and second messages associate with the same asset, I understand that Verizon discloses such features as minor modifications to provide real time updating. As such, in my opinion, a POSITA would have been motivated to incorporate such features in the system of Alcatel to provide increased accuracy, reduced noise, and/or efficient in tailored communications. Verizon, ¶¶[0038] (frames), [0042], [0043] (minor modifications)

(4) Element 20(c): defining a consumer audience segment to be delivered the media content;

400. Alcatel defines a consumer audience segment, at least by its subscription network. For example, I note Alcatel discloses that its mobile service provider 103 has a network of "[m]obile subscribers [who] may subscribe for content

delivery […and] can also temporarily enable or disable this service." Alcatel, ¶[0017], *see also, id.*, ¶[0022]. Alcatel also discloses subscribers enabled for content delivery, which corresponds to a consumer audience segment.

(5) Element 20(d): defining a set of rules for providing the media content to the consumer audience segment, the set of rules comprising:

(a) a first rule corresponding a consumer's location in association with the registered asset, and

(b) a second rule corresponding to at least one action performed by a consumer during a course of travel related to the consumer's location in association with the registered asset;

401. Alcatel discloses content delivery rules, including at least based on the customer's location relative to the registered asset, as well as rules regarding consumer action. Specifically, Alcatel discloses that the user may "act" by subscribing or unsubscribing to the service, or simply by traveling from one location to another location. Alcatel, ¶¶[0015], [0022] ("checks (402) if the mobile device user has subscribed," and "checks [] to determine the direction of movement").

402. In my opinion, Alcatel confirms by example that consumer proximity to the base station, and thereby relative location to businesses and points of interest, define rules for content delivery to the audience. *Id.*, ¶¶[0020]-[0022]. For example,

traveling from stations A to D to C providing gift shop ads requires proximity to at least one of these stations.

403. I understand that Alcatel's other examples, additionally or alternatively, meet the recited second rule for consumer interaction. For example, Rule 3 provides that travel define by stations A, B, E, F, I can cause delivery of a different ad concerning a holiday event. Alcatel, ¶[0020]. A consumer traveling to station A meets a first rule of travel requirements, but sequent travel to B, E, F, I, rather than C, D, satisfies a specific rule for the Christmas event based on the travel action relative to station A as the registered asset. In my opinion, similar analysis can be undertaken by Alcatel's other examples. I also note that these and other rules of Alcatel can be incorporated in each other and combined, thus instituting even further conditions for delivery.

404. Alternatively, to the extent that Alcatel does not disclose its rules in specific terms of consumer actions, it is my opinion Verizon discloses consumer activity rules when the consumer interacts with ("acts upon") content. For example, in addition to its rules for general location-based ad delivery, Verizon discloses rules concerning consumers clicking content hyperlinks, saving, sharing, inquiring about content, and when consumers physically travel to businesses offering ads. Verizon, ¶¶ [0050] (acted upon, wishlist, historical actions, weighting), [0053] (physically traveling).

405. Verizon's content is delivered during travel in proximity to the asset of interest, such as a business, and its consumer interaction likewise includes actions during the course of travel. Verizon's content rules, thus, in my opinion include actions such as clicking the ads received based on located or traveling to the ad's business during consumer travel in relation to the asset.

406. It is my opinion POSITA would have incorporated Verizon's "consumer action" content tailoring to improve accuracy, reduce noise, and/or provide efficiency in tailored communications including real-time and/or user specific considerations.

(6) Element 20(e): receiving a first determination that the first rule has been satisfied;

(7) Element 20(f): associating the first message with the consumer upon the first rule being satisfied;

(8) Element 20(g): receiving a second determination that the second rule has been satisfied; and

(9) Element 20(h): associating the second message with the consumer upon the second rule being satisfied.

407. Alcatel's distinct rules for different travel disclose receiving and associating regarding the first and second rules as recited. For example, a POSITA, would understand Alcatel as suggesting that a consumer first traveling along base stations A, D, C, and then changing to another course such as A, B, E, F, I, would

necessarily involve associating the first and second messages with the consumer, in particular by their responsive delivery to the consumer. Alcatel, ¶¶[0020]-[0022].

408. I understand that Alcatel also discloses receiving determinations of rules being met by, for example, tracker module 101 receiving the internal determinations executed by the processing logic 201. Other methods of receiving determinations may include via the interface 205, the network 103, and/or the mobile devices 107, which may also receive such determinations as outbound communications from the tracker module 101.

409. Alternatively, to the extent that Alcatel does not disclose its rules in specific terms of consumer actions, I understand that Verizon discloses its rules to include receiving first and second messages each associating with the consumer according to their respective rules as recited. Verizon, ¶¶ [0042] (realtime updating), [0043] (minor modification of Ads).

410. For example, I understand that Verizon's general location-based rules would generate a first AD 1 when the first rule of location were satisfied by traveling to Manhattan, and AD 2 when the user acts to travel closer to Times Square as the asset within Manhattan. But Verizon's disclosure for updating in the form of "minor modifications" to earlier advertisements distinctly achieves such steps as recited. Verizon, ¶[0043] (minor modification of ads).

411. I understand that Verizon discloses that real-time updates in content to a different incentive-promotion or to a different location of a business concerning distinct messages regarding the same registered asset, and delivery of the messages constitutes the recited associating steps. Verizon associates such messages both by sending content, and distinctly by retaining the information as historical user actions. Verizon, ¶¶[0050], [0053]. The system "weighing" user preferences and modifying the content to be delivered accordingly would be akin to "associating" the upcoming content to the user. *See,* Verizon ¶[0040].

412. In my opinion, a POSITA would have been motivated to incorporate Verizon's updates including modifications to provide improved accuracy, reduced noise, and/or efficiency in tailored communication including real-time and/or user specific considerations.

CLAIM 21

> **(1) The method of claim 20, wherein defining the set of rules further comprises defining at least one additional rule specifying the following:**
>
> **(2) Element 21(a): the consumer's relative presence at a first location associated [sic] a delivery of the first message;**
>
> **(3) Element 21(b): the consumer's relative presence at a second location associated with a delivery of the second message;**

(4) Element 21(c): the consumer's path from the first location to the second location; and

(5) Element 21(d): a period of time in which the consumer traveled from the first location to the second location.

413. I understand that Alcatel discloses its defining of rules to include the consumer's relative presence at first and second locations, the path between, and time period. Alcatel at least discloses this by its pathway and time-delimited examples. Alcatel, ¶¶[0017], [0020]-[0022]. For example, Alcatel discloses its rules to include the consumer's presence at, and path between, first and second locations of base trackers A, D, C. Alcatel, ¶[0020]. I understand that Alcatel also discloses a period of time in which the consumer's travel between first and second locations must occur, e.g., "0900-1800 hrs". *Id.*

414. Alternatively, to the extent that Alcatel does not expressly disclose the period of time to include the rate of travel, I understand that Verizon discloses its rules to include speed (time/distance) of the user's travel to add context to the user's location in communicating tailored content. Verizon, ¶¶[0036], [0046].

415. To the extent that Alcatel's rules concerning these limitations do not concern "additional" rules as distinct from the first and second rules discussed concerning claim 20, I understand that Verizon discloses distinct rules concerning general location-based content delivery (e.g., Verizon, ¶[0042], and specific

updating of the same communication with a second message having "minor modifications" (Verizon, ¶[0043]).

416. Although either instance of Verizon general or update rules apply to rules in claim 20 and rules in claim 21, I note Verizon's minor modifications update discloses definition of the at least one additional rule where the consumer's presence at Newark Airport provides a first message such as an airport entrance coffee bar advertisement, and walking from an entrance towards a particular terminal would cause an update to a new location of the coffee bar near the terminal, where the path between locations, during hours of operation, and/or in consideration of speed/direction of travel (id., ¶[0036]). *Id.*, ¶[0043]).

417. In my opinion, a POSITA would have been motivated to incorporate such at least one additional rule into Alcatel, as suggested in Verizon, to improve resolution of tailored content in more accurate, lower noise, and/or enhanced efficient communications in consideration of general location and real-time, minor changes in consumer context.

CLAIM 22

(1) 22. The method of claim 21, further comprising providing the media content to the consumer.

418. Alcatel discloses providing the media content to the consumer. Alcatel, ¶¶[0017], [0020][-0022]. In agreement with additional or alternative applications of

Verizon, I understand that Verizon discloses providing the media content as recited, for example, upon updating. *E.g.*, Verizon, ¶¶[0042], [0043].

CLAIM 23: The method of claim 22, wherein providing the media content comprises:

> **(1) providing the first message when the at least one additional rule has not been satisfied, and**
>
> **(2) providing the second message when the at least one additional rule has been satisfied.**

419. Alcatel as modified with Verizon discloses providing the first and second messages as recited at least by Verizon's updating with minor advertisement modifications. I understand that Verizon's general location-based content tailoring provides an advertisement for the entrance coffee bar when user is near the airport entrance, but without the additional movement to travel towards the particular terminal, the additional rule is unsatisfied and no second message is provided. Verizon, ¶0042], [0043]. However, once the consumer passes through TSA and physical approaches the terminal, the additional rule is satisfied and the updating location of the coffee bar is provided in the updated advertisement. *Id.*,¶[0043]. Accordingly, in my opinion, Alcatel as modified under Verizon's teachings all limitations in claim 23.

4. GROUND 7 - ALCATEL / VERIZON / GEER

Claims 13-19

420. As I have discussed above, concerning Alcatel/Verizon discloses or achieves "tracking the consumer in response to receiving the first indication," as recited in claim 13. However, to the extent that these references do not expressly disclose a direct response to the first indication, in the area of location-based communications, I understand that Geer discloses activation of high-resolution tracking ("HIRES") when a user crosses a geofence boundary for increased precision near the location of interest, while reducing phone battery consumption farther away from that location. *E.g.*, Geer, ¶[0064] ("FNMS 310 detects 1010 that fan 200 is within OZ 833 […] transmits 1020 an instruction to FNA 510 to use HIRES tracking. FNA 510 demands 1030 the geolocation system 570 of PSD 320 to use HIRES tracking. The geolocation system 570 initiates 1040 HIRES tracking if it is not in that mode already."); *see also id.*, ¶¶[0005], [0057], [0058] (battery life), [0065], FIG. 8. As I have already mentioned, Verizon teaches to consider a user's physical travel to a business as a consumer action to be tracked (e.g., Verizon at ¶¶[0050], [0053]). Verizon affords additional importance to this consumer travel action, which would benefit from the additional resolution in location tracking that Geer teaches. In my opinion, a POSITA would have been motivated to incorporate such location-responsive user tracking in Alcatel/Verizon to adjust resolution appropriately, to reduce data loads, and/or to save power consumption.

CONCLUSION

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

Date: 5/9/23

By: _____
Steven H. Goldberg

EXHIBIT A

STEVEN H. GOLDBERG

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SUMMARY

SENIOR HIGH TECHNOLOGY EXECUTIVE with 30+ years of management experience in both small and large business environments. Strong technical background with emphasis on wireless, security, signal processing, AI/ML, telematics, and networking. A hands-on, energetic, people-oriented leader with proven ability to quickly build effective results-oriented teams with focused business objectives. Strong interpersonal and business skills are equally effective with customers and partners as with employees.

- **Operating Partner at Tier 1 venture capital firm for 10+ years**
- **Serial CEO with early-stage technology companies**
- **45+ cases as Expert Witness for IP and patent disputes**
- **Early-stage technology investor and board member**
- **Built successful teams at Trimble, Cylink, Verticom, Nokia, and Arcwave**
- **Supported revenue generation from pre-revenue (Arcwave) to >$250M (Nokia)**
- **Managed ASIC development at Cylink, Nokia, and CoWave**
- **Functional AI skillset including adaptive filtering and 1D/2D signal processing**

PROFESSIONAL EXPERIENCE

FINISTERE VENTURES, Palo Alto, CA **November 2021 – Present**
Partner

Investing partner at early-stage venture capital firm; focused on technology-based companies focused on food ecosystem including adjacent areas of agriculture, supply chain, finance, robotics, climate, etc.

BUSINESS AND TECHNOLOGY EXECUTIVE, Cupertino, CA **May 2006 to Present**

Support range of markets including wireless communications, IoT, physical and cyber security, signal processing, embedded systems, automotive, robotics, location services, and telematics. Actively involved as independent board member of three technology companies; advisor to several others. Provide Expert Witness support for IP/Patent litigation for wireless, telematics, GPS, and RF-related cases.

VENROCK ASSOCIATES, Palo Alto, CA. **May 2009 to January 2020**
Operating Partner/Investor

Operating partner of Venrock, a leading, global venture capital firm; Chartered to manage a technology portfolio and identify attractive new business opportunities in the wireless, security, location services, IoT, robotics, and satellite technology sectors; Current and past director/observer/advisor of 20+ early stage companies. Frequent pubic speaker and panelist on a variety of management and technology topics. Provide ongoing business and technical diligence support to Venrock on wide variety of technologies including wireless, telematics, automotive, machine learning, robotics, and IoT. Reviewed/diligenced over 5000 technology companies.

DATARUNWAY, Inc., Cupertino, CA **August 2007 to November 2008**
President and CEO

STEVEN H. GOLDBERG

Early-stage, high-technology company focused on providing broadband Internet and phone service to commercial aircraft and private planes in flight. Technology demonstrated to airline industry; company IP ultimately used to support broadband services to cruise ship industry.

VIDIENT SYSTEMS, Inc., Santa Clara, CA **January 2007 to July 2007**
President and CEO

Overall corporate responsibility for 3-year old venture-backed startup (turn-around) in the video surveillance market (specifically video analytics/content analysis); backed by Trident Capital, Blueprint Ventures, Canaan Partners, and Hotung Capital Mgmt.

- Products include the SmartCatch family of software analytics and hardware processing platforms
- Technology/Channel partners include AMAG/G4, Unisys, Intergraph, Broadware, OnSSI, Milestone, NEC
- Lowered cash usage from $750k to $500K/ mo.; restructured business model/go-to-market strategy from VAR/Integrator to OEM model; added marketing function; restructured product offering and focus; relocated company HQ; supported delivery of SmartCatch 3.0 software and IVR2400 analytics appliance; restructured pricing and margin model; renegotiated all sales/employee revenue-based compensation and commission plans
- Wrote two industry white papers on video analytics; gave numerous press/media interviews; Red Herring and AlwaysOn 100 finalists
- Negotiated $4M bridge funding

VENROCK ASSOCIATES, Menlo Park, CA. **April 2005 to April 2006**
Entrepreneur-in-Residence

Engaged as a full-time contractor to Venrock, a leading, global venture capital firm, to assist in identifying attractive new business opportunities in the wireless, security, networking, and/or location markets.

ARCWAVE, Inc. Campbell, California **October 2000 to February 2005**
(CoWave Networks merged with Advanced Radio Cells to form Arcwave in April 2003)
President and CEO

First employee of VC-funded (Mayfield, Venrock, SBV, Comcast, Vulcan, Lucent) wireless startup supplying wireless broadband access products to the global cable industry; oversaw construction of corporate infrastructure, hired executive team; led marketing and sales strategy and key technology developments; led all corporate fundraising activities.

- Key in creating product positioning and branding strategy for residential wireless mesh technology (MeshCast™); 5 patents
- Positioned technology as mesh component of IEEE 802.16a standard; managed ASIC development
- Managed $12.4M in original Series A funding and raised $3.7M in a Series B round in Dec. 2002
- Initiated and successfully managed merger of CoWave Networks with Advanced Radio Cells, Inc. to form Arcwave, in April 2003; Raised $8M Series C funds in June 2004 led by new investors Comcast Interactive Capital and Vulcan Ventures

STEVEN H. GOLDBERG

- At Arcwave, led definition and oversaw development of last-mile wireless cable extension product for Enterprise broadband voice/data service offering from cable industry
- Arcwave customers included Comcast, Time Warner, Cox, Adelphia, Charter, Mediacomm, CableOne

NOKIA CORP., Mt. View, California **August 1999 to Oct. 2000**
Vice President, Research and Development, Nokia Internet Communications

Brought in to help with the integration of the recently acquired start-up, Ipsilon Networks; overall responsibility for R&D for $70 million R&D budget with 275 engineers worldwide; participated in growth of new business unit from $50M to $250M+ run-rate; hired over 70 engineers and managers; successfully integrated a second 70 person engineering group in Boston, Mass.; core products tied to networking and internet application appliances with strong ties to next generation packet-based cellular systems.

- Actively involved in Sales, Marketing, and Support of global firewall appliance business; regular customer interaction tied to new product development and feature enhancement
- Led development of entire product line, including IP530, IP740, ISS appliance, Anti-Virus appliance, and current version of operating system
- Managed 20+ person ASIC team developing packet processing acceleration ASICs

VERTICOM, INC., Santa Rosa, California **December 1997 to August 1998**
President and CEO

Overall corporate responsibility for a four-year-old private, VC-funded (NEA) wireless restart involved in radio subsystems for satellite and terrestrial wireless infrastructures.

- Recruited to facilitate turn-around; created new $6.5M operating plan for 1998 (revenue peaked at $16M in FY2000); reduced monthly operating loss from $500K to under $300K
- Built new management team including V.P.'s of manufacturing, finance, and engineering and streamlined document control, sales lead tracking, order generation, and project engineering
- Oversaw restart of stalled product shipments and improvement of average gross margins by >20%
- Oversaw global sales and distribution channel
- More than doubled revenue $/direct labor from $100K to over $200K

CYLINK CORPORATION, Sunnyvale, California **March 1995 to Dec. 1997**
Vice President, General Manager, Wireless Communications Division

Reporting directly to CEO, created Wireless business unit/division; products included spread spectrum radio-modems with worldwide distribution in over 90 countries, 6 international sales offices.

- Brought revenues, profitability from under $7M annually to $31M with gross margins of >55%
- Built management team in sales, marketing, engineering, customer service, and manufacturing
- Managed Cylink cordless phone ASIC business
- Intimately involved in highly successful Cylink IPO in February 1996; worked directly with investment banks and wrote key sections of S-1 registration statement
- Positioned division for sale and made key presentation resulting in Cylink Wireless Division sale to P-Com, Inc. in March 1998 for $60.5M

- Returned to P-Com, Inc. from Aug. 1998 to Nov. 1998 to manage Cylink integration

TRIMBLE NAVIGATION, Ltd., Sunnyvale, California
Program Manager – Military Division **Nov. 2008 to Sept. 2009**

- Led interdisciplinary team of engineers (hardware, software, mechanical, RF) in the design of next generation military M-Code GPS receivers for in-flight applications
- Interacted with Program Managers from program partners Raytheon, General Dynamics and with the U.S Air Force GPS Wing contracting organization

Manager – Vehicle Tracking Division – Communications Systems Group **1993 to 1995**

- Led development and marketing group for GPS-based tracking, navigation, and positioning systems
- Co-created new product line for tracking people and cargo using cellular phones with GPS; Tens of thousands sold globally over 10-year period; product line continues today
- On-going global customer interaction during product development and rollout
- Regular interaction with global Sales, Marketing and Support organizations
- Directed engineering teams from concept to fully functional end-user installations; system level interaction with core GPS ASIC development team
- Served as corporate-wide technical resource for strategic planning and intellectual property

Senior Engineer – Survey Division **1991 to 1993**

- Co-lead in Differential Corrections Group that developed the line of TrimTalk radio systems; used to provide local corrections to Trimble Series 4000 GPS survey receivers

APPLIED SIGNAL TECHNOLOGY, Sunnyvale, California **1988 to 1991**
Program Manager – Wireless Communication Division

- Regular interaction with government intelligence customers to define product needs
- Directed development of wideband, 1-40GHz, 'flexible' surveillance receiving system
- Led many corporate marketing activities including technical presentations and proposal writing
- Developed company-wide technical training program for over 200 company employees; Developed and taught DSP, Adaptive Filtering, and Digital Communications courses

HEWLETT-PACKARD CO., Palo Alto, California **1979 to 1988**
Instructor – Microwave and Communications Group Training Center 1980 to 1988
Responsible for course development and teaching of a variety of electronic measurement subjects on a global basis to HP customers and newly hired HP engineers. Topics included transmission lines, network analysis, spectrum analysis, noise figure, general signal processing techniques, modulation and telecommunications principles.

Hewlett-Packard Visiting Professor – North Carolina A&T State University 1982 to 1983
On temporary assignment to teach undergraduate electrical engineering courses. Courses included Communications and Modulation Theory, Circuit Analysis and Synthesis and Circuits and Systems.

Production Engineer – HP Microwave Semiconductor Division 1979 to 1980

STEVEN H. GOLDBERG

Responsible for production line support, product improvement and new product introduction for microwave GaAs FET amplifiers and broad range of RF and microwave passive component line from 1-18GHz.

EMERSON ELECTRIC CO., St. Louis, Missouri **1978 to 1979**
Radar Engineer
Responsible for the design and development of the receiver/transmitter portions of military radar systems. Products included high dynamic range logarithmic receivers and magnetron/klystron-based transmitters.

CALIFORNIA MICROWAVE, Inc., Sunnyvale, California **1976 to 1978**
RF and Microwave Engineer
Responsible for the design and testing of RF and microwave circuits and components for military, telecommunications, and commercial applications. Frequency range from 1-30 GHz.

EXPERT WITNESS EXPERIENCE

1. Type of Matter: Contract Litigation
Law Firm: Strategic v. Natomas Park
Services Provided: Expert report provided for Plaintiff
Disposition: Judge ruled in favor of Plaintiff
Date: 2006

2. Type of Matter: Patent Infringement
Law Firm: Jenkins and Gilchrist
Services Provided Infringement research; Wireless LAN
Disposition: Completed/Outcome Unknown
Date: 2006

3. Type of Matter: Patent Infringement; Defense
Law Firm: Orrick, Herrington & Sutcliffe, LLP
Services Provided Infringement research, prior art; SIRF v Global Locate
Disposition: Completed/Settled
Date: 2007

4. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Fish and Richardson
Services Provided: Infringement expert report; invalidity rebuttal report; deposition; Vehicle IP v GM Corp.
Disposition: Completed
Date: 2007/2008

5. Type of Matter: Patent Invalidity; Defense
Law Firm: Kilpatrick Stockton
Services Provided: Declaration written; Telematics v. Motorola
Disposition: Completed/Outcome Unknown
Date: 2008

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6. Type of Matter	Patent Invalidity; Defense
Law Firm:	Keker & Van Nest
Service Provided:	Patent Review, Cable Modems; Rembrandt v Comcast
Disposition:	Completed/Outcome Unknown
Date:	Nov 2008 – Jan 2009
7. Type of Matter	Patent Infringement; Plaintiff
Law Firm:	Fulbright & Jaworski
Service Provided:	Product review; RemoteMDx vs. STOP LLC
Disposition:	Completed/Settled
Date:	Dec. 2008 - Jan. 2009
8. Type of Matter	Patent Infringement; Plaintiff
Law Firm:	Kirkland & Ellis
Service Provided:	Patent and Prior Art Review; Intel v Wi-Lan
Disposition:	Completed/Outcome unknown
Date:	Jan. 2009 – March 2010
9. Type of Matter	Patent Infringement; Defense
Law Firm:	Cravath, Swain, & Moore
Service Provided:	Patent and Prior Art Review; ITT v. Qualcomm
Disposition:	Completed
Date:	Feb. 2010
10. Type of Matter	Patent Reexamination; Defense
Law Firm:	Fish and Richardson
Service Provided:	Reexamination support; Declaration; Vehicle IP
Disposition:	Completed
Date:	Nov. 2010
11. Type of Matter	Patent Infringement; Plaintiff
Law Firm:	Paul Hastings
Service Provided:	Infringement research, telematics hardware; HTI vs. ProCon
Disposition:	Completed
Date:	February 2011
12. Type of Matter	Patent Infringement; Defense
Law Firm:	FTBK Law
Service Provided:	Markman Declaration; Visteon v. Mitac
Disposition:	Unknown; completed.
Date:	July 2011
13. Type of Matter	Patent Infringement; Defense
Law Firm:	Fish and Richardson
Service Provided	Rebuttal Infringement and Invalidity reports; deposed
Parties Involved	SkyHawke Technologies, LLC v. Callaway Golf
Disposition	Favorably settled before trial; 3/2012
14. Type of Matter	Patent Infringement; Plaintiff

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Law Firm: Ostrow Kaufman, LLP
Service Provided: Claim Construction/Summary Judgment Preparation
Parties Involved: Advanced Media Networks v. Gogo LLC/Aircell
Disposition: Favorably settled before trial in Summer 2013

15. Type of Matter Patent Infringement; Plaintiff
Law Firm: Fish and Richardson
Service Provided: Infringement report, Rebuttal Invalidity report, deposition, trial testimony U.S. District Court, Delaware
Parties Involved: Vehicle IP, LLC v. Werner Enterprises
Disposition: Jury trial complete in Sept. 2013 favoring defense on infringement; validity upheld

16. Type of Matter Patent Infringement: Defense
Law Firm: Fish and Richardson
Service Provided: Claim Construction and Invalidity report, deposition, trial testimony at ITC
Parties Involved: Ericsson v. Samsung
Disposition: Trial at ITC in Sept. 2013; Favorably settled before court decision, Jan. 2014

17. Type of Matter Patent Infringement; Defense
Law Firm: Bryan Cave
Service Provided: Declaration re: Preliminary Injunction Hearing; deposition; hearing testimony; IPR declaration
Parties Involved: MAcom v. Laird
Disposition: Favorably settled before trial/IPR, April 2015

18. Type of Matter: Product Liability: Defense
Law Firm: Keker and Van Nest, San Francisco, CA
Service Provided: Declaration re: GPS semiconductor architecture and performance
Parties Involved: TomTom International v. Broadcom Corp.
Disposition: Favorably settled before trial, May 2015

19. Type of Matter: IPR; Plaintiff
Law Firm: Sheppard Mullin
Service Provided: Multiple expert declarations; deposition; IPR's
Parties Involved: TCL
Disposition: Completed; 2016

20. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Fish and Richardson
Service Provided: Multiple expert reports; multiple depositions
Parties Involved: Vehicle IP v. ATT/Verizon
Disposition: Favorably settled with one defendant; 2017

21. Type of Matter: Patent Infringement; Plaintiff
Law Firm: Smith, Gambrell, and Russell
Service Provided: Discovery support
Parties Involved: InfoGation; ZTE, HTC
Disposition: Unknown as of Dec. 2017

22. Type of Matter:	Patent Infringement; Defendant
Law Firm:	Fish and Richardson
Subject Matter	Consumer Electronics; GPS
Service Provided:	Testifying expert; Declaration for IPR
Parties Involved:	Escort, Inc. v. Uniden America Corporation
Case No.:	Civil Action No. 3:18-CV-00161-N
Court:	Northern District of Texas, Dallas Division
Disposition:	Favorably Settled; July, 2020

23. Type of Matter:	Patent Infringement; Plaintiff
Law Firm:	Bunsow De Mory LLP
Subject Matter	Consumer Electronics; Cellular Telephones
Service Provided:	Markman Hearing support; Deposition
Parties Involved:	Theta IP, LLC. v Samsung Electronics Co., LTD and Samsung Electronics America, Inc.
Case No.	Civil Action No.: WA:20-CV-0160-ADA
Court:	Western District of Texas, Waco Division
Disposition:	Favorably settled; January 2022

24. Type of Matter:	Patent Infringement; Plaintiff
Law Firm:	Steptoe
Subject Matter:	Consumer Electronics; Automotive Telematics; GPS
Service Provided:	Testifying expert; Infringement report, Rebuttal Report, Witness Statement, Deposition; ITC trial testimony
Parties Involved:	Broadcom v. Toyota; CERTAIN INFOTAINMENT SYSTEMS, COMPONENTS THEREOF, AND AUTOMOBILES CONTAINING THE SAME
Court:	International Trade Commission
Case No.	337-TA-1119
Disposition:	2018-2020; Completed; Decision in favor of Defense; Under Appeal

25. Type of Matter:	Patent Infringement; Supporting Defendant and Counter Plaintiff
Law Firm:	Amster, Rothstein, and Ebenstein
Subject Matter:	Enterprise Wireless; Retail; Bluetooth
Service Provided:	Testifying expert; Non-Infringement Rebuttal Report
Court:	Middle District of Florida, Orlando Division
Case No.:	6:18-cv-00064-RBD-GJK
Parties Involved:	Proxicom Wireless v. Macy's Inc. and Macy's Florida Stores, LLC
Disposition:	Favorably settled; July 2019

26. Type of Matter:	Patent IPR, Supporting Patent Owner
Subject Matter	Automotive, GPS
Law Firm:	Steptoe
Court:	Patent Trial and Appeal Board
Case No.:	IPR2019-00737, IPR2019-00816
Services Provided:	Declarations, deposition
Parties Involved:	u-blox AG, Japan Radio Co., Ltd., Petitioners; Broadcom Corp., Patent Owner
Disposition:	Unknown

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27. Type of Matter: Patent IPR, Supporting Petitioner
Subject Matter: Automotive, Mapping
Law Firm: Erise IP, P.A.
Court: Patent Trial and Appeal Board
Case No.: IPR2020-01254, IPR2020-01253
Services Provided: Two (2) declarations, 2H2020
Parties Involved: Apple Inc., Petitioner; Navblazer, LLC, Patent Owner
Disposition: Awaiting Deposition (if needed)

28. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Vehicle to Vehicle Communication
Law Firm: McDonnell, Boehnen, Hulbert & Berghoff
Services Provided IPR Declaration, 2H2020
Court: Patent Trial and Appeal Board
Case No: IPR2020-00354
Parties Involved Unified Patents, LLC, Petitioner; AutoBrilliance, LLC, Patent Owner
Disposition: Declaration Completed; Case Status Unknown

29. Type of Matter: Patent Infringement; Defendant
Subject Matter: Consumer Electronics
Law Firm: WilmerHale
Services Provided Technical/Business Expert; Expert Report; Deposition
Court: U.S. District Court, District of Delaware
Case No.: Civil Action No. 19-1031-RGA-SRF
Parties Involved: NextStep, Inc. v. Comcast Communications
Disposition: Favorably settled at trial in Sept 2021

30. Type of Matter: Patent Infringement; Plaintiff
Subject Matter: Business Aviation Communications
Law Firm: Burr and Foreman
Service Provided: Testifying Expert; Declaration supporting Summary Judgement
Court: U.S District Court, District of Delaware
Case No.: C.A. No. 22-266-VAC-MPT
Parties Involved: SmartSky Networks, LLC v. Gogo Business Aviation, LLC
Disposition: SJ Declaration Completed; Case ongoing

31. Type of Matter: Patent IPR, Supporting Patent Owner
Subject Matter: Automotive; EV Charging
Law Firm: Carter Arnett
Service Provided: IPR Declaration
Court: Patent Trial and Appeal Board
Case No: IPR2022-0519
Parties Involved: United Patents, LLC, Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition: PTAB found in favor or Patent Owner, August, 2022

32. Type of Matter: Patent IPR; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Volpe Koenig
Service Provided: IPR Declaration

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Court: Patent Trial and Appeal Board
Case No: IPR2022-00708
Parties Involved: Toyota Motor Corp., Petitioner; Intellectual Ventures II, LLC, Patent Owner
Disposition: Declaration Completed

33. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration Opposing Summary Judgement
Parties Involved: Fleet Connect Solutions, LLC. v. Precision Drilling Corporation
Court: Western District of Texas, Waco Division
Case No.: Civil Action No. 6.21-CV-00987-ADA
Disposition: Declaration Completed; May, 2022

34. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration Opposing Summary Judgement
Court: Western District of Texas, Waco Division
Case No: Civil Action No. 6:21-CV-00988-ADA
Parties Involved: Fleet Connect Solutions, LLC v. Flying Star Transport, LLC
Disposition: Declaration Completed; May 2022

35. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration Supporting Claim Construction Brief
Court: Western District of Texas, Waco Division
Case No: Civil Action No. 6:21-cv-01306-ADA
Parties Involved: Fleet Connect Solutions, LLC v. MV Transportation, Inc. and MV Contract Transportation, Inc.
Disposition: Declaration Completed, July 2022

36. Type of Matter: Patent Infringement; Supporting Patent Owner
Subject Matter: Automotive Communications
Law Firm: Rozier Hardt McDonough PLLC
Service Provided: Declaration; Regarding the Meaning of Certain Terms in the Asserted Patents
Court: Western District of Texas, Marshall Division
Case No: Civil Action No. 2:21-cv-365-JRG
Parties Involved: Fleet Connect Solutions, LLC v. Waste Connections US, Inc. and Waste Connections of Texas, LLC
Disposition: Unknown, July 2022

37. Type of Matter Patent Infringement; Supporting Plaintiff
Subject Matter Automotive Telematics
Law Firm: Kirkland and Ellis, LLP
Service Provided: Claim Construction Support; Declaration
Parties Involved: Omnitracs, LLC and XRS Corporation v. Platform Sciences, Inc.
Court: Southern District of California

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Case No:	3:20-cv-0958-CAB-MDD
Disposition:	Completed, August 2022

38: Type of Matter	Contract Dispute; Supporting Respondents
Subject Matter:	Enterprise Software; Internet Communications
Services Provided:	Witness Statement Prep
Law Firm:	Snell & Wilmer
Parties Involved:	DISH WIRELESS L.L.C. and DISH PURCHASING CORPORATION v. REVOKIND INC., JUSTIN CASWELL and REVOFI LLC
Court:	American Arbitration Association
Case No:	01-22-0002-3635
Disposition:	Completed; Case status unknown

39. Type of Matter:	Patent IPR, Supporting Patent Owner
Subject Matter:	Automotive; EV Charging
Law Firm:	Carter Arnett
Service Provided:	IPR Declaration
Court:	Patent Trial and Appeal Board
Case No:	IPR2022-01217
Parties Involved:	Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition:	Declaration Complete, September 2022

40. Type of Matter	Patent IPR, Supporting Patent Owner
Subject Matter:	Automotive Communications
Law Firm:	Volpe Koenig
Service Provided:	IPR Declaration
Court:	Patent Trial and Appeal Board
Case No:	IPR2022-00429
Parties Involved:	United Patents; Intellectual Ventures II, LLC, Patent Owner
Disposition:	Declaration Completed, November 2022

41. Type of Matter	Patent IPR, Supporting Patent Owner
Subject Matter:	Automotive Communications
Law Firm:	Volpe Koenig
Service Provided:	IPR Declaration
Court:	Patent Trial and Appeal Board
Case No:	IPR2022-00709
Parties Involved:	Toyota Motor Corp., Petitioner; Intellectual Ventures II, LLC, Patent Owner
Disposition:	Declaration Completed, January 2023

42. Type of Matter	Patent Dispute, Supporting Patent Owner
Subject Matter:	Automotive; EV Charging
Service Provided:	Claim Construction Declaration
Law Firm:	Carter Arnett
Court:	Patent Trial and Appeal Board
Parties Involved:	Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Disposition:	Declaration Completed, February 2023

43. Type of Matter	Patent Infringement; Supporting Plaintiff
Subject Matter	Automotive Telematics

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Law Firm:	Kirkland and Ellis, LLP
Service Provided:	Claim Construction Support; Second Declaration
Parties Involved:	Omnitracs, LLC and XRS Corporation v. Platform Sciences, Inc.
Court:	Southern District of California
Disposition:	Completed, February 2023

44. Type of Matter	Patent Dispute, Supporting Patent Owner
Subject Matter:	Automotive; EV Charging
Service Provided:	Claim Construction Declaration
Law Firm:	Carter Arnett
Court:	Patent Trial and Appeal Board
Parties Involved:	Tesla, Inc., Petitioner; Charge Fusion Technologies, LLC, Patent Owner
Case No:	IPR203-00062
Disposition:	Declaration Completed, February 2023

45. Type of Matter	Patent IPR, Supporting Patent Owner
Subject Matter:	Automotive Communications
Law Firm:	Volpe Koenig
Service Provided:	IPR Declaration
Court:	Patent Trial and Appeal Board
Case No:	IPR2022-00857
Parties Involved:	Toyota Motor Corp., Petitioner; Intellectual Ventures II, LLC, Patent Owner
Disposition:	Underway, February 2023

PUBLICATIONS

1. "Bit Error Rate Performance of a A DS/DPSK Spread Spectrum Receiver", S.H. Goldberg and R.A. Iltis, Proceedings of MILCOM, 1985;

2. "Joint Interference Rejection / Channel Equalization in DS Spread Spectrum Using the CMA Equalizer and Maximum Likelihood Techniques", R.A. Iltis and S.H. Goldberg, Proceedings of MILCOM, 1987;

3. "PN Code Synchronization Effects on Narrowband Interference Rejection in a Direct-Sequence Spread Spectrum Receiver," R.A. Iltis and S.H. Goldberg, IEEE Transactions on Communications, 1988;

4. "A single processor packet radio modem for land mobile vehicle tracking applications," G. Kremer, J. MacKnight, R. Lao, and S. Goldberg, Signals, Systems and Computers, 1994, 1994 Conference Record of the Twenty-Eighth Asilomar Conference;

5. "Separation and bearing estimation of co-channel signals," B.J. Sublett, R.P. Gooch, S.H. Goldberg, Proceedings of MILCOM 1989;

6. "A DS spread spectrum RAKE receiver with narrowband interference rejection capability: operation in fading channels," R.A. Iltis, and S.H. Goldberg, S.H. Proceedings of MILCOM 1989

STEVEN H. GOLDBERG

EDUCATION

Ph.D.E.E., Dept. of Electrical and Computer Engineering, University of California, Santa Barbara, CA, 1988
Dissertation Subject Area: Signal Processing for Broadband Communications; strong background in adaptive filtering, communications systems architectures, and statistical signal processing
M.S.E.E., B.S.E.E., Washington University, Saint Louis, Missouri, 1975, 1980
Major areas of study included RF design and communications theory

PATENTS

Patent	Date	Description
5,742,509	4/21/1998	Personal tracking system integrated with base station
4,410,949	10/18/1983	Controller for fuel dispenser

ACTIVITIES - PERSONAL

- Advisor, Alcatraz.ai, Palo Alto, CA; AI-based Security Access Control; January 2018-Present
- Advisor, Bruviti, Campbell, CA; AI-based S/W for Enterprise Industrial Maintenance/Triage; March 2020-Present
- Advisor, Accern, New York, NY; AI-based Enterprise Support; September 2020-Present
- Board Member, Future Dial, Representing Venrock, 2014-Nov. 2022
- Board Member, Backbar, San Diego, CA, Representing Finistere Ventures, 2022-Present
- Board Member, Growers Edge, Johnston, IA, Representing Finistere Ventures, 2022-Present
- Board Observer, Taranis, Aviv-Yafo, Israel, Representing Finistere Ventures, 2022-Present
- Independent Board Member; Chairman, Compensation Committee; SolidPower (NASD:SLDP): Louisville, Colo.; Sept. 2019 – Present
- Independent Board Member, Savari Networks, Santa Clara, CA; April 2016- December 2020
- Venture Partner, Fusion Fund, Palo Alto, California; June 2020 – August 2021
- Engineering Consultant, Hi Fidelity Genetics, Durham, N.C.; September 2020 – September 2021
- Mentor, Silicon Valley Forum International Programs; 2018-2019
- Board Observer/Board Member/Past Chairman; SVForum, January 2014-May 2018
- Dean's Executive Professor, Santa Clara University, Leavey School of Business, Fall 2015
- National Judge, Ernst and Young 2013/2014/2015 Entrepreneur of the Year Award
- National Judge, VCIC, 2015 (Global MBA student VC competition)
- National Judge, FLoW, 2015 (DOE sponsored Cleantech competition)
- Life Senior Member IEEE; 1994 President IEEE Santa Clara Valley Communications Society
- Adjunct Professor, Electrical Engineering Dept; Santa Clara University, 1990
- Visiting Faculty, Elec. Eng. Dept.; U.C. Santa Barbara, 1985
- Lifetime CA Community College Instructor Credential in Engineering
- Amateur Radio Extra Class License WQ6L
- German language proficiency
- U.S. Soccer Federation Referee; NISOA/NCAA Soccer Referee
- 1996 U.S. Figure Skating Association Masters Pairs Champion
- Married (Monica), Two children (Aren, 28 and Jennifer, 26)