

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
15 February 2001 (15.02.2001)

PCT

(10) International Publication Number
WO 01/11507 A1(51) International Patent Classification⁷: G06F 17/40,
17/60, H04Q 7/20, H04M 11/00

(21) International Application Number: PCT/US00/19569

(22) International Filing Date: 11 August 2000 (11.08.2000)

(25) Filing Language: English

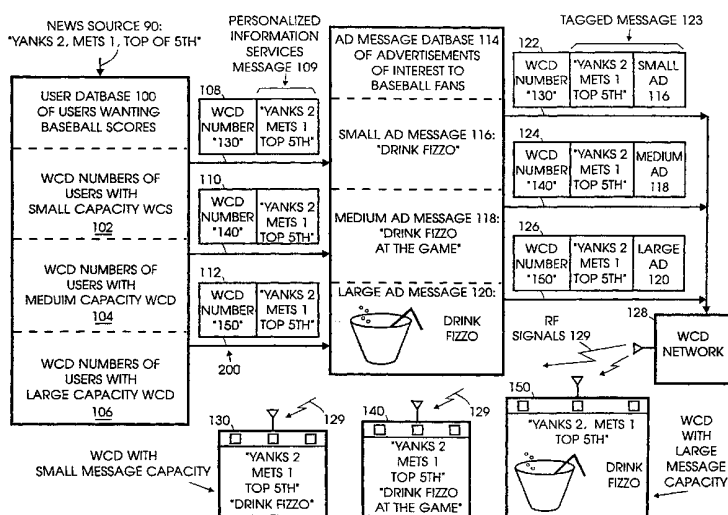
(26) Publication Language: English

(30) Priority Data:
09/371,901 11 August 1999 (11.08.1999) US(71) Applicant: I3 MOBILE, INC. [US/US]; Katzman, Alan,
3rd floor, 181 Harbor Drive, Stamford, CT 06902 (US).(72) Inventors: UNNOLD, Robert, M.; 52 Lanark Road,
Stamford, CT 06902 (US). KLEIN, Jeffrey, N.; 416 Twin
Creek Drive, Hurst, TX 76053 (US). FORBES, Michael,
S.; 231 Hoyt Street, Darien, CT 06820 (US).(74) Agents: HOEL, John, E. et al.; Morgan & Finnegan,
L.L.P., 345 Park Avenue, New York, NY 10154-0053 (US).(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE,
DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,
ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,
TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).**Published:**

— With international search report.

*For two-letter codes and other abbreviations, refer to the "Guide-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: A METHOD TO PROVIDE ADVERTISING MESSAGES TO WIRELESS COMMUNICATIONS DEVICES



(57) Abstract: A system and method are disclosed to automatically provide Advertising Messages (116, 118, 120) to wireless communications devices (WCD). Each Advertising Message is attached to a Personal Information Services message (109) which is of interest to a user. The composite Tagged Message (123) is customized to fit within the message capacity of the user's wireless communications device. A user profile database (100) includes user records for each user, including the identity of Personal Information Services of interest to that user, the message capacity of the user's WCD (102, 104, 106), the demographic characteristics, geographic location, and buying habits, of the user, and other information. An Advertising Message database (114) includes advertiser records for each advertiser. Each advertiser record includes the advertiser's rules for selecting a user to whom

an Advertising Message is to be sent. The rules in the Advertising Message database include the identity of one or more Personal Information Services that the advertiser uses to select users to contact. The rules in the Advertising Message database (114) also include the demographic characteristics, geographic location, buying habits, and/or other selection criteria of the class of users that the advertiser wants to contact. Advertising Messages (116, 118, 120) are selected based upon the personal characteristics attributed to the User and the informational content of the Personal Information Services message (109). This enables the advertiser to flexibly change the criteria for selecting users based on many factors. Each advertiser record in the Advertising Message database (114) also includes Advertising Messages for one or more of the advertiser's products or services to be advertised. For each such product or service, several Advertising Messages (116, 118, 120) are included in the record, one for each of the several sizes of message capacity possible for a user's WCD.

A Method To Provide Advertising Messages To Wireless Communications Devices

5 **Field of the Invention**

The invention disclosed broadly relates to telecommunications and advertising, as in the combination of a content or a personal message with an advertisement for delivery to a wireless communications device.

10

Background Of The Invention

The following definitions of terms used herein will be helpful to the reader in understanding the background of the invention and the invention itself:

- 15 • “ADMATTs” – is an acronym for Advanced Data Mining Advertising Tag and Transaction system, which is the name of the invention disclosed herein.
- “WCD” – is an acronym for Wireless Communications Device, which refers to wireless mobile phones, alphanumeric pagers, personal digital assistants, and other digital wireless devices.
- 20 • “Personalized Information Services” – refers to a service that delivers information or content to an individual based on that individual’s preset requirements or on-demand requests. This includes, for example, the final score of a favorite baseball team’s game, a stock price at noon each business day, an email from the boss, a calendar appointment, etc.
- 25 • “Advertising Message” – refers to a message that contains an advertisement and/or control commands for how an advertisement is to be displayed or handled by the WCD.
- “Tagged Message” - refers to a composite Tagged Message which includes both a Personalized Information Service message and an Advertising Message.
- 30 • “User” – is a person who uses a WCD.

Advertising Messages which are selectively matched with Personalized Information Services and delivered as Tagged Messages to a User's WCD, will become a powerful and effective way to reach the User with relevant advertisements, one that has not existed prior to the ADMATTs invention.

5

The inclusion of advertising content with wireless information is a new departure in delivering the advertiser's message to the public, one that is significantly different from that provided by preexisting print media and electronic media. In the future, the extent of advertising delivered by advertisers through this new wireless medium will grow exponentially with the rapid market penetration of WCDs. The wireless medium is unique among electronic media in that it combines the mobility of radio with the potential to deliver individually targeted Advertising Messages, as in direct mail or the Internet. In addition, the wireless medium provides interactivity through an instant means of User requests and responses. Advertisers will be attracted to the wireless medium for its unique ability to deliver active, personalized content to targeted individuals, independent of their location. An active, not passive, method of content delivery means that messages will be read and will more likely be committed to the User's long term memory. While the message size available for WCDs (and the networks they utilize) is limited when compared to other media, advertisers will be able to purchase wireless advertisements in creative, highly effective ways, enabling compelling advertising to be created. Once advertisers understand the new wireless medium, they will develop new techniques, response mechanisms and demands for wireless advertising, leading to a dynamic growth of wireless advertising and its capabilities.

Most Users will accept Advertising Messages with their Personalized Information Services, especially in exchange for subsidized Personalized Information Services. Advertisers and agencies will approach wireless from a "new medium" rather than as a "traditional medium", and they will develop new, creative approaches suited to wireless delivery which will compete for funds in the advertiser's budget that might otherwise be allocated to the Internet. Wireless advertising will serve equally well for brand/awareness advertising and direct marketing. It will build customer relationships, provide customer

30

services, generate electronic sales, efficiently deliver marketing messages to appropriate prospects, and deliver mass customization and interactive/direct marketing. Wireless advertising will perform effectively on its own, or as part of an integrated campaign to reach consumers across multiple media (e.g., using WCDs to direct targeted Users to Internet sites or television programming). Wireless advertising will not be traffic-driven, as is Internet advertising. Instead, its reach will be based on the known number of Users receiving these Personalized Information services and the associated Advertising Messages.

Delivery technology will improve with time, perhaps driven by the advertising demands. Future WCD capabilities could include bitmap images, animations, and greater character lengths, as WCDs become available with increased message storage and display capacities.

There are several problems that need to be solved in this area. One problem is how to automatically provide Advertising Messages to WCDs having diverse message capacities. For example, some WCDs can receive 240 character messages, while other WCDs are only capable of receiving 100 characters. This problem would be compounded if the advertiser were to attempt to combine the Advertising Message with Personal Information Services messages having diverse character lengths. Another problem is how to automatically provide meaningful Advertising Messages to a User's WCD, which are effective for the advertiser and of interest to the User. For example, an advertiser who wants to promote a new line of ski boots has a preference for selecting Users who are interested in skiing. In another example, an advertiser who wants to promote a soft drink prefers to deliver an advertisement when the temperature outside is hot.

Summary of the Invention

These and other problems are solved by the ADMATTs invention disclosed herein. The ADMATTs invention receives Personal Information Service messages, either on a prearranged schedule or when specified events occur. Users can either subscribe to

Personal Information Services or they may have the benefit of receiving certain Personal Information Services for free.

The ADMATTs invention is a method, system, method of doing business, and a
5 computer readable article of manufacture to automatically combine Personal Information
Service messages with Advertising Messages to create composite Tagged Messages. The
invention applies customized rules defined by the advertiser to select an appropriate
Advertising Message based upon the personal characteristics attributed to the User and
the informational content of the Personal Information Services message. The invention
10 selectively matches each Advertising Message with each Personalized Information
Service message, which are combined and delivered as a composite Tagged Message over
the wireless medium to the User's WCD. The invention considers the number of
characters in a Personal Information Services message when selecting an Advertising
Message to combine with it. The invention also considers the message capacity of the
15 User's WCD when selecting an Advertising Message to combine with a given sized
Personal Information Service message, so that the composite Tagged Message is not
larger than can be received by the WCD.

The ADMATTs invention employs a User profile database containing User
20 records which identify which Personal Information Services each User is to receive. When
a particular Personal Information Service message is ready to be distributed, either by
schedule or by the occurrence of an event, the User profile database is searched for those
Users eligible to receive the Personal Information Service message. Each User record
also contains the personal characteristics of the User which may be important to
25 advertisers in classifying the User as a suitable recipient of an Advertising Message. One
of the characteristics contained in each User record is the message capacity of the User's
WCD. The User record may include pointers to other records or databases containing
personal characteristics of the User.

30 The ADMATTs invention maintains an advertising message database containing
Advertiser records for each advertiser. Each advertiser record includes a set of

customized rules specified by the advertiser. The advertiser rules identify the types of Personal Information Service messages with which the advertiser wants to associate an Advertising Message. The advertiser rules also identify the personal characteristics of those Users whom the advertiser wishes to receive an Advertising Message. Each
5 advertiser record includes a set of Advertising Messages of diverse sizes. The advertiser record may include pointers to other records or databases containing sets of Advertising Messages.

The size of the Personal Information Service messages received by the ADMATTs
10 invention varies. One example sequence of Personal Information Services messages is the title and first sentence extracted from a sequence of sports stories taken off a national sports news wire service. A User can subscribe to messages from the sports news wire about all reported sports or about specific sports or teams. A Personal Information Service message formatter can be used to limit the maximum size of Personal Information
15 Service messages to be processed by the ADMATTs invention. .

For a particular Personal Information Service message to be distributed, User records are selected in a first round sort, that specify those Users eligible to receive the particular Personal Information Service message. Then advertiser records are selected
20 having rules that identify the particular Personal Information Service type. Then for each selected advertiser record, User records from the first round sort are selected in a second round sort for those specifying personal characteristics that match the customized rules specified by the advertiser which identify the personal characteristics of those Users whom the advertiser wishes to reach. Then, Advertising Message selection rules are
25 applied to the information content of the Personal Information Services message. The Advertising Message selection rules, if satisfied, specify a set of Advertising Messages. Then each User having a User record selected from the second round sort is designated to receive an Advertising Message from the set. The selection of which Advertising Message to send from the set depends upon the number of characters in the Personal Information
30 Services message and upon the message capacity of the User's WCD which is specified in the User's record. An Advertising Message is selected which, when combined with the

particular Personal Information Service message, forms a composite Tagged Message that is not larger than the message capacity of the User's WCD. The Tagged Message is then combined with necessary control information and transmitted over the wireless medium to the User's WCD.

5

The step of applying an advertiser's selection rules to the information content of the Personal Information Services message is carried out as follows. A preference rule specified by the advertiser is applied which includes a trigger condition set to fire when a specified value of a specified event type is reported in a Personal Information Services message. Then the occurrence of a description of the specified event type is detected in a received Personal Information Services message. The description of the specified event type is then compared the with the specified value of the specified event type in the rule. If the comparing step is satisfied, then the rule's trigger condition is fired. The rule specifies a set of advertising messages to be selected when the trigger condition is fired. Typically, these Advertising Messages have substantially the same theme that the advertiser wishes to convey, but they are of diverse sizes. Then a particular one of the Advertising Messages in the set is chosen, which when combined with the Personal Information Services message, forms a Tagged Message that is not larger than the User's WCD.

15
20

The selection of which Advertising Message to send depends upon the informational content in the Personal Information Services message. For example, a soft drink company wishes to advertise their product(s) to Users when the weather is very hot. A User's preference for a Personal Information Service includes receiving a midday weather forecast each day. It is noon, and the User is about to be sent a midday weather forecast based on a predetermined schedule for delivery of such information as a Personalized Information Service. The current weather forecast includes information that the high temperature will be 92 degrees. The Personal Information Service message is: "Central City forecast this afternoon is for temperatures to reach a high of 92 degrees." In accordance with the ADMATTs invention, the system uses a set of preference rules specified by the advertiser. The rules include a trigger set to fire when the current weather

25
30

forecast reports a high temperature over 90 degrees. When the rule's trigger fires, this Personal Information Service message is matched with a selected set of Advertising Messages of diverse lengths. The selection of which Advertising Message to send depends upon the number of characters in the Personal Information Services message and
5 upon the message capacity of the User's WCD. The resulting selected Advertising Message is: "Have an ice cold Fizzo soda." The resulting composite Tagged Message is: "Central City forecast this afternoon is for temperatures to reach a high of 92 degrees. * Have an ice cold Fizzo soda."

10 The User profile database includes a record for each individual User. Each User record includes information characterizing the User. The information includes demographic data such as geographic location, sex, age range, and income range. The information also includes the identify of Personal Information Services such as a daily weather forecast for Central City, a daily Aries horoscope, etc. In addition, the
15 information includes the message capacity of the User's WCD. The Advertising Message database includes a record for each advertiser. Each advertiser record includes the Advertising Message and the advertiser's rules concerning how each advertisement is to be used. The rules include the description of desired Personal Information Service message types and the content of each Advertising Message. The rules in the Advertising
20 Message database also include the demographic characteristics, geographic location, buying habits, and/or other selection criteria for those Users whom the advertiser wishes to contact. The invention enables the advertiser to flexibly change the criteria for selecting Users based on a variety of factors.

25 Each advertiser record in the Advertising Message database also includes Advertising Messages for one or more of the advertiser's products or services to be advertised. For each such product or service, several Advertising Messages can be included in the record, one for each of the several sizes of message capacity possible for a WCD.

30

The size of the Personal Information Service message is subtracted from the size of the message capacity of the WCD to obtain the maximum size of the Advertising Message that can be sent. The chosen Advertising Message is then attached to the Personal Information Service message to form a Tagged Message whose size is not
5 greater than the message capacity of the WCD. The Tagged Message is then output by the ADMATTs invention for delivery to the WCD.

If more than one Advertising Message is eligible to be sent to a particular User, several options are used to choose which Advertising Message is sent. One option is to
10 assign a relative priority value to each Advertising Message in an advertiser record. Another option is to keep a track of the frequency that this particular Advertising Message has been sent to this particular User, by means of recording that frequency in a field in the User's record. Still a third option is to comply with strategic contractual requirements or urgent tactical requests of the advertiser to favor one Advertising Message over another.

15

If more than one advertiser is eligible to advertise to a particular User, several options are used to choose which Advertising Message is sent. One option is to assign a relative priority value to each advertiser which can be based on information in each advertiser record, such as contractual requirements, most favored status based on volume
20 of business, or other factors which can be recorded in the advertiser record. The frequency that this particular advertiser's products have been advertised to this particular User can also be a factor, this frequency being recorded in a field in the User's record. In the final analysis if all conditions are substantially equal, the invention provides for random assignment of those Advertising Messages that qualify for a particular User.

25

Another example of a Personal Information Services message is an email or a notice of a previously scheduled calendar appointment. If the information type is "email" or if the information type is "calendar", then the User is identified as the addressee of the email or the notice of the calendar appointment. Then the User's record is accessed and
30 the data in the User record is passed to the Advertising Message database, as described above. The User can provide an email sender filter that passes only those emails having

senders who have sending addresses previously specified by the User, such as the User's boss or spouse. The body of the email message or the notice of a calendar appointment is the Personal Information Services message.

- 5 The resulting invention enables Advertising Messages to be automatically provided to WCDs having diverse message capacities in a meaningful manner.

Description of the Figures

- 10 Figure 1 shows a simplified functional block diagram of the ADMATTs invention which automatically provides advertising messages to WCDs having diverse message capacities. The example shown is for Users wanting baseball scores.

- Figure 2 shows a more detailed functional block diagram of the ADMATTs
15 invention of Figure 1, illustrating the User profile database and the advertising message database which includes the advertiser's rules for selecting a User to whom an Advertising Message is to be sent.

- Figure 3 shows a functional block diagram of an alternate embodiment of the
20 ADMATTs invention shown in Figure 1, wherein the user profile database includes information on the size of the message capacity of the user's WCD. The example shown is for users wanting baseball scores.

- Figure 4 shows a functional block diagram of the preferred embodiment of the
25 ADMATTs invention, wherein the user profile database includes the identity of the Personal Information Services of interest to the user and the ad message database includes information on the identity of Personalized Information Services in the advertiser's rules for selecting a user to whom an advertising message is to be sent. The example shown is for plural news sources and for users wanting diverse types of information.

30

Figure 5 shows a flow diagram of the sequence of operational steps in the preferred embodiment of the ADMATTs invention of Figure 4, to provide advertising messages to WCDs having diverse message capacities.

5 Figure 6 is a functional block diagram of an example data processor programmed to carry out methods of the ADMATTs invention.

Figure 7 shows a flow diagram 700 of the sequence of operational steps in another embodiment of the ADMATTs invention of Figure 4, to provide many options to the
10 advertiser for making tagging decisions in selecting Advertising Messages.

Figures 8A and 8B show how two different sized Personal Information Services messages are matched with two different sized Advertising Messages to form substantially the same sized Tagged Messages for a 240-character WCD.

15

Figures 8C and 8D show how the two Personal Information Services messages of Figures 8A and 8B, respectively, are matched with two different sized Advertising Messages to form Tagged Messages for a 200-character WCD, that are smaller than the Tagged Messages for the 240-character WCD of Figures 8A and 8B.

20

Discussion of the Preferred Embodiment

The ADMATTs invention is a system and method to provide Advertising Messages to WCDs in a meaningful manner. The principle of the ADMATTs invention
25 is to attach Advertising Messages or “tags” to the Personal Information Service messages that meet the advertiser’s requirements. The Tagged Message is the combination of the Personal Information Service message and the Advertising Message. The Tagged Message is delivered via a wireless communications device network. The Personal Information Service message is delivered to individual users based on personalized
30 information services profiles that the user has created which characterize their personal interests and needs. The Advertising Message content is profiled to deliver the right

message to the right consumer in the right environment. In this discussion the word “tag” when used as a noun, means an Advertising Message and the word “tag” when used as a verb means the act of joining an Advertising Message to a Personal Information Service message, forming a composite Tagged Message.

5

Figure 1 shows a functional block diagram of a simplified embodiment of the system and method to automatically provide Advertising Messages to WCDs having diverse message capacities, in accordance with the ADMATTs invention. The example shown is for users wanting baseball scores. The embodiment in Figure 1 is simplified to illustrate the principle of the ADMATTs invention. A user database 100 receives as an input event information from a news source 90, such as the AP Sports Wire, “YANKS 2, METS 1, TOP OF 5TH”. This is a Personal Information Service message. The user database 100 stores the identity of users of the news source 90 who want to receive baseball scores such as this, as Personal Information Service message 109. The Advertising Message database 114 stores Advertising Messages 116, 118, and 120 which the advertisers hope will be of interest to baseball fans. The principle of the ADMATTs invention is to use a programmed data processor associated with the databases to attach an Advertising Message 116, 118, or 120 to the Personal Information Services message 109. The composite Tagged Message 123 is the combination of the Advertising Message 116, for example, and the Personal Information Services message 109. The composite Tagged Message 123 is assembled with the WCD number “130” for the user and is delivered via a WCD network 128 using radio frequency (RF) signals 129 to the user’s WCD 130, for example.

In the simplified embodiment of Figure 1, user database 100 includes user records for each user. Each user record includes the message capacity of the user’s WCD. Segment 102 of the user database 100 stores user records with the user’s WCD number 130, for example, and an indication that the user has a small capacity WCD. Segment 104 of the user database 100 stores user records with the user’s WCD number 140, for example, and an indication that the user has a medium capacity WCD. Segment 106 of the user database 100 stores user records with the user’s WCD number 150, for example, and an indication that the user has a large capacity WCD. When a stream of event information

is received from news source 90, it is processed by the programmed data processor associated with the user database. The user database is automatically searched for those users who have an interest in baseball scores from news source 90. The data in the user record of each matched user is then passed to the Advertising Message database.

- 5 Segment 102 of the user database 100 outputs to Advertising Message database 114 the user's WCD number 130 and an indication that the user has a small capacity WCD. Segment 104 of the user database 100 outputs to Advertising Message database 114 the user's WCD number 140 and an indication that the user has a medium capacity WCD. Segment 106 of the user database 100 outputs to Advertising Message database 114 the
10 user's WCD number 150 and an indication that the user has a large capacity WCD. The WCD numbers are generally referred to by the collective reference numeral 200.

- In the simplified embodiment of Figure 1, the Advertising Message database 114 includes advertiser records 116, 118, and 120 for each advertiser, such as the Fizzo
15 Beverage Company. Each advertiser record in the Advertising Message database 114 includes Advertising Messages for one or more of the advertiser's products or services to be advertised. For each such product or service, several Advertising Messages are included in the record, one for each of the several sizes of message capacity possible for a user's WCD. The Fizzo Company's advertiser record includes small Advertising
20 Message 116 "DRINK FIZZO", for those user alphanumeric WCDs 130 that have a small message capacity. The Fizzo Company's advertiser record includes medium Advertising Message 118 "DRINK FIZZO AT THE GAME", for those user alphanumeric WCDs 140 that have a medium message capacity. The Fizzo Company's advertiser record includes large Advertising Message 120 "DRINK FIZZO" and a graphic logo, for those user
25 WCDs 150 that have a large message capacity. The Advertising Message database 114 is automatically searched for those advertisers who have designated in their advertiser record as a criterion for selection, the particular information news source 90 for baseball scores. For each selected advertiser record, size of the Personal Information Services message content from the particular information news source 90 is subtracted from the
30 size of the message capacity of the user's WCD to obtain the maximum size of the Advertising Message that can be sent. The chosen Advertising Message, for example the

small Advertising Message 116, is attached to the Personal Information Services message 109 to form a composite Tagged Message 123 whose size is not greater than the message capacity of the user's WCD 130. The composite Tagged Message is then combined with the WCD number "130" to form the packet 122 which is output by the programmed data processor to the WCD RF network 128 for transmission by the RF signals 129 to the user's WCD 130. If the medium Advertising Message 118 had been selected, then a composite Tagged Message is formed with the Personal Information Services message 109 and then combined with the WCD number "140" to form the packet 124, which is output to the RF network 128. If the large Advertising Message 120 had been selected, then a composite Tagged Message is formed with the Personal Information Services message 109 and then combined with the WCD number "150" to form the packet 126 which is output to the RF network 128.

The varied nature of message character string lengths accepted by wireless networks requires a flexible approach to the creation and delivery of wireless Advertising Messages. Some Personal Information Services (i.e. Sports Scores, Stock Quotes, and the like) feature fixed character string lengths for Personal Information Services messages. Other Personal Information Services (i.e. Sports News Wire, Weather Forecasts, and the like) have variable character string lengths for Personal Information Services messages. Therefore, to accommodate the variety of WCD message capacities, the Advertising Messages to be joined must be selected from several general Advertising Message length specifications. For example, sports scores with a fixed length of 30 characters would be joined with an Advertising Message having a character string length selected from the following table of example lengths (Length includes text and spaces):

25

Advertising Message	Character String Length
A	20
B	40
C	60
D	80

The example message capacities of some WCDs are as follows:

The AT&T Digital Phone: 150 Characters

Models of the Motorola alphanumeric pager: 80, 120, 200, and 240 characters.

A Personal Digital Assistant (typical): 1024 or more characters.

5

Figure 2 shows a more detailed functional block diagram of the system and method of Figure 1, illustrating the user profile database 202 and the advertising message database 114 which includes the advertiser's rules 210, 210A, and 210B for three different advertisers, the rules being used for selecting a user to whom an Advertising Message is to be sent. The user profile database 202 includes user records USER 1 and USER 2 for each user. Each user record includes the demographic characteristics, geographic location, and buying habits, of the user, and other information. In the example of Figure 2, each user's profile includes the user's sex, age, whether blue collar or white collar, whether rural or urban, and whether the user has a buying history of tobacco products. The user's WCD number 200 is input to the user profile database 202.

The Advertising Message database 114 includes advertiser records for each advertiser, the Fizzo Beverage Company, The Lightnin Automobile Company, and the Gordo Cigar Company. Each advertiser record includes the advertiser's rules for selecting a user to whom an Advertising Message is to be sent. In the example of Figure 2, rules 210, 210A, and 210B each include search criteria for the date of transmission of the ad, sex of the user, age of the user, demographic characteristics of the user, location of the user, and buying history of the user. The ADMATTs invention enables the advertiser to flexibly change the criteria for selecting users based on many factors.

25

Each advertiser record in the Advertising Message database also includes Advertising Messages for one or more of the advertiser's products or services to be advertised. For each such product or service, several Advertising Messages are included in the record, one for each of the several sizes of message capacity possible for a user's WCD. The Fizzo Beverage Company's advertiser record includes small Advertising Message 116 "DRINK FIZZO", for those user alphanumeric WCDs 130 that have a small

30

message capacity. The Fizzo Company's advertiser record includes medium Advertising Message 118 "DRINK FIZZO AT THE GAME", for those user alphanumeric WCDs 140 that have a medium message capacity. The Fizzo Company's advertiser record includes large Advertising Message 120 "DRINK FIZZO" and a graphic logo, for those user

5 WCDs 150 that have a large message capacity. The Lightnin Automobile Company's advertiser record includes small Advertising Message 116A "DRIVE A LIGHTNIN", for those user alphanumeric WCDs 130 that have a small message capacity. The Lightnin Company's advertiser record includes medium Advertising Message 118A "DRIVE A LIGHTNIN CAR OF THE YEAR", for those user alphanumeric WCDs 140 that have a

10 medium message capacity. The Lightnin Company's advertiser record includes large Advertising Message 120A "LIGHTNIN STRIKES" and a graphic logo, for those user WCDs 150 that have a large message capacity. The Gordo Cigar Company's advertiser record includes small Advertising Message 116B "SMOKE A GORDO", for those user alphanumeric WCDs 130 that have a small message capacity. The Gordo Company's

15 advertiser record includes medium Advertising Message 118B "SMOKE A GORDO THE BIG MAN'S CIGAR", for those user alphanumeric WCDs 140 that have a medium message capacity. The Gordo Company's advertiser record includes large Advertising Message 120B "MAKE MINE A GORDO" and a graphic logo, for those user WCDs 150 that have a large message capacity.

20

The Advertising Message database 114 is automatically searched for those advertisers who have designated in their advertiser record as a criterion for selection, the particular information news source 90 for baseball scores. For each selected advertiser record, size of the Personal Information Services message content from the particular

25 information news source 90 is subtracted from the size of the message capacity of the user's WCD to obtain the maximum size of the Advertising Message that can be sent. The chosen Advertising Message, for example the small Advertising Message 116, is attached to the Personal Information Services message 109 to form a composite Tagged Message 123 whose size is not greater than the message capacity of the user's WCD 130.

30 The composite Tagged Message is then combined with the WCD number "130" to form the packet 122 which is output by the programmed data processor to the WCD RF

network 128 for transmission by the RF signals 129 to the user's WCD 130. If the medium Advertising Message 118 had been selected, then a composite Tagged Message is formed with the Personal Information Services message 109 and then combined with the WCD number "140" to form the packet 124, which is output to the RF network 128. If
5 the large Advertising Message 120 had been selected, then a composite Tagged Message is formed with the Personal Information Services message 109 and then combined with the WCD number "150" to form the packet 126 which is output to the RF network 128.

Figure 3 shows a functional block diagram of an alternate embodiment of the
10 ADMATTs invention shown in Figure 1, wherein the user profile database 302 includes information on the size of the message capacity of the user's WCD. The example shown is for users wanting baseball scores. The user profile database 302 outputs to the Advertising Message database 114 either a small capacity WCD indication 308, a medium capacity WCD indication 310, or a large capacity WCD indication 312. From that point
15 on, the alternate embodiment of Figure 3 operates in the same manner as the embodiment of Figures 1 and 2.

Figure 4 shows a functional block diagram of the preferred embodiment of the ADMATTs invention, wherein the user profile database 402 includes the identity of the
20 Personal Information Services, "BASEBALL" or "TENNIS FINALS" to be provided to the user and the ad message database 414 includes information on the identity of Personal Information Services "SERVICE" in the advertiser's rules 410, 410A, and 410B for selecting a user to whom an Advertising Message is to be sent. The example shown is for plural news sources 490, in this example BASEBALL and TENNIS FINALS, and for
25 users wanting diverse types of information, in this example BASEBALL or TENNIS FINALS.

The size of the Personal Information Service messages received by the ADMATTs invention varies. One example sequence of Personal Information Services messages is the
30 title and first sentence extracted from a sequence of sports stories taken off a national sports news wire service. A User can subscribe to messages from the sports news wire

about all reported sports or about specific sports or teams. A Personal Information Service message formatter can be used to limit the maximum size of Personal Information Service messages to be processed by the ADMATTs invention. .

5 In Figure 4, when a stream of event information is received from a particular information source, it is processed by a programmed data processor associated with the user profile database 402 and the Advertising Message database 414. The user profile database 402 is automatically searched for those users who are to be provided with that particular information source, such as BASEBALL for USER 1. The data in the user
10 record of each matched user is then passed to the Advertising Message database 410 over path 406. The Advertising Message database 414 is automatically searched for those advertisers who have designated in their advertiser record as a criterion for selection, the particular Personal Information Services that includes BASEBALL, such as the designation ANY for the Fizzo Company. For each selected advertiser record, a
15 comparison is made between the advertiser's stated selection criteria in the advertiser's rules 410, 410A and 410B and the data in the user profile. When all of the selection criteria in the advertiser rules have been matched with the data in a particular user profile, then that user is selected for receiving a wireless Advertising Message from the advertiser. The size of the Personal Information Services message content 109 from the particular
20 information source is subtracted from the size of the message capacity of the user's WCD 130, for example, to obtain the maximum size of the Advertising Message that can be sent. The chosen Advertising Message 116, for example, is attached to the Personal Information Services message 109 to form a composite Tagged Message 123 whose size is not greater than the message capacity of the user's WCD 130. The composite Tagged
25 Message 123 is then output with the WCD number "130", as the packet 122 by the programmed data processor to a WCD network 128 for delivery to the user's WCD 130.

When a media buy is made, targeting information is transmitted by email to the ADMATTs invention by the advertiser over the "ADVERTISER EMAIL INPUT 450" to
30 the "Advertising Message Database 414" in Figure 4. Default Advertising Message content is also required at the time of buy and entered into "Advertising Message

Database 414" in Figure 4. The advertiser may supply new Advertising Message content over the "ADVERTISER EMAIL INPUT 450" up until the day before the buy to replace the default content. Otherwise the default content will be run to form the composite Tagged Messages for that day. This enables advertisers to deliver Advertising Message content in a "just in time" mode. It is possible to provide this function in real time, enabling the advertiser to switch Advertising Message content while a buy is running and composite Tagged Messages are being prepared by the ADMATTs invention.

Figure 5 shows a flow diagram 500 of the sequence of operational steps in the preferred embodiment of the ADMATTs invention of Figure 4, to provide Advertising Messages to WCDs having diverse message capacities.

In step 502 of Figure 5, when a stream of event information is received from a particular information source, it is processed by a programmed data processor associated with the user profile database and the Advertising Message database.

In step 504 of Figure 5, the user profile database is automatically searched for those users who will receive that particular Personal Information Services.

In step 506 of Figure 5, the data in the user record of each matched user is then passed to the Advertising Message database.

In step 508 of Figure 5, the Advertising Message database is automatically searched for those advertisers who have designated in their advertiser record as a criterion for selection, the particular Personal Information Services.

In step 510 of Figure 5, for each selected advertiser record, a comparison is made between the advertiser's stated selection criteria in the advertiser's rules and the data in the user profile.

In step 512 of Figure 5, when all of the selection criteria in the advertiser rules have been matched with the data in a particular user profile, then that user is selected for receiving a wireless Advertising Message from the advertiser.

5 In step 514 of Figure 5, the size of the Personal Information Services message content from the particular information source is subtracted from the size of the message capacity of the user's WCD to obtain the maximum size of the Advertising Message that can be sent.

10 In step 516 of Figure 5, the chosen Advertising Message is attached to the Personal Information Services message to form a composite Tagged Message whose size is not greater than the message capacity of the user's WCD.

15 In step 518 of Figure 5, the composite Tagged Message is then output by the programmed data processor to a WCD network for delivery to the user's WCD.

The flow diagram of Figure 5 then returns to step 502, to wait for the next stream of event information to be received from an information source.

20 If more than one product or service of a particular advertiser is eligible to be sent to a particular user, several options are used to choose which Advertising Message is sent. One option is to assign a relative priority value to each product in an advertiser record. Another option is to keep a track of the frequency that this particular product has been advertised to this particular user, by means of recording that frequency in a field in the user record. Still a third option is to comply with strategic contractual requirements or
25 urgent tactical requests of the advertiser to favor one product over another.

 If more than one advertiser is eligible to have products advertised to a particular user, several options are used to choose which Advertising Message is sent. One option is
30 to assign a relative priority value to each advertiser which can be based on information in each advertiser record, such as contractual requirements, most favored status based on

volume of business, or other factors which can be recorded in the advertiser record. The frequency that this particular advertiser's products have been advertised to this particular user can also be a factor, this frequency being recorded in a field in the user record.

5 Figure 6 is a functional block diagram of an example data processor 600 programmed to carry out the methods of the ADMATTs invention. The data processor 600 includes the memory 602 connected by the bus 604 to the user profile database 402, the advertising message database 414, the I/O adapter 609, the I/O adapter 610, and the CPU processor 612. The I/O adapter 609 receives the plural news sources 490. The I/O
10 adapter 609 is also connected to the Internet, to receive advertiser email input 450 and to receive email from other senders, such as the User's boss or spouse. The I/O processor 610 sends the message packets 122, 124, and 126 to the WCD network 128. The memory 602 includes an operating system program 620. The memory 602 includes an application program 500' which is a sequence of executable instructions that, when executed in the
15 CPU processor 612, carries out the method of the invention as set forth in the flow diagram 500 of Figure 5. The memory 602 includes an application program 700' which is a sequence of executable instructions that, when executed in the CPU processor 612, carries out the method of the invention as set forth in the flow diagram 700 of Figure 7. The memory 602 includes a an advertiser buffer 622 that buffers an advertiser record for
20 the advertiser "FIZZO" from the advertising message database 414. The advertiser buffer 622 includes the rules buffer 624 which buffers the advertiser's rules 410. The memory 602 includes the small ad buffer 626 which buffers the small ad 116. The memory 602 includes the medium ad buffer 628 which buffers the medium ad 118. The memory 602 includes the large ad buffer 630 which buffers the large ad 120. The memory 602 also
25 includes the user profile buffer 632 which buffers a user record for the user "USER 1" from the user profile database 402. The memory 602 also includes the plural news sources buffer 634 which buffers Personalized Information Services messages received from news sources, and the like. The size of the Personal Information Service messages received by the ADMATTs invention varies. One example sequence of Personal Information Services
30 messages is the title and first sentence extracted from a sequence of sports stories taken off a national sports news wire service. A User can subscribe to messages from the sports

news wire about all reported sports or about specific sports or teams. A Personal Information Service message formatter 636 can be used to limit the maximum size of Personal Information Service messages to be processed by the ADMATTs invention.

5 Figure 7 shows a flow diagram 700 of the sequence of operational steps in the another embodiment of the ADMATTs invention of Figure 4, to provide many options to the advertiser for making tagging decisions in selecting Advertising Messages.

10 In step 702 of Figure 7, when a stream of event information is received from a particular information source, it is processed by a programmed data processor associated with the user profile database and the Advertising Message database.

Example pseudo code for this step is:

15 [1] GET NEXT EVENT INFORMATION
 [2] PARSE AND INTERPRET TYPE OF INFORMATION AND BUFFER
 PERSONAL INFORMATION SERVICES MESSAGE
 [3] IF INFORMATION TYPE = EMAIL OR INFORMATION TYPE =
 CALENDAR, THEN SET USER = ADDRESSEE, ACCESS USER RECORD, AND
20 GOTO STEP 708

 An example of the event information received from a national sports wire source is: "BASEBALL - YANKEES 11, MARINERS 8 - THE YANKEES CAME UP WITH AN 11-8 VICTORY OVER THE MARINERS IN A LONG GAME THAT TURNED
25 UGLY IN THE LAST TWO INNINGS WITH A BENCH-CLEARING BRAWL."

 This example event information consists of the name of the sport, the headline, and the first sentence of the article received from the national sports wire. The event information is parsed for the INFORMATION TYPE which is the first field containing
30 the name of the sport, i.e., "BASEBALL" which is interpreted using a stored dictionary, to mean the sport of baseball. If the message type were not located at a predetermined

position in the event information, as it is in this example, then each word of the event information would be interpreted using a stored dictionary to classify the information type. The balance of the event information in this example is the PERSONAL INFORMATION SERVICES MESSAGE, which is buffered.

5

Another example of event information is an email or a notice of a previously scheduled calendar appointment. If the information type is EMAIL or if the information type is CALENDAR, then the User is identified as the addressee of the email or the calendar appointment. Then the User's record is accessed, the data in the User record is
10 passed to the Advertising Message database, and the data flow goes to step 708. The User can provide an email sender filter that passes only those email senders who have email sending addresses previously specified by the User, such as the User's boss or spouse. The body of the email message or the notice of a calendar appointment is the PERSONAL INFORMATION SERVICES MESSAGE, which is buffered.

15

In step 704 of Figure 7, the user profile database is automatically searched for those users who will receive that particular Personal Information Services.

Example pseudo code for this step is:

20

```
[4] ACCESS A USER RECORD  
[5] GET USER SUBSCRIPTION DATA FROM RECORD  
[6] COMPARE USER SUBSCRIPTION DATA TO INFORMATION TYPE  
[7] IF COMPARE SATISFIED, THEN SELECT THIS USER RECORD,  
25 ELSE ACCESS NEXT USER RECORD AND REPEAT THE GET / COMPARE  
STEPS,  
ELSE IF NO MORE USER RECORDS, THEN GOTO STEP 702
```

In step 706 of Figure 7, the data in the user record of each matched user is then
30 passed to the Advertising Message database.

In step 708 of Figure 7, the Advertising Message database is automatically searched for those advertisers who have designated in their advertiser record as a criterion for selection, the particular Personal Information Services.

5 Example pseudo code for this step is:

```

[8] ACCESS AN ADVERTISER RECORD
[9] GET ADVERTISER RULES FROM RECORD
[10] COMPARE ADVERTISER SPECIFIED SERVICE TO INFORMATION
10 TYPE
[11] IF COMPARE SATISFIED, THEN SELECT THIS ADVERTISER
RECORD,
ELSE ACCESS NEXT ADVERTISER RECORD AND REPEAT THE GET /
COMPARE STEPS,
15 ELSE IF NO MORE ADVERTISER RECORDS, THEN GOTO STEP 702
```

In step 710: If advertiser record indicates a Run of Service (ROS) option, then get advertiser's current choice of Advertising Message and GOTO step 740.

20 Example pseudo code for this step is:

```

[12] GET ADVERTISER RULES FROM RECORD
[13] If ROS = RULE, THEN ACCESS ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE AND GOTO STEP 740, ELSE GOTO STEP 712
```

25 In step 712: If advertiser record indicates a Daypart Placement option, then get time of day and access Advertising Message for current time of day and GOTO step 740.

Example pseudo code for this step is:

```

30 [14] GET ADVERTISER RULES FROM RECORD
```


[15] If DAYPART PLACEMENT = RULE, THEN CONTINUE, ELSE GOTO
STEP 714

[16] GET TIME OF DAY

[17] COMPARE ADVERTISER SPECIFIED TIME TO TIME OF DAY

5 [18] IF COMPARE SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE AND GOTO STEP 740

In step 714: If advertiser record indicates a Premium Placement option, then get
advertiser's specification of specific package (i.e. College Sports) or individual service
10 (i.e. NCAA Basketball Final Score) and select Advertising Message from specified
package and GOTO step 740.

Example pseudo code for this step is:

[19] GET ADVERTISER RULES FROM RECORD

15 [20] If PREMIUM PLACEMENT = RULE, THEN ACCESS ADVERTISER'S
SPECIFIED PACKAGE AND ADVERTISING MESSAGE AND GOTO STEP 740,
ELSE GOTO STEP 716

In step 716: If advertiser record indicates an Event Placement option, then get
20 advertiser's specification of specific event (i.e. Final Score: Yankees vs. Red Sox for
August 14, 1998, or Dow Jones Industrial Index reaches 10,000, or All My Children Soap
Opera Update for July 7, 1998, etc.), test for occurrence of specified event, and select
Advertising Message if specified event has occurred and GOTO step 740.

25 Example pseudo code for this step is:

[21] GET ADVERTISER RULES FROM RECORD

[22] If EVENT PLACEMENT = RULE, THEN CONTINUE, ELSE GOTO STEP
718

30 [23] GET TRIGGER CONDITION SPECIFIED EVENT TYPE AND
SPECIFIED VALUE FROM RULE

[24] PARSE AND INTERPRET PERSONAL INFORMATION SERVICES
MESSAGE FOR EVENT TYPE AND MESSAGE VALUE

[25] COMPARE SPECIFIED VALUE TO MESSAGE VALUE

[26] IF COMPARE SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED
5 ADVERTISING MESSAGE AND GOTO STEP 740

An example of this is where the advertiser has specified in the rule that
SPECIFIED EVENT TYPE is "baseball team" and SPECIFIED VALUE is "Yankees".
The Personal Information Services message is searched for the names of baseball teams,
10 using a stored dictionary. Two team names will be found, "YANKEES" and
"MARINERS", which are compared with the SPECIFIED VALUE of "Yankees" in the
rule. The successful compare results in selecting the ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE.

15 In step 718: If advertiser record indicates a Pay Per View Placement option, then
get advertiser's specification of the pay per view Personal Information Services (i.e.
Olympics, etc...), test for the occurrence of the specified pay per view Personal
Information Services, and select the Advertising Message if the pay per view Personal
Information Services is currently occurring and GOTO step 740.

20

Example pseudo code for this step is:

[27] GET ADVERTISER RULES FROM RECORD

[28] IF PAY PER VIEW PLACEMENT = RULE, THEN CONTINUE, ELSE
25 GOTO STEP 720

[29] GET ADVERTISER SPECIFICATION OF THE PAY PER VIEW TYPE OF
PERSONAL INFORMATION SERVICES

[30] PARSE AND INTERPRET PERSONAL INFORMATION SERVICES
MESSAGE FOR PAY PER VIEW TYPE MESSAGE VALUE

30 [31] COMPARE SPECIFIED VALUE TO MESSAGE VALUE

[32] IF COMPARE SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE AND GOTO STEP 740

5 In step 720: If advertiser record indicates an On Demand Placement option, then
determine if User has made a request for a Personal Information Service, get the User's
request, select Advertising Message for User's Personal Information Service request and
GOTO step 740.

Example pseudo code for this step is:

10

[33] GET ADVERTISER RULES FROM RECORD

[34] IF ON DEMAND PLACEMENT = RULE, THEN CONTINUE, ELSE
GOTO STEP 722

[35] TEST FOR RECEIPT OF A USER REQUEST

15

[36] PARSE AND INTERPRET USER REQUEST FOR REQUESTED
PERSONAL INFORMATION SERVICES

[37] COMPARE REQUESTED PERSONAL INFORMATION SERVICES TO
CURRENT PERSONAL INFORMATION SERVICES MESSAGE

20 [38] IF COMPARE SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE AND GOTO STEP 740

In step 722: If advertiser record indicates a Sponsorship option, then get
advertiser's specification of masthead message to be exclusively displayed within the
Personal Information Service (e.g., advertiser will present a message masthead over the
25 Personal Information Service (i.e. "Nike Sports: Yankees 3, ...) in addition to any
Advertising Messages to be combined with the Personal Information Service message and
GOTO step 740.

Example pseudo code for this step is:

30

[39] GET ADVERTISER RULES FROM RECORD

[40] IF SPONSORSHIP = RULE, THEN CONTINUE, ELSE GOTO STEP 724

[41] GET ADVERTISER SPECIFICATION OF MASTHEAD MESSAGE AND
SPECIFIED PERSONAL INFORMATION SERVICE

[42] COMPARE SPECIFIED PERSONAL INFORMATION SERVICES TO
5 CURRENT PERSONAL INFORMATION SERVICES MESSAGE

[43] IF COMPARE SATISFIED, THEN COMBINE MESSAGE MASTHEAD
OVER THE PERSONAL INFORMATION SERVICE MESSAGE AND SELECT
ADVERTISER'S SPECIFIED ADVERTISING MESSAGE AND GOTO STEP 740

10 In step 724: If advertiser record indicates a Response Device Enhancement option,
then get the advertiser's specified "speed dial" Advertising Message to enable the User to
respond from the WCD by calling the "speed dial" number and GOTO step 740.

Example pseudo code for this step is:

15

[44] GET ADVERTISER RULES FROM RECORD

[45] IF RESPONSE DEVICE ENHANCEMENT = RULE, THEN CONTINUE,
ELSE GOTO STEP 726

[46] GET ADVERTISER SPECIFIED "SPEED DIAL" ADVERTISING
20 MESSAGE AND GOTO STEP 740

In step 726: If advertiser record indicates a Demographics option, then get the
User's demographic profile from the User profile database and select the Advertising
Message and GOTO step 740.

25

Example pseudo code for this step is:

[47] GET ADVERTISER RULES FROM RECORD

[48] IF DEMOGRAPHICS = RULE, THEN CONTINUE, ELSE GOTO STEP

30 728

[49] GET USER DEMOGRAPHICS DATA FROM USER RECORD

[50] COMPARE USER DEMOGRAPHICS DATA TO ADVERTISER
SPECIFIED DEMOGRAPHICS CRITERIA IN RULE

[51] IF COMPARE SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE AND GOTO STEP 740

5

In step 728: If advertiser record indicates a Psychographics option, then get the
User's psychographic profile from the User profile database and select the Advertising
Message and GOTO step 740.

10 Example pseudo code for this step is:

[52] GET ADVERTISER RULES FROM RECORD

[53] IF PSYCHOGRAPHICS = RULE, THEN CONTINUE, ELSE GOTO STEP

730

15 [54] GET USER PSYCHOGRAPHICS DATA FROM USER RECORD

[55] COMPARE USER PSYCHOGRAPHICS DATA TO ADVERTISER
SPECIFIED PSYCHOGRAPHICS CRITERIA IN RULE

[56] IF COMPARE SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE AND GOTO STEP 740

20

In step 730: If advertiser record indicates a Frequency to Individuals option, then
get the advertiser's specification of the frequency of Advertising Messages to be sent to a
User, get the count of Advertising Messages sent to a User from the User profile database,
determine whether to send another Advertising Message to the User, and if so, then select
25 an Advertising Message and GOTO step 740.

Example pseudo code for this step is:

[57] GET ADVERTISER RULES FROM RECORD

30 [58] IF FREQUENCY TO INDIVIDUALS = RULE, THEN CONTINUE, ELSE
GOTO STEP 732

[59] GET THE ADVERTISER'S SPECIFICATION OF THE FREQUENCY OF ADVERTISING MESSAGES TO BE SENT TO A USER FROM RULE

[60] GET THE COUNT OF ADVERTISING MESSAGES SENT TO A USER FROM THE USER RECORD

5 [61] COMPARE USER COUNT DATA TO ADVERTISER SPECIFIED FREQUENCY

[62] IF COMPARE SHOWS USER COUNT LESS THAN SPECIFIED FREQUENCY IS SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED ADVERTISING MESSAGE AND GOTO STEP 740

10

In step 732: If advertiser record indicates a Physical Location option, then get the User's location from the User profile database and select an Advertising Message depending on the User's location and GOTO step 740. Alternately, the actual current physical location of the user can be determined from the current location of the nearest
15 wireless base station serving the user's WCD.

Example pseudo code for this step is:

[63] GET ADVERTISER RULES FROM RECORD

20 [64] IF PHYSICAL LOCATION = RULE, THEN CONTINUE, ELSE GOTO STEP 734

[65] GET THE ADVERTISER'S SPECIFICATION OF THE PHYSICAL LOCATION OF USER CRITERION FROM RULE

25 [66] IF RULE SPECIFIES ACTUAL CURRENT PHYSICAL LOCATION OF THE USER, THEN GET CURRENT LOCATION OF THE NEAREST WIRELESS BASE STATION SERVING THE USER'S WCD

[67] IF RULE SPECIFIES USER RECORD AS SOURCE OF LOCATION OF THE USER, THEN GET PHYSICAL LOCATION OF USER FROM THE USER RECORD

30 [68] COMPARE USER LOCATION TO ADVERTISER SPECIFIED LOCATION IN RULE

[69] IF COMPARE IS SATISFIED, THEN SELECT ADVERTISER'S
SPECIFIED ADVERTISING MESSAGE AND GOTO STEP 740

In step 734: If advertiser record indicates an Urgency Buys option, then get the
5 advertiser's specified real-time media buy (e.g., received by email from the advertiser)
and select the Advertising Message and GOTO step 740.

Example pseudo code for this step is:

10 [70] GET ADVERTISER RULES FROM RECORD
[71] IF URGENCY BUYS = RULE, THEN CONTINUE, ELSE GOTO STEP
738

[73] GET THE ADVERTISER'S SPECIFIED REAL-TIME MEDIA BUY
RECEIVED BY EMAIL FROM THE ADVERTISER

15 [74] SELECT ADVERTISER'S SPECIFIED REAL-TIME ADVERTISING
MESSAGE AND GOTO STEP 740

In step 738: If advertiser record indicates a Profile Buy option, then get User's
service use profile (i.e. people who choose both sports and soaps, etc....) from User
20 profile database and/or information supplied by the telecommunications carrier and select
an Advertising Message and GOTO step 740.

Example pseudo code for this step is:

[75] GET ADVERTISER RULES FROM RECORD
25 [76] IF PROFILE BUY = RULE, THEN CONTINUE, ELSE GOTO STEP 740
[77] GET THE ADVERTISER'S SPECIFICATION OF THE SERVICE
PROFILE USER CRITERION FROM RULE

[78] IF RULE SPECIFIES TELECOMMUNICATIONS CARRIER AS SOURCE
OF PROFILE DATA OF THE USER, THEN GET USER PROFILE DATA FROM
30 TELECOMMUNICATIONS CARRIER SERVING THE USER'S WCD

[79] IF RULE SPECIFIES USER RECORD AS SOURCE OF PROFILE DATA OF THE USER, THEN GET PROFILE DATA OF THE USER FROM THE USER RECORD

[80] COMPARE PROFILE DATA OF THE USER TO ADVERTISER
5 SPECIFIED SERVICE PROFILE CRITERION IN RULE

[81] IF COMPARE IS SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED ADVERTISING MESSAGE AND GOTO STEP 740

In step 740 of Figure 7, for each selected advertiser record, a comparison is made
10 between the advertiser's stated selection criteria in the advertiser's rules and both the information content of the Personal Information Services message and the data in the user profile.

Example pseudo code for this step is:

15

[82] IF AN ADVERTISING MESSAGE HAS BEEN SUCCESSFULLY SELECTED, THEN GOTO STEP 742, ELSE GOTO STEP 743.

In step 742 of Figure 7, when all of the selection criteria in the advertiser rules
20 have been matched with the data in a particular user profile, then that user is selected for receiving a wireless Advertising Message from the advertiser.

Example pseudo code for this step is:

25 [83] SELECT THIS USER TO RECEIVE SELECTED ADVERTISING MESSAGE

[84] GOTO STEP 744

In step 743 of Figure 7, the selection criteria in the advertiser rules dealing with
30 the Information Content Of The Personal Information Services Message are then applied to select a particular set of Advertising Messages. Each member of the set of Advertising

Messages has substantially the same theme which the advertiser wishes to convey, but they differ in the number of characters in each message.

5 The step 743 of applying an advertiser's selection rules to the information content
of the Personal Information Services message is carried out as follows. A preference rule
specified by the advertiser is applied which includes a trigger condition set to fire when a
specified value of a specified event type is reported in a Personal Information Services
message. Then the occurrence of a description of the specified event type is detected in a
received Personal Information Services message. The description of the specified event
10 type is then compared the with the specified value of the specified event type in the rule.
If the comparing step is satisfied, then the rule's trigger condition is fired. The rule
specifies a set of advertising messages to be selected when the trigger condition is fired.
Typically, these Advertising Messages have substantially the same theme that the
advertiser wishes to convey, but they are of divers sizes. Then a particular one of the
15 Advertising Messages in the set is chosen, which when combined with the Personal
Information Services message, forms a Tagged Message that is not larger than the User's
WCD.

Example pseudo code for this step is:

20

```
[85] GET ADVERTISER RULES FROM RECORD
[86] IF INFORMATION CONTENT OF THE PERSONAL INFORMATION
SERVICES MESSAGE = RULE, THEN CONTINUE, ELSE SEND PERSONAL
INFORMATION SERVICES MESSAGE WITHOUT AN ADVERTISING MESSAGE
25  AND IF THERE IS A NEXT USER RECORD, THEN GOTO STEP 704,
    ELSE GOTO STEP 702
[87] GET TRIGGER CONDITION SPECIFIED EVENT TYPE AND
SPECIFIED VALUE FROM RULE
[88] PARSE AND INTERPRET PERSONAL INFORMATION SERVICES
30  MESSAGE FOR EVENT TYPE AND MESSAGE VALUE
[89] COMPARE SPECIFIED VALUE TO MESSAGE VALUE
```

[90] IF COMPARE SATISFIED, THEN SELECT ADVERTISER'S SPECIFIED
ADVERTISING MESSAGE AND GOTO STEP 744

For example, a soft drink company wishes to advertise their product(s) to Users
5 when the weather is very hot. A User's preference for a Personal Information Service
includes receiving a midday weather forecast each day. It is noon, and the User is about
to be sent a midday weather forecast based on a predetermined schedule for delivery of
such information as a Personalized Information Service. The current weather forecast
includes information that the high temperature will be 92 degrees. The Personal
10 Information Service message is: "Central City forecast this afternoon is for temperatures
to reach a high of 92 degrees." In accordance with the ADMATTs invention, the system
uses a set of preference rules specified by the advertiser. The rules include a trigger set to
fire when the current weather forecast reports a high temperature over 90 degrees. When
the rule's trigger fires, this Personal Information Service message is matched with a
15 selected set of Advertising Messages of diverse lengths. The selection of which
Advertising Message to send from the set depends upon the number of characters in the
Personal Information Services message and upon the message capacity of the User's
WCD. The resulting selected Advertising Message is: "Have an ice cold Fizzo soda." The
resulting composite Tagged Message is: "Central City forecast this afternoon is for
20 temperatures to reach a high of 92 degrees. * Have an ice cold Fizzo soda."

In step 744 of Figure 7, the size of the Personal Information Services message
content from the particular information source is subtracted from the size of the message
capacity of the user's WCD to obtain the maximum size of the Advertising Message that
25 can be sent.

Example pseudo code for this step is:

[91] GET SIZE OF THE PERSONAL INFORMATION SERVICES MESSAGE
30 [92] GET SIZE OF THE MESSAGE CAPACITY OF THE USER'S WCD
FROM USER RECORD

[93] SUBTRACT SIZE OF THE PERSONAL INFORMATION SERVICES MESSAGE FROM THE SIZE OF THE MESSAGE CAPACITY OF THE USER'S WCD TO OBTAIN THE MAXIMUM SIZE OF THE ADVERTISING MESSAGE THAT CAN BE SENT

5

In step 746 of Figure 7, the chosen Advertising Message is attached to the Personal Information Services message to form a composite Tagged Message whose size is not greater than the message capacity of the user's WCD.

10 Example pseudo code for this step is:

[94] CONCATENATE ADVERTISING MESSAGE TO PERSONAL INFORMATION SERVICES MESSAGE TO FORM A COMPOSITE TAGGED MESSAGE

15

In step 748 of Figure 7, the composite Tagged Message is then output by the programmed data processor to a WCD network for delivery to the user's WCD.

Example pseudo code for this step is:

20

[95] OUTPUT TAGGED MESSAGE TO WCD NETWORK FOR DELIVERY TO USER'S WCD AND IF THERE IS A NEXT USER RECORD, THEN GOTO STEP 704, ELSE GOTO STEP 702

25 The flow diagram of Figure 7 then returns to step 702, to wait for the next stream of event information to be received from an information source.

The example pseudo code set forth above is only one of many ways to implement the flow diagram of Figure 7 for the ADMATTs invention, which is not limited to this
30 example embodiment.

Figure 8A shows a Personal Information Services message “YANKEES 11, MARINERS 8 - THE YANKEES CAME UP WITH AN 11-8 VICTORY OVER THE MARINERS IN A LONG GAME THAT TURNED UGLY IN THE LAST TWO INNINGS WITH A BENCH-CLEARING BRAWL.” This Personal Information Services message has 168 characters. It is matched with an Advertising Message “BE COOL WITH A COOL FIZZO AT THE GAME. TRY THE FLAVOR OF THE MONTH.” This Advertising Message has 67 characters. It is selected by the ADMATTs invention so that the Tagged Message 802 has a total of 236 characters, including a separator symbol “*”, which will fit into the 240-character WCD 804. The use of a separator symbol is optional.

Figure 8A and Figure 8B show how two different sized Personal Information Services messages are matched with two different sized Advertising Messages to form substantially the same sized Tagged Messages for a 240-character WCD. Figure 8B shows a Personal Information Services message “METS 2, DODGERS 1 - ROOKIE, OCTAVIO DOTEL, STRUCK OUT 10 BATTERS TO LEAD THE METS TO A 2-1 VICTORY OVER THE LOS ANGELES DODGERS.” This Personal Information Services message has 130 characters. It is matched with an Advertising Message “BE COOL WITH A COOL FIZZO AT THE GAME. TRY THE FLAVOR OF THE MONTH - BUY A CASE FOR THE GANG.” This Advertising Message has 93 characters. It is selected by the ADMATTs invention so that the Tagged Message 806 has a total of 224 characters, including a separator symbol “*”, which will fit into the 240-character WCD 804.

Figures 8C and 8D show how the two Personal Information Services messages of Figures 8A and 8B, respectively, are matched with two different sized Advertising Messages to form Tagged Messages for a 200-character WCD, that are smaller than the Tagged Messages for the 240-character WCD of Figures 8A and 8B.

Figure 8C shows the same Personal Information Services message as in Figure 8A, “YANKEES 11, MARINERS 8 - THE YANKEES CAME UP WITH AN 11-8 VICTORY OVER THE MARINERS IN A LONG GAME THAT TURNED UGLY IN

THE LAST TWO INNINGS WITH A BENCH-CLEARING BRAWL.” This Personal Information Services message has 168 characters. It is matched with a shorter Advertising Message “BE COOL WITH A COOL FIZZO”. This Advertising Message has 25 characters. It is selected by the ADMATTs invention so that the Tagged Message 812 has a total of 194 characters, including a separator symbol “*”, which will fit into the 200-character WCD 814.

Figure 8D shows the same Personal Information Services message as in Figure 8B, “METS 2, DODGERS 1 - ROOKIE, OCTAVIO DOTEL, STRUCK OUT 10 BATTERS TO LEAD THE METS TO A 2-1 VICTORY OVER THE LOS ANGELES DODGERS.” This Personal Information Services message has 130 characters. It is matched with an Advertising Message “BE COOL WITH A COOL FIZZO AT THE GAME - BUY A CASE FOR THE GANG.” This Advertising Message has 64 characters. It is selected by the ADMATTs invention so that the Tagged Message 816 has a total of 195 characters, including a separator symbol “*”, which will fit into the 200-character WCD 814.

Examples of the Invention and A Comparison with Internet Advertising

In one example, a user might receive a stock quote alert, "tagged" with an ad for a discount broker: "Alert PTN 25.13 +0.50 * Trade it for \$12.95 call 1-800-TRADERZ.” In another example, a sports score message could be tagged with a brand/awareness execution message: "Red Sox 4, Yankees 3 Final * Drink Fizz Cola - It's a gas!”

In all cases, advertising content is included with information content in which the consumer is interested and has included for wireless delivery in their personal information profile. There are options for how an Advertising Message or tag will look. One option is to place a separator symbol (such as an asterisk “*”) between the Personal Information Services message and Advertising Message. While this may seem like a small issue, the use of a boundary between the Personal Information Services message content and the Advertising Message has many implications. For example, without a separator symbol, a

newswire source such as the Associated Press might have its Personal Information Services message content become confused with the Advertising Message so that the Advertising Message becomes an implied endorsement by the newswire source of the ad.

5 The following are eleven benefits of wireless advertising.

[1] It is the first personal medium that extends advertising to where the consumer goes.

[2] It offers a highly selective ability to pinpoint target consumers, since individuals are targeted personally.

10 [3] It offers the highest level of intrusion of any medium, alerting the consumer when content (and advertising) is received.

[4] It is place and process independent within its intended consumer audience.

[5] It places advertisement in an environment where the right consumers are actively engaged in processing information.

15 [6] It stands out, through creative and involving content.

[7] It creates a brand-linked impression, because the "message" is perceived to be of interest, relevance, or value.

[8] It provides interactivity through instant access to a telephone connection to the marketer or the ability to deliver highly targeted e-coupons.

20 [9] It provides close editorial adjacency for advertising content.

[10] It provides a strong basis for word of mouth, as consumers share information received via wireless with other consumers.

[11] It's as local as outdoor advertising and as targeted as direct mail.

25 There are a number of criteria that apply to most advertising efforts that advertisers use to determine a vehicle's value as part of their media plans. The following is a review of seven of these criteria and how they apply to wireless advertising:

[1] Audience Selectivity (the medium's ability to deliver a tightly defined consumer segment with a minimum of wasted (non-targeted) delivery). Wireless ranks

30 high in delivering targeted consumers since advertising is linked to narrowly defined user-

selected content. Personal targeting of content also allows for minimal off-target, wasted impressions.

[2] Reach Potential (the medium's ability to accumulate large numbers of people within its total audience). As a developing medium, wireless is still weak here, but with
5 the rapid growth of digital wireless and information services, the medium will quickly begin to deliver a broad reach.

[3] Speed of Audience Accumulation (this gives a sense of how long it takes the medium to accumulate its total audience). Since each ad is targeted to an individual consumer, the content effectively reaches the consumer instantaneously as the message is
10 delivered. This provides definite benefits over print media where audiences may take hours, days or even weeks to accumulate.

[4] Geographic Flexibility (the medium's flexibility to provide advertising to selected geographic areas). Wireless scores high here, initially offering the ability to target consumers down to the Zip Code level. Future applications will allow advertising to be
15 targeted down to the cell level, delivering content to individuals based on their physical proximity to specific transmission towers.

[5] Lead Time to Buy (how far in advance a media purchase must be made before advertising is delivered in the medium). Initially, wireless is somewhat weak here, as targeted advertisements require some lead-time to schedule. "Run of Service" ads at first
20 will have better lead times. Advertisers will be able to buy and deliver advertising content in real time, offering the shortest lead time available in any medium.

[6] Advertising Exposure Control (the medium's control when a consumer will see/hear the advertising in the medium. This is the medium's ability to be "intrusive.") Wireless offers better control and intrusiveness than any other medium. The very nature
25 of wireless delivery reaches out and "taps the user on the shoulder." And since advertising and editorial content is so closely engaged, it is almost impossible for the consumer to "tune-out" the ad content.

[7] Location at Time of Exposure (relates to the consumer's physical location at the time of exposure to the medium). Being primarily a mobile medium, wireless follows
30 the consumer wherever he or she goes. This place-independent feature of wireless makes it possible, for the first time, to efficiently deliver advertising to individuals, not just to

media that these individuals are expected to consume. This is one major strength over the Internet, which is place dependent (in from of the computer) and process dependent (being online). And while wireless has traditionally been used in an "out of home" setting, lower cost of service and enhanced features are driving consumers to keep their devices

5 constantly at hand, both home and away.

Wireless advertising has many advantages. Any advertising effort must meet three major challenges: finding opportunities to reach the right consumer, in the right environment, with the right message. Wireless advertising provides an unprecedented

10 means to meet these challenges. Advertising on wireless media provides significant advantages over advertising on the Internet. Since only the Internet offers similar benefits to advertisers, it is worth noting the similarities and differences between wireless and Internet advertising. The traditional marketing measures of: Advertisement awareness, Brand awareness, Brand perception, and Potential for sales apply to wireless in a

15 heightened form. The nature of wireless advertising makes it more personal to the user and better integrated into the consumer's lifestyle that does Internet advertising. The following is a comparison of wireless advertising to Internet advertising:

Internet Advertising	Wireless Advertising
· Interactive	· Interactive (2-way text and telephony)
· Targetable by site and content	· Micro-targetable to individuals
· Measurable	· Measurable
· Place Dependent	· Place Independent
· Process Dependent	· Process Independent
· Instantaneous contact when online	· Instantaneous contact
· Persistent (bookmark)	· Persistent (save message)
· Flexible Ad Content	· Flexible Ad Content
· Can dramatically increase ad awareness after only one exposure	· Same effect expected

· Can effectively boost awareness of advertised brands	· Same effect expected
· Can increase sales offline	· Same effect expected
· "Click-throughs" not necessary for good impact brand communication (in fact they don't add much)	· Same effect expected
· Advertising more likely to be noticed than television advertising	· Even greater level of a prominence

Beyond the ways individual users interact with advertising content, it is also worth examining how wireless as a unique medium compares with the segments within the Internet. The following table shows examples of four advertising "network types" on the Internet and how these network types compare with wireless advertising.

Network Type	Effect in Internet Medium	Effect in Wireless Medium
Ad-reach Networks	Mass reach plus individual targeting	Between broadcast messaging via paging and targeted messaging via paging and PCS
Local Networks	Promotions tied to local retail classified	Demographics allow targeting down to the zipcode level
Personal Broadcast Networks	Intrusion on the desktop	Intrusion independent of place, the first medium that reaches out and "taps you on the shoulder"
Content Networks	Ads relate to content; Support relationships between advertisers and consumers	Pinpoint personalization of content allows pinpoint marketing. Reach extends into the anywhere, anytime world of wireless.

In the early stages of the development of wireless as an advertising medium, the inventory of available advertising space and ways it can be bought are somewhat limited, but growing. The growth of available inventory will be immense in the future, as more and more consumers adopt digital wireless devices. Similarly, the ability to make
5 innovative media buys in wireless will be driven by the growth of consumer users.

At first, media buys will be available based on what is known about the consumer from their information services profile. This data includes the choice of service (Political News vs. Soap Opera Updates vs. Real-Time Stock Quotes, etc...), the user's package
10 choice (basic, medium, premium), geographic location (region, city, Zip Code) and daypart (range of message delivery times).

The way an advertiser selects to targeted groups of consumers for wireless Advertising Messages is called a "buy". The following are fourteen example buys for
15 wireless advertisers:

[1] Run of Service (ROS) – This buy allows advertisers to select impressions levels to run their advertising on available inventory during a targeted period of time. ROS advertising provides a broad reach into the audience at a cost-efficient CPM. It also provides for simple media planning that still reaches an audience with predictable
20 characteristics.

[2] Daypart Placement (DP) – This buy allows advertisers to target Run of Service advertising to specific times of day. DP allows for similar broad audiences as basic ROS, but provides greater ability to target creative to activities related to a specific daypart (i.e. Starbuck's advertising in the morning, Domino's in early evening, etc...). Unlike
25 Broadcast Dayparts, wireless dayparts are advertiser selectable by time range and date.

[3] Premium Placement (PP)– This buy allows advertisers to pick a specific package (i.e. College Sports) or individual service (i.e. NCAA Basketball Final Score) to deliver targeted advertising to consumers. PP allows for a more narrowly defined target audience, and provides for the creative execution to be tailored to a vertical audience.

30 [4] Event Placement (EP) – This buy allows advertisers to pick a specific event (i.e. Final Score: Yankees vs. Red Sox for August 14, 1998...Dow Jones Industrial Index

reaches 10,000...All My Children Soap Opera Update for July 7, 1998, etc...) to deliver advertising targeted to consumers of that event. EP allows the greatest current ability to tailor the creative execution to specific vertical target.

5 [5] Pay Per View Placement (PPVP) – This buy allows advertisers to include their advertising within a special content package (i.e. Olympics, etc...) that the consumer has chosen as an add-on to their regular service choices. PPVP offers specific affinity placement within high-value editorial content. The fact that the user has elected to receive a pay-per-view event makes PPVP audiences among the most interested and motivated of wireless users.

10 [6] On Demand Placement (ODP) – This buy allows advertisers to deliver there advertising with content that has been requested in real-time by the consumer. For example, a user with a two-way device requests a real-time stock quote or weather forecast. ODP allows the ability to target specific consumer decision points.

15 [7] Sponsorship (SS) – This buy provides the advertiser with an exclusive right to all advertising within the service. The advertiser is give a message masthead (i.e. "Nike Sports: Yankees 3, ...) as well as all tags generated by the service. A sponsorship buy must be made on at least a quarterly basis, and provides a unique opportunity for frequency of delivering impressions.

20 [8] Response Device Enhancement (RDE) –The ability to code a "speed dial" Advertising Message or into the advertiser's content for a small premium. This allows the advertiser to add real-time interactivity to its message.

[9] Demographics – The ability to target advertising based on demographic profiling of the consumer. This will be based on information received from the consumer directly, blended with information from the consumer/s wireless carrier.

25 [10] Psychographics – The ability to target advertising based on psychographic profiling of the consumer. This will be based on the consumer's service usage as well as information received from the consumer and his or her wireless carrier.

[11] Frequency to Individuals – The ability to control frequency to specific individual targets based on the advertiser's needs.

[12] Physical Location – The ability to target content to users within a narrowly defined area (i.e. all users in Midtown Manhattan, users near Yankee Stadium, users in Lower Manhattan when the markets close, etc...)

[13] Urgency Buys – Real-time media buys delivered immediately.

5 [14] Profile Buy – This buy allows the advertiser to buy based on a service use profile (i.e. people who choose both sports and soaps, etc...) or a blending of profile information from our databases and information supplied by the carrier to create a "compiled" profile.

10 The following are some examples of Personalized Information Services:

- National/International News (timed, plus breaking)
- National Business News (timed, plus breaking
- National Sports News (timed, plus breaking
- 15 · Entertainment News (timed, plus breaking
- News on specific, user-chosen companies
- Real-time Stock Quotes for specific user-chosen companies (timed)
- Horoscopes by user-chosen sign
- Sporting Events by user-chosen teams (Pre-game, score updates, final game scores
- 20 and wrap-ups)
- Weather Forecast by the user's zipcode
- Marine Weather Forecast for user-chosen area
- Ski Reports for user-chosen ski area
- Consumer Health News for user-chosen sub-category
- 25 · Lottery Results for user-chosen state
- Reminder Service which delivers user-set reminders
- On Demand Categories (subject to On Demand rates): Real-time stock quotes and weather.

Package buys of Personal Information Services provide the ability to increase the level of frequency to specific consumer targets. The following are some example packages of Personal Information Services:

- 5 • News Package – Total of eight daily messages (plus breaking news) delivering general news, business, sports and entertainment content.
- Pro Sports Package – User chooses up to four pro teams chosen for up to eight impressions a day (baseball season).
- College Sports Package – User picks from division one basketball, football,
10 baseball and hockey for numerous targeted impressions.
- Entertainment Package – User gets two soap operas, one horoscope and two entertainment news reports a day for a total of up to five daily impressions.
- Business Package – User gets company news on three companies (number of
15 messages depends on companies chosen), timed stock quotes on three companies twice a day, and a twice-daily business report for approximately five-plus impressions a day.
- Financial Package – User gets stock quotes on five companies delivered twice a day, custom stock alerts on five companies and company news on five companies (alerts and news messages based on companies chosen). The average user will receive a
20 minimum of eight messages a day. Due to the selectivity of this target, Financial Package buys are made at the "Pay-Per-View" rate on the rate card.

Although several specific embodiments of the invention are disclosed herein, those having skill in the art will understand that there are many ways to implement those specific embodiments without departing from the spirit and the scope of the invention.

CLAIMS

What is claimed is:

- 5 1. A method to provide an advertising message combined with a personal information service message, to a wireless communications device, comprising:
- receiving a personal information services message for delivery to a user of a wireless communications device;
- 10 applying an advertiser's selection rules to the personal information services message and to data in a user profile to select a plurality of advertising messages;
- subtracting the size of the personal information services message from a value for message capacity of a wireless communications device of the user's to obtain a maximum
- 15 size for an advertising message that can be sent to the user;
- combining one of the plurality of advertising messages with the personal information services message to form a composite tagged message whose size is not
- 20 greater than the message capacity of the user's wireless communications device; and
- sending the composite tagged message to a wireless network for delivery to the user's wireless communications device.
- 25 2. The method of claim 1, which further comprises:
- searching an advertising message database for an advertiser who has not excluded the personal information service message as a criterion for selecting the advertiser.
- 30 3. The method of claim 1, wherein the user profile includes a user record.

4. The method of claim 3, wherein the user record includes the identity of personal information services of interest to the user, a message capacity of the user's wireless communications device, demographic characteristics of the user, geographic location of the user, and buying habits of the user.

5

5. The method of claim 2, wherein the advertising message database includes advertiser records for each advertiser.

6. The method of claim 5, wherein the advertiser record includes the advertiser's rules for selecting a user to whom an advertising message is to be sent.

10

7. The method of claim 6, wherein the rules in the advertising message database include the identity of one or more personal information services that the advertiser uses to select users to contact.

15

8. The method of claim 6, wherein the rules in the advertising message database include the demographic characteristics, geographic location, and buying habits as selection criteria of the class of users that the advertiser wants to contact.

20

9. The method of claim 5, wherein the advertiser record in the advertising message database includes advertising messages for one or more of the advertiser's products or services to be advertised.

10. The method of claim 9, wherein several advertising messages are included in the record, one for each of several sizes of message capacity possible for a user's wireless communications device.

25

11. The method of claim 5, wherein if more than one product or service of a particular advertiser is eligible to be sent to a particular user, choosing which advertising message is sent by assigning a relative priority value to each product in an advertiser record.

30

12. The method of claim 3, wherein if more than one product or service of a particular advertiser is eligible to be sent to a particular user, choosing which advertising message is sent by keeping track of the frequency that a particular product has been advertised to this particular user, by means of recording that frequency in a field in the user record.

13. The method of claim 5, wherein if more than one product or service of a particular advertiser is eligible to be sent to a particular user, choosing which advertising message is sent by complying with strategic contractual requirements of an advertiser or urgent tactical requests of an advertiser to favor one product over another.

14. The method of claim 5, wherein if more than one advertiser is eligible to have products advertised to a particular user, assigning a relative priority value to each advertiser which can be based on information in each advertiser record, such as contractual requirements or most favored status based on volume of business, which is recorded in the advertiser record.

15. The method of claim 3, wherein if more than one advertiser is eligible to have products advertised to a particular user, recording the frequency that a particular advertiser's products have been advertised to this particular user in a field in the user record.

16. The method of claim 2, wherein the advertising message database includes an email input from an advertiser, the method further comprising:

storing a default advertising message in the advertising message database;

receiving over the email input from an advertiser a new advertising message; and

replacing the default advertising message with the new advertising message in the advertising message database.

17. The method of claim 1, wherein the personal information services message is a fixed size and the advertising message is selected one of several fixed sizes.

18. The method of claim 1, wherein the personal information services message is
5 a variable size and the advertising message is selected one of several fixed sizes.

19. The method of claim 5, wherein if the advertiser record indicates a Run of Service (ROS) option, then get the advertiser's current choice of an advertising message.

10 20. The method of claim 5, wherein if the advertiser record indicates a Daypart Placement option, then get the time of day and access an advertising message using the time of day.

21. The method of claim 5, wherein if the advertiser record indicates a Premium
15 Placement option, then get the advertiser's specification of a specific package and select an advertising message from the specified package.

22. The method of claim 5, wherein if the advertiser record indicates an Event Placement option, then get the advertiser's specification of a specific event, test for an
20 occurrence of the specified event, and select an advertising message if the specified event has occurred.

23. The method of claim 5, wherein if the advertiser record indicates a Pay Per View Placement option, then get the advertiser's specification of the pay per view
25 personal information service, test for the occurrence of the specified pay per view personal information service, and select an advertising message if the pay per view personal information service is currently occurring.

24. The method of claim 5, wherein if the advertiser record indicates an On
30 Demand Placement option, then determine if a User has made a request for a personal

information service, get the User's request, and select an advertising message for the user's personal information service request.

25. The method of claim 5, wherein if the advertiser record indicates a
5 Sponsorship option, then get the advertiser's specification of a masthead message to be exclusively displayed within the personal information service in addition to any advertising messages to be combined with the personal information service message.

26. The method of claim 5, wherein if the advertiser record indicates a Response
10 Device Enhancement option, then get the advertiser's specified "speed dial" advertising message to enable the user to respond from the wireless communications device by calling the "speed dial" number.

27. The method of claim 5, wherein if the advertiser record indicates a
15 Demographics option, then get the user's demographic profile from the user profile database and select an advertising message.

28. The method of claim 5, wherein if the advertiser record indicates a
Psychographics option, then get the user's psychographic profile from the user profile
20 database and select an advertising message.

29. The method of claim 5, wherein if the advertiser record indicates a Frequency
to Individuals option, then get the advertiser's specification of the frequency of
advertising messages to be sent to a user, get the count of advertising messages sent to a
25 user from the user profile database, determine whether to send another advertising message to the user, and if so, then select an advertising message.

30. The method of claim 5, wherein if the advertiser record indicates a Physical
Location option, then get the user's location from the user profile database and select an
30 advertising message depending on the user's location.

31. The method of claim 5, wherein if the advertiser record indicates an Urgency Buys option, then get the advertiser's specified real-time media buy and select an advertising message.

5 32. The method of claim 5, wherein if the advertiser record indicates a Profile Buy option, then get the user's service use profile from the user profile database and select an advertising message.

10 33. The method of claim 5, wherein if the advertiser record indicates a Profile Buy option, then get the user's service use profile from information supplied by the telecommunications carrier and select an advertising message.

15 34. The method of claim 1, wherein the wireless communications device is a wireless mobile phone, an alphanumeric pager, a personal digital assistant, or a digital wireless device.

35. The method of claim 1, wherein the step of applying an advertiser's selection rules to the personal information services message further comprises:

20 using a preference rule specified by the advertiser which includes a trigger condition set to fire when a specified value of a specified event type is reported in a personal information services message;

25 detecting the occurrence in a received personal information services message of a description of the specified event type;

 comparing the description of the specified event type with the specified value of the specified event type;

30 firing the trigger condition when the comparing step is satisfied; and

selecting the plurality of advertising messages specified by the preference rule when the trigger condition is fired.

36. A method of doing business of providing an advertising message combined
5 with a personal information service message, to a wireless communications device,
comprising the steps of:

receiving a personal information services message for delivery to a user of a
wireless communications device;

10

applying an advertiser's selection rules to the personal information services
message and to data in a user profile to select a plurality of advertising messages;

obtaining a maximum size for an advertising message that can be sent to the user;

15

combining one of the plurality of advertising messages with the personal
information services message to form a composite tagged message whose size is not
greater than the message capacity of the user's wireless communications device; and

20 sending the composite tagged message to a wireless network for delivery to the
user's wireless communications device.

37. A system to provide an advertising message combined with a personal
information service message, to a wireless communications device, comprising:

25

an input port for receiving a personal information services message for delivery to
a user of a wireless communications device;

a data processor coupled to the input port, for applying an advertiser's selection
30 rules to the personal information services message and to data in a user profile to select a
plurality of advertising messages;

said data processor subtracting the size of the personal information services message from a value for message capacity of a wireless communications device of the user's to obtain a maximum size for an advertising message that can be sent to the user;

5 said data processor combining one of the plurality of advertising messages with the personal information services message to form a composite tagged message whose size is not greater than the message capacity of the user's wireless communications device; and

10 a communications port coupled to the data processor, for sending the composite tagged message to a wireless network for delivery to the user's wireless communications device.

38. A computer readable article of manufacture to provide an advertising message
15 combined with a personal information service message, to a wireless communications device, comprising:

a computer readable medium;

20 computer programming code in the computer readable medium for receiving a personal information services message for delivery to a user of a wireless communications device;

25 computer programming code in the computer readable medium for applying an advertiser's selection rules to the personal information services message and to data in a user profile to select a plurality of advertising messages;

30 computer programming code in the computer readable medium for subtracting the size of the personal information services message from a value for message capacity of a wireless communications device of the user's to obtain a maximum size for an advertising message that can be sent to the user;

computer programming code in the computer readable medium for combining one of the plurality of advertising messages with the personal information services message to form a composite tagged message whose size is not greater than the message capacity of the user's wireless communications device; and

5

computer programming code in the computer readable medium for outputting the composite tagged message to a wireless network for delivery to the user's wireless communications device.

10

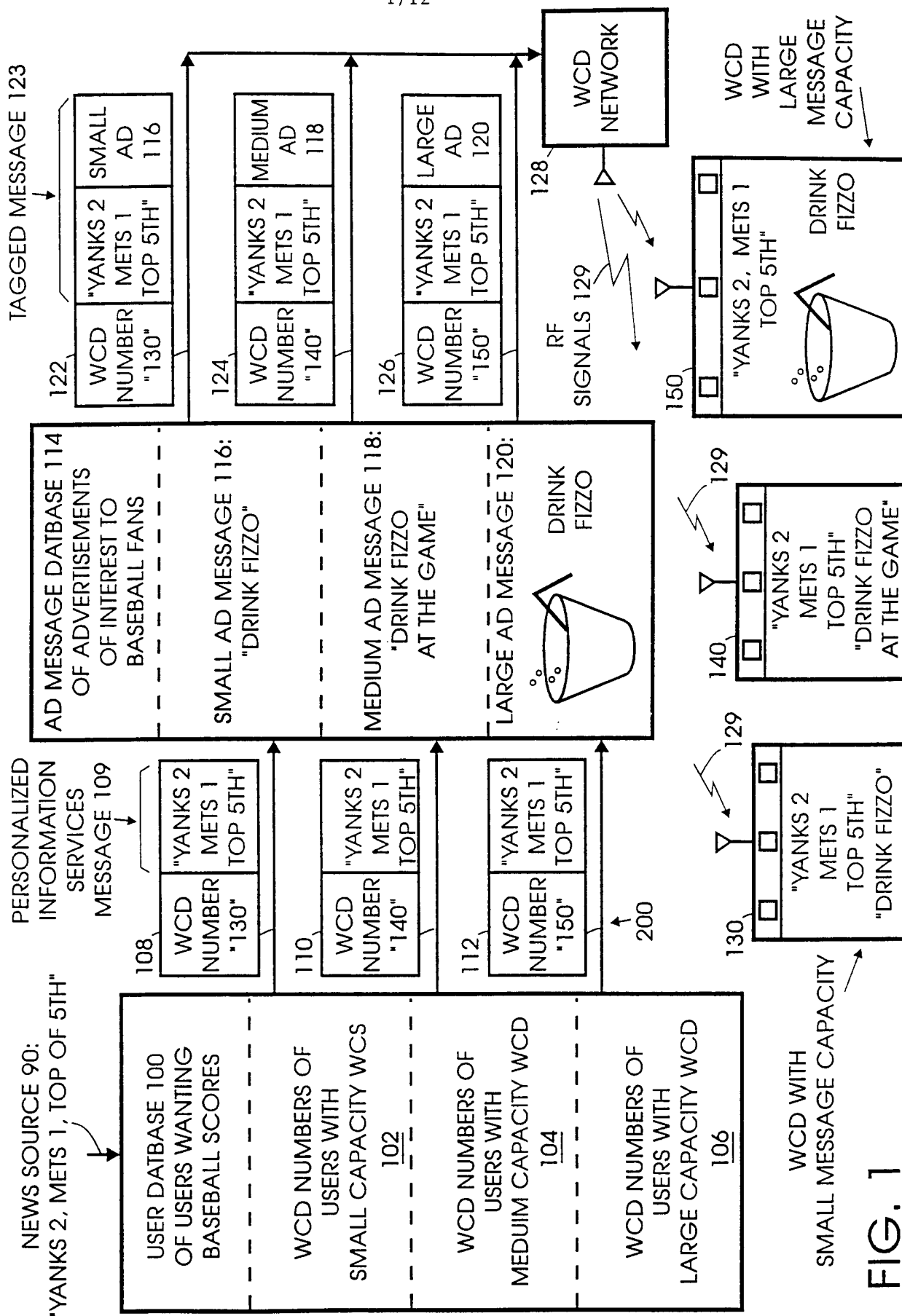
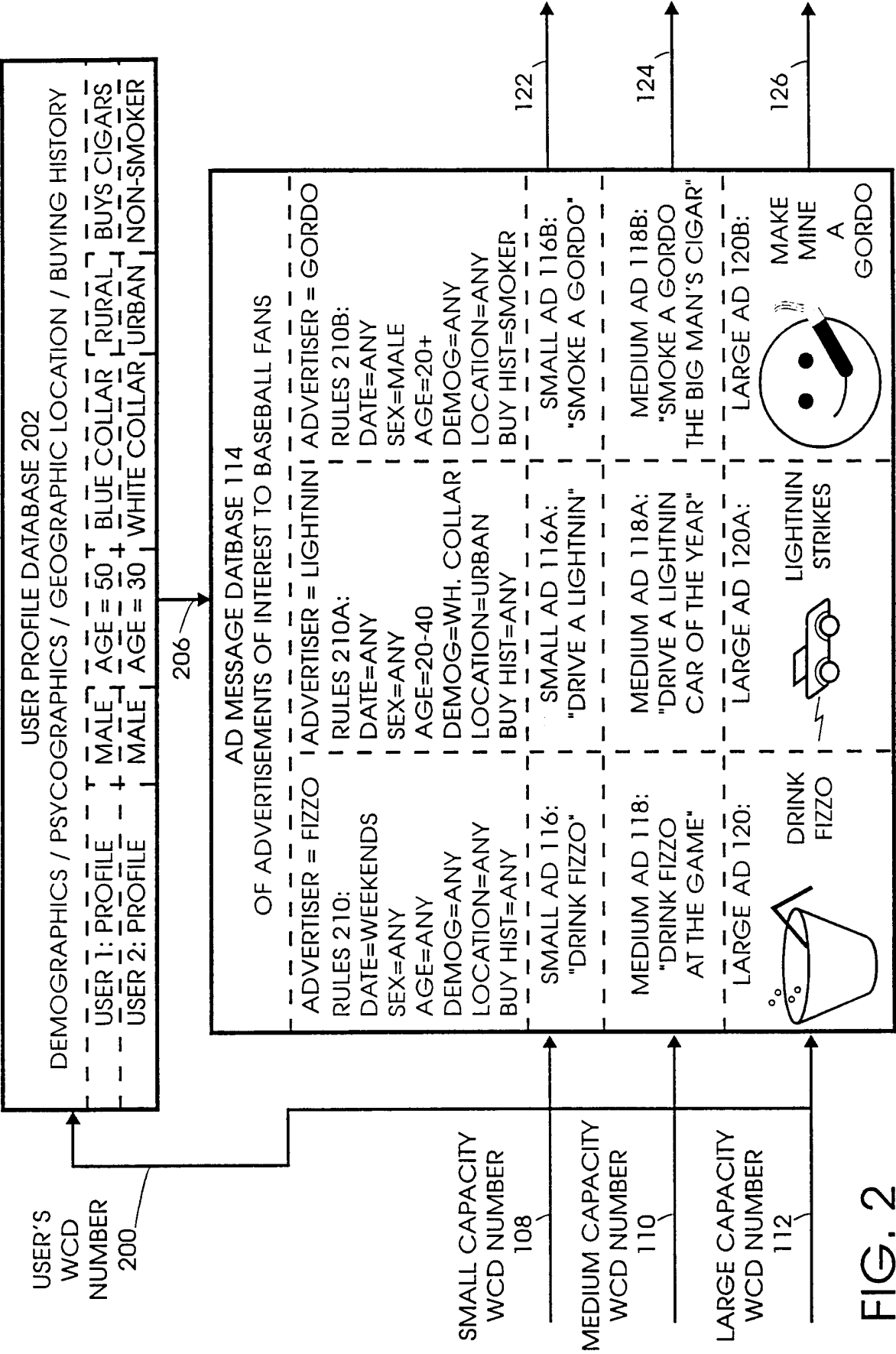
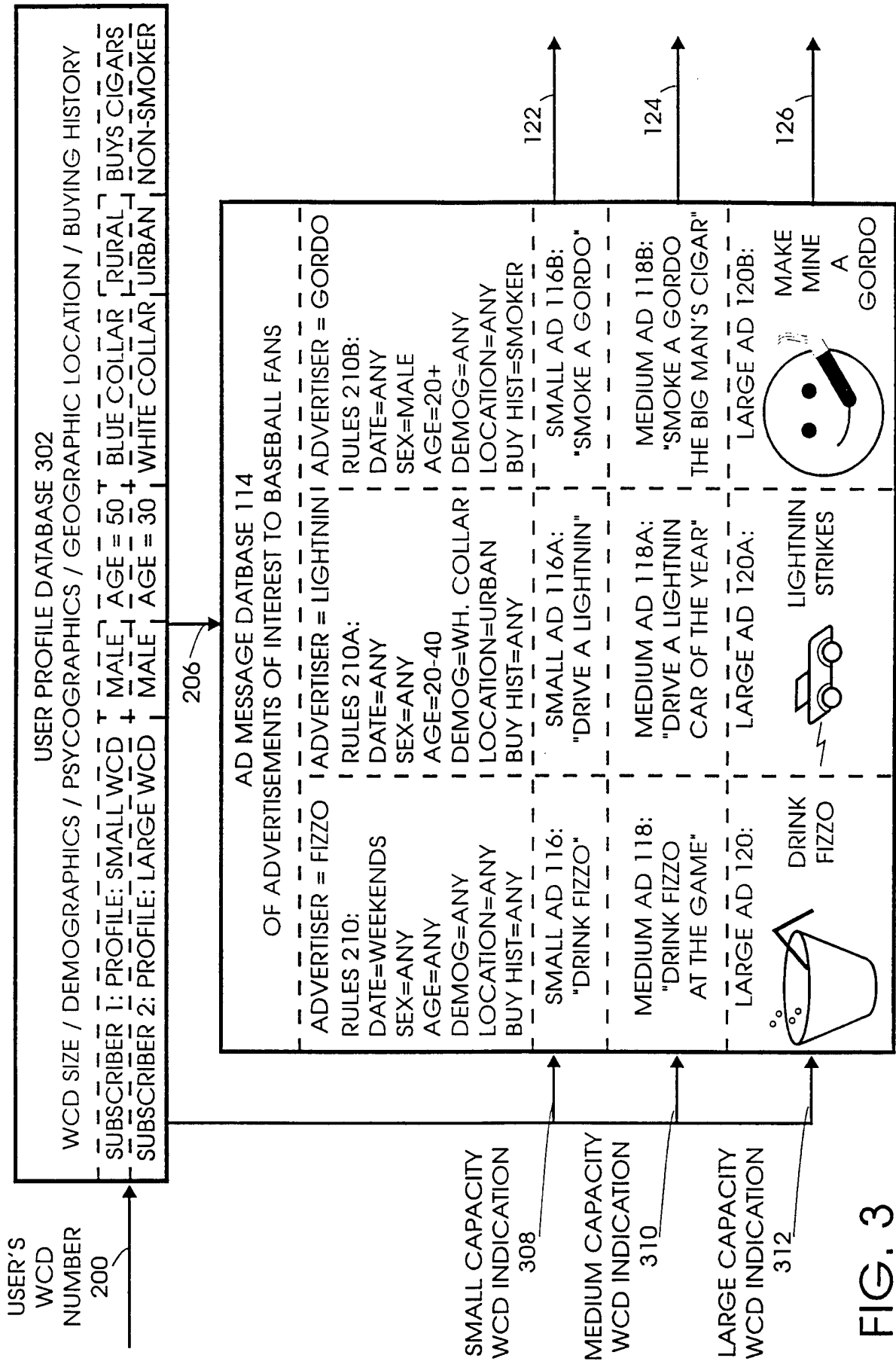


FIG. 1





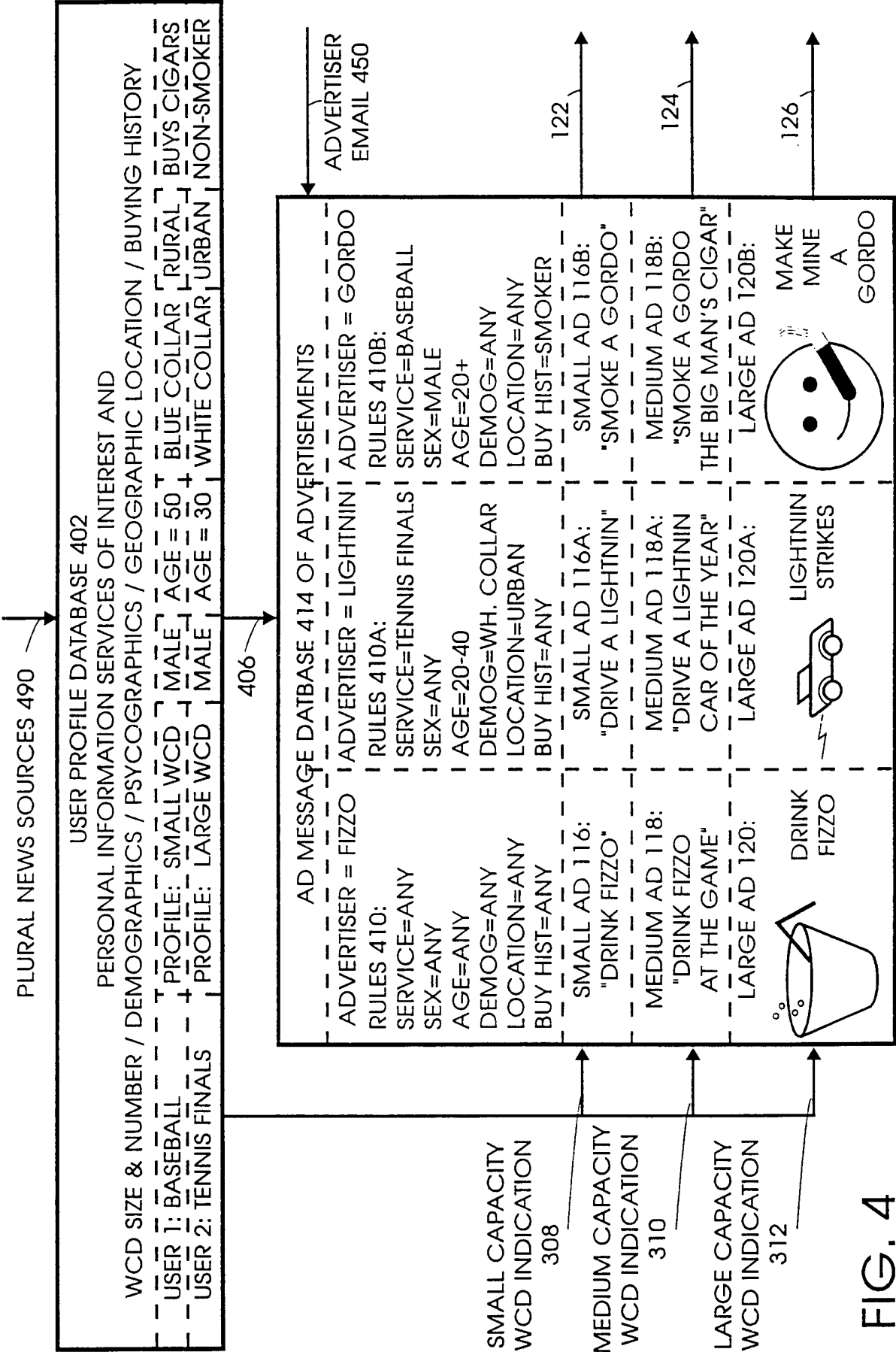


FIGURE 5**FLOW DIAGRAM 500**

(PART 1 OF 2)

STEP 502: WHEN A STREAM OF EVENT INFORMATION IS RECEIVED FROM A PARTICULAR SOURCE, IT IS PROCESSED BY A PROGRAMMED DATA PROCESSOR ASSOCIATED WITH USER PROFILE DATABASE AND THE ADVERTISING MESSAGE DATABASE.

STEP 504: THE USER PROFILE DATABASE IS AUTOMATICALLY SEARCHED FOR THOSE USERS WHO HAVE AN INTEREST IN THAT PARTICULAR INFORMATION.

STEP 506: THE DATA IN THE USER RECORD OF EACH MATCHED USER IS THEN PASSED TO THE ADVERTISING MESSAGE DATABASE.

STEP 508: THE ADVERTISING MESSAGE DATABASE IS AUTOMATICALLY SEARCHED FOR THOSE ADVERTISERS WHO HAVE DESIGNATED IN THEIR ADVERTISER RECORD AS A CRITERION FOR SELECTION, THE PARTICULAR INFORMATION.

STEP 510: FOR EACH SELECTED ADVERTISER RECORD, A COMPARISON IS MADE BETWEEN THE ADVERTISER'S STATED SELECTION CRITERIA IN THE ADVERTISER'S RULES AND THE DATA IN THE USER PROFILE.

STEP 512: WHEN ALL OF THE SELECTION CRITERIA IN THE ADVERTISER RULES HAVE BEEN MATCHED WITH THE DATA IN A PARTICULAR USER PROFILE, THEN THAT USER IS SELECTED FOR RECEIVING A WIRELESS ADVERTISING MESSAGE FROM ADVERTISER.

STEP 514: THE SIZE OF THE PERSONAL INFORMATION SERVICE MESSAGE FROM THE PARTICULAR INFORMATION SOURCE IS SUBTRACTED FROM THE SIZE OF THE MESSAGE CAPACITY OF THE USER'S WCD TO OBTAIN THE MAXIMUM SIZE OF THE ADVERTISING MESSAGE THAT CAN BE SENT.

STEP 516: THE CHOSEN ADVERTISING MESSAGE IS ATTACHED TO THE SUBSCRIBED MESSAGE TO FORM A TAGGED MESSAGE WHOSE SIZE IS NOT GREATER THAN THE MESSAGE CAPACITY OF THE USER'S WCD.

FIGURE 5

(PART 2 OF 2)

FLOW DIAGRAM 500

STEP 518: THE TAGGED MESSAGE IS THEN OUTPUT BY THE PROGRAMMED DATA PROCESSOR TO A WCD NETWORK FOR DELIVERY TO THE USER'S WCD.

RETURN TO STEP 502, TO WAIT FOR THE NEXT STREAM OF EVENT INFORMATION TO BE RECEIVED FROM AN INFORMATION SOURCE.

FIG. 6

DATA PROCESSOR 600

MEMORY 602

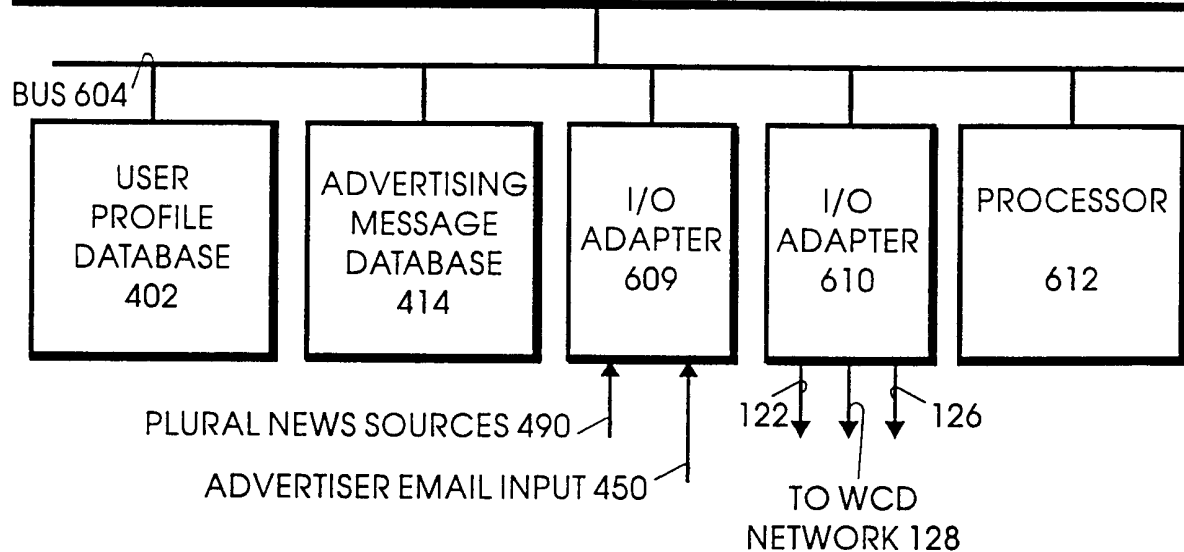
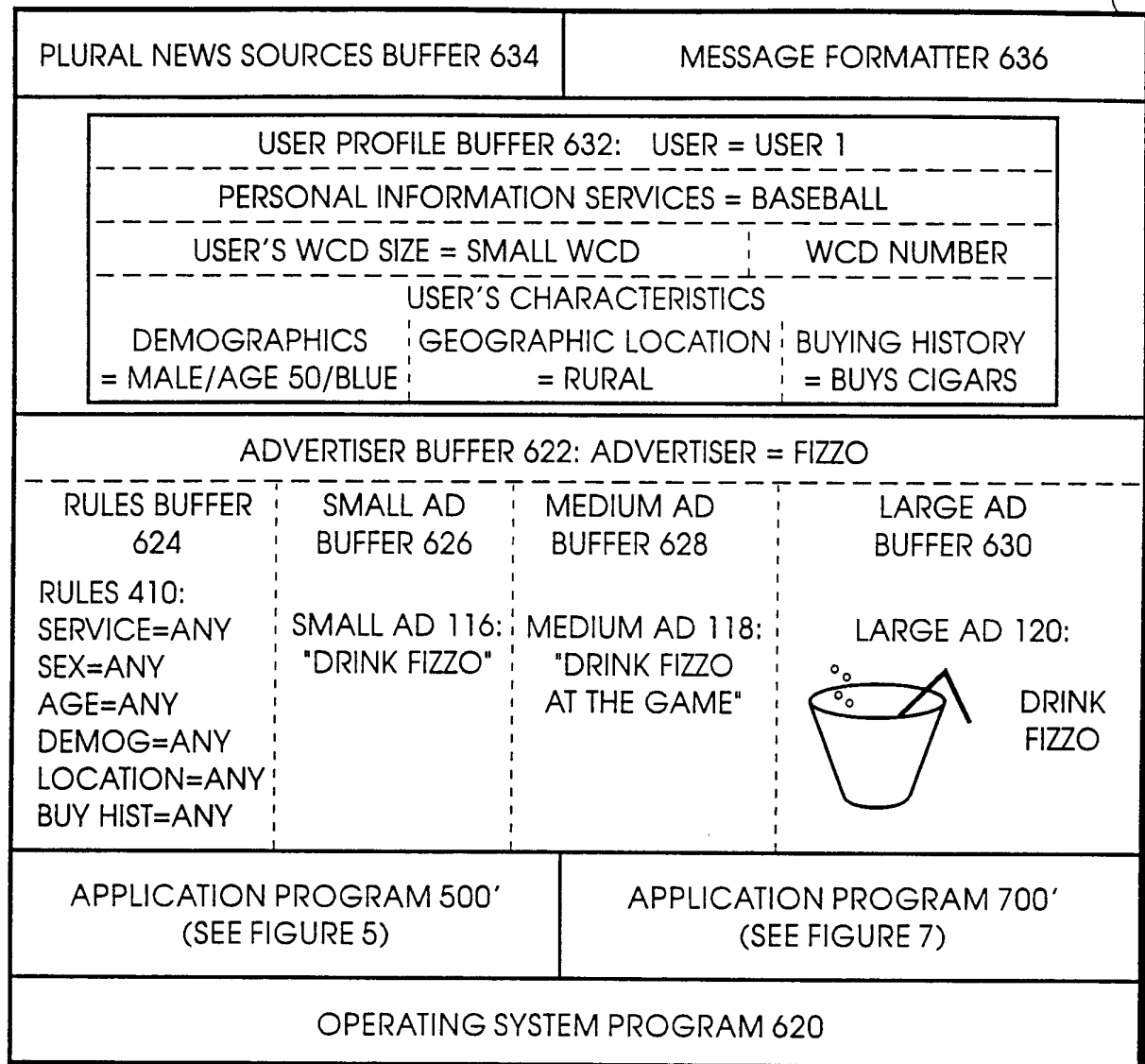


FIGURE 7**TAGGING DECISION FLOW DIAGRAM 700**

(PART 1 OF 4)

STEP 702: WHEN A STREAM OF EVENT INFORMATION IS RECEIVED FROM A PARTICULAR SOURCE, IT IS PROCESSED BY A PROGRAMMED DATA PROCESSOR ASSOCIATED WITH USER PROFILE DATABASE AND THE ADVERTISING MESSAGE DATABASE.

STEP 704: THE USER PROFILE DATABASE IS AUTOMATICALLY SEARCHED FOR THOSE USERS WHO HAVE AN INTEREST IN THAT PARTICULAR INFORMATION.

STEP 706: THE DATA IN THE USER RECORD OF EACH MATCHED USER IS THEN PASSED TO THE ADVERTISING MESSAGE DATABASE.

STEP 708: THE ADVERTISING MESSAGE DATABASE IS AUTOMATICALLY SEARCHED FOR THOSE ADVERTISERS WHO HAVE DESIGNATED IN THEIR ADVERTISER RECORD AS A CRITERION FOR SELECTION, THE PARTICULAR INFORMATION.

STEP 710: IF ADVERTISER RECORD INDICATES A RUN OF SERVICE (ROS) OPTION, THEN GET ADVERTISER'S CURRENT CHOICE OF ADVERTISING MESSAGE AND GOTO 740.

STEP 712: IF ADVERTISER RECORD INDICATES A DAYPART PLACEMENT OPTION, THEN GET TIME OF DAY AND SELECT ADVERTISING MESSAGE FOR CURRENT TIME OF DAY AND GOTO STEP 740.

STEP 714: IF ADVERTISER RECORD INDICATES A PREMIUM PLACEMENT OPTION, THEN GET ADVERTISER'S SPECIFICATION OF SPECIFIC PACKAGE (I.E. COLLEGE SPORTS) OR INDIVIDUAL SERVICE (I.E. NCAA BASKETBALL FINAL SCORE) AND SELECT ADVERTISING MESSAGE FROM SPECIFIED PACKAGE AND GOTO STEP 740.

9/12

FIGURE 7**TAGGING DECISION FLOW DIAGRAM 700**

(PART 2 OF 4)

STEP 716: IF ADVERTISER RECORD INDICATES AN EVENT PLACEMENT OPTION, THEN GET ADVERTISER'S SPECIFICATION OF SPECIFIC EVENT (I.E. FINAL SCORE: YANKEES VS. RED SOX FOR AUGUST 14, 1998, OR DOW JONES INDUSTRIAL INDEX REACHES 10,000, OR ALL MY CHILDREN SOAP OPERA UPDATE FOR JULY 7, 1998, ETC.), TEST FOR OCCURRENCE OF SPECIFIED EVENT, AND SELECT ADVERTISING MESSAGE IF SPECIFIED EVENT HAS OCCURRED AND GOTO STEP 740.

STEP 718: IF ADVERTISER RECORD INDICATES A PAY PER VIEW PLACEMENT OPTION, THEN GET ADVERTISER'S SPECIFICATION OF THE PAY PER VIEW PERSONAL INFORMATION SERVICES (I.E. OLYMPICS, ETC....), TEST FOR THE OCCURRENCE OF THE SPECIFIED PAY PER VIEW PERSONAL INFORMATION SERVICES, AND SELECT THE ADVERTISING MESSAGE IF THE PAY PER VIEW PERSONAL INFORMATION SERVICES IS CURRENTLY OCCURRING AND GOTO STEP 740.

STEP 720: IF ADVERTISER RECORD INDICATES AN ON DEMAND PLACEMENT OPTION, THEN DETERMINE IF USER HAS MADE A REQUEST FOR A PERSONAL INFORMATION SERVICE, GET THE USER'S REQUEST, SELECT ADVERTISING MESSAGE FOR USER'S PERSONAL INFORMATION SERVICE REQUEST AND GOTO STEP 740.

STEP 722: IF ADVERTISER RECORD INDICATES A SPONSORSHIP OPTION, THEN GET ADVERTISER'S SPECIFICATION OF MASTHEAD MESSAGE TO BE EXCLUSIVELY DISPLAYED WITHIN THE PERSONAL INFORMATION SERVICE (E.G., ADVERTISER WILL PRESENT A MESSAGE MASTHEAD OVER THE PERSONAL INFORMATION SERVICE (I.E. "NIKE SPORTS: YANKEES 3, ...) IN ADDITION TO ANY ADVERTISING MESSAGES TO BE COMBINED WITH THE PERSONAL INFORMATION SERVICE MESSAGE AND GOTO STEP 740.

STEP 724: IF ADVERTISER RECORD INDICATES A RESPONSE DEVICE ENHANCEMENT OPTION, THEN GET THE ADVERTISER'S SPECIFIED "SPEED DIAL" ADVERTISING MESSAGE TO ENABLE THE USER TO RESPOND FROM THE WCD BY CALLING THE "SPEED DIAL" NUMBER AND GOTO STEP 740.

FIGURE 7**TAGGING DECISION FLOW DIAGRAM 700**

(PART 3 OF 4)

STEP 726: IF ADVERTISER RECORD INDICATES A DEMOGRAPHICS OPTION, THEN GET THE USER'S DEMOGRAPHIC PROFILE FROM THE USER PROFILE DATABASE AND SELECT THE ADVERTISING MESSAGE AND GOTO STEP 740.

STEP 728: IF ADVERTISER RECORD INDICATES A PSYCHOGRAPHICS OPTION, THEN GET THE USER'S PSYCHOGRAPHIC PROFILE FROM THE USER PROFILE DATABASE AND SELECT THE ADVERTISING MESSAGE AND GOTO STEP 740.

STEP 730: IF ADVERTISER RECORD INDICATES A FREQUENCY TO INDIVIDUALS OPTION, THEN GET THE ADVERTISER'S SPECIFICATION OF THE FREQUENCY OF ADVERTISING MESSAGES TO BE SENT TO A USER, GET THE COUNT OF ADVERTISING MESSAGES SENT TO A USER FROM THE USER PROFILE DATABASE, DETERMINE WHETHER TO SEND ANOTHER ADVERTISING MESSAGE TO THE USER, AND IF SO, THEN SELECT AN ADVERTISING MESSAGE AND GOTO STEP 740.

STEP 732: IF ADVERTISER RECORD INDICATES A PHYSICAL LOCATION OPTION, THEN GET THE USER'S LOCATION FROM THE USER PROFILE DATABASE AND SELECT AN ADVERTISING MESSAGE DEPENDING ON THE USER'S LOCATION AND GOTO STEP 740.

STEP 734: IF ADVERTISER RECORD INDICATES AN URGENCY BUYS OPTION, THEN GET THE ADVERTISER'S SPECIFIED REAL-TIME MEDIA BUY (E.G., RECEIVED BY EMAIL FROM THE ADVERTISER) AND SELECT THE ADVERTISING MESSAGE AND GOTO STEP 740.

FIGURE 7**TAGGING DECISION FLOW DIAGRAM 700**

(PART 4 OF 4)

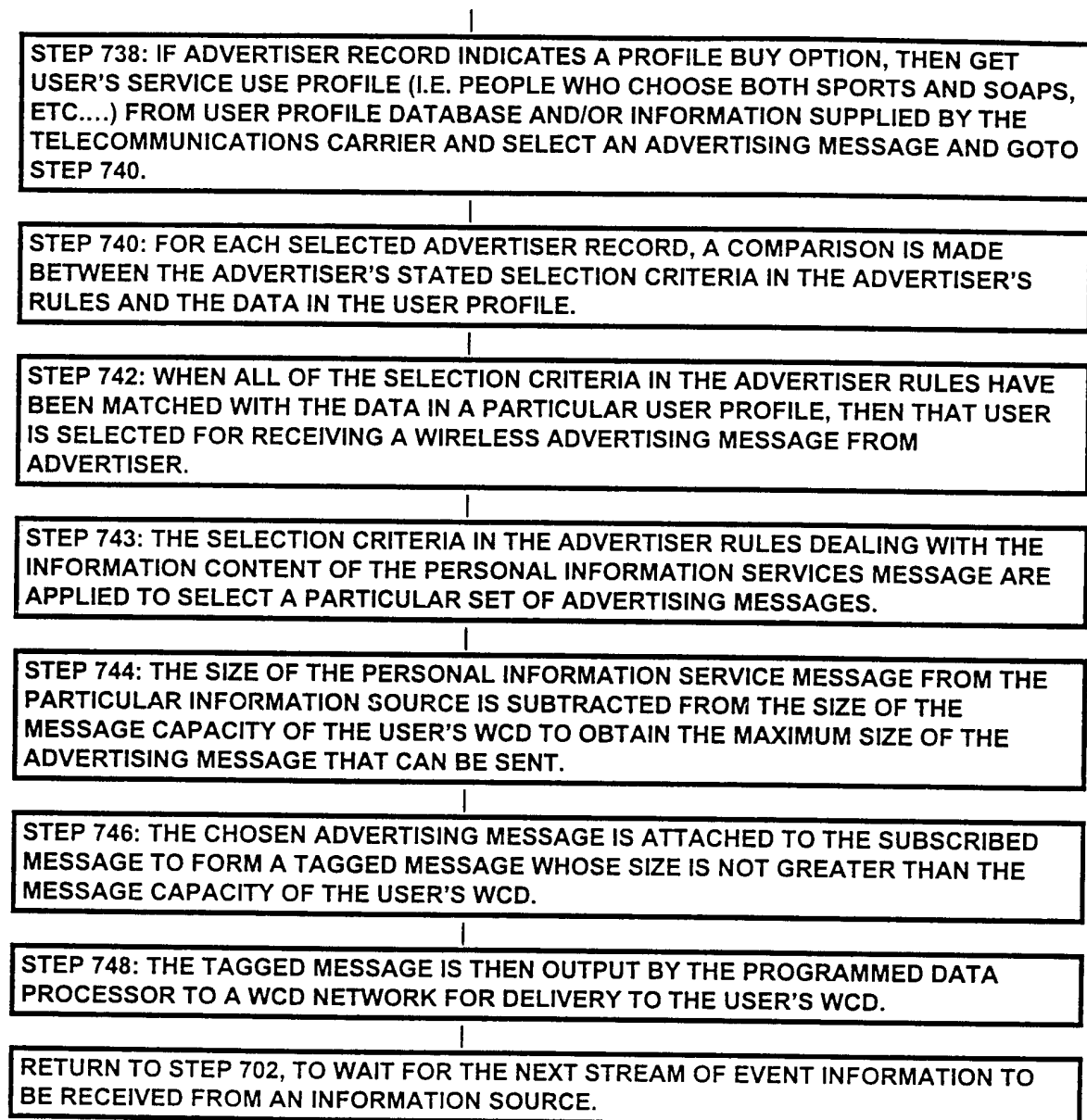


FIG. 8ATAGGED MESSAGE
802

240-CHARACTER WCD

804

YANKEES 11, MARINERS 8 - THE YANKEES CAME UP WITH AN 11-8 VICTORY OVER THE MARINERS IN A LONG GAME THAT TURNED UGLY IN THE LAST TWO INNINGS WITH A BENCH-CLEARING BRAWL. * BE COOL WITH A COOL FIZZO AT THE GAME. TRY THE FLAVOR OF THE MONTH.

FIG. 8BTAGGED MESSAGE
806

240-CHARACTER WCD

804

METS 2, DODGERS 1 - ROOKIE, OCTAVIO DOTEL, STRUCK OUT 10 BATTERS TO LEAD THE METS TO A 2-1 VICTORY OVER THE LOS ANGELES DODGERS. * BE COOL WITH A COOL FIZZO AT THE GAME. TRY THE FLAVOR OF THE MONTH - BUY A CASE FOR THE GANG.

FIG. 8CTAGGED MESSAGE
812

200-CHARACTER WCD

814

YANKEES 11, MARINERS 8 - THE YANKEES CAME UP WITH AN 11-8 VICTORY OVER THE MARINERS IN A LONG GAME THAT TURNED UGLY IN THE LAST TWO INNINGS WITH A BENCH-CLEARING BRAWL. * BE COOL WITH A COOL FIZZO

FIG. 8DTAGGED MESSAGE
816

200-CHARACTER WCD

814

METS 2, DODGERS 1 - ROOKIE, OCTAVIO DOTEL, STRUCK OUT 10 BATTERS TO LEAD THE METS TO A 2-1 VICTORY OVER THE LOS ANGELES DODGERS. * BE COOL WITH A COOL FIZZO AT THE GAME - BUY A CASE FOR THE GANG.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/19569

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 17/40, 17/60; H04Q 7/20; H04M 11/00

US CL : 705/26,400; 455/422; 455/414

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/26,400; 455/422; 455/414

Documentation searched other than minimum documentation to the extent that such documents are included in the fields search

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim 1
A	US 5,752,186 A (MALACKOWSKI et al) 12 May 1998 (12.05.1998), column 1, lines 25-46	1
A	US 5,950,125 A (BUHRMANN et al) 07 September 1999 (07.09.1999), entire document	1-38
A	US 5,974,398 A (HANSON et al) 26 October 1999 (26.10.1999), entire document	1-38
A	US 6,047,272 A (BILIRIS et al) 04 April 2000 (04.04.2000), entire document	1-38
A	US 6,119,101 A (PECKOVER) 12 September 2000 (12.09.2000), entire document	1-38
A	US 5,867,780 A (MALACKOWSKI et al) 02 February 1999 (02.02.1999), entire document	1-38
A	ADVERTISERS TARGET WIRELESS PHONES, Wireless Week, page 22, 16 August 1999	1-38
A	III's VILLAGE SQUARE IS LINK TO PERSONAL INFORMATION SERVICES, RCR Radio Communications Report, page 61, 14 September 1998	1-38

☐

Further documents are listed in the continuation of Box C.

☐

See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

19 OCTOBER 2000 (19.10.2000)

Date of mailing of the international search report

27 NOV 2000

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

JAMES TRAMMELL

Telephone No. 703-305-3900

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/19569

Continuation of B. FIELDS SEARCHED Item 3: DIALOG
search terms: wireless, advertising, ads