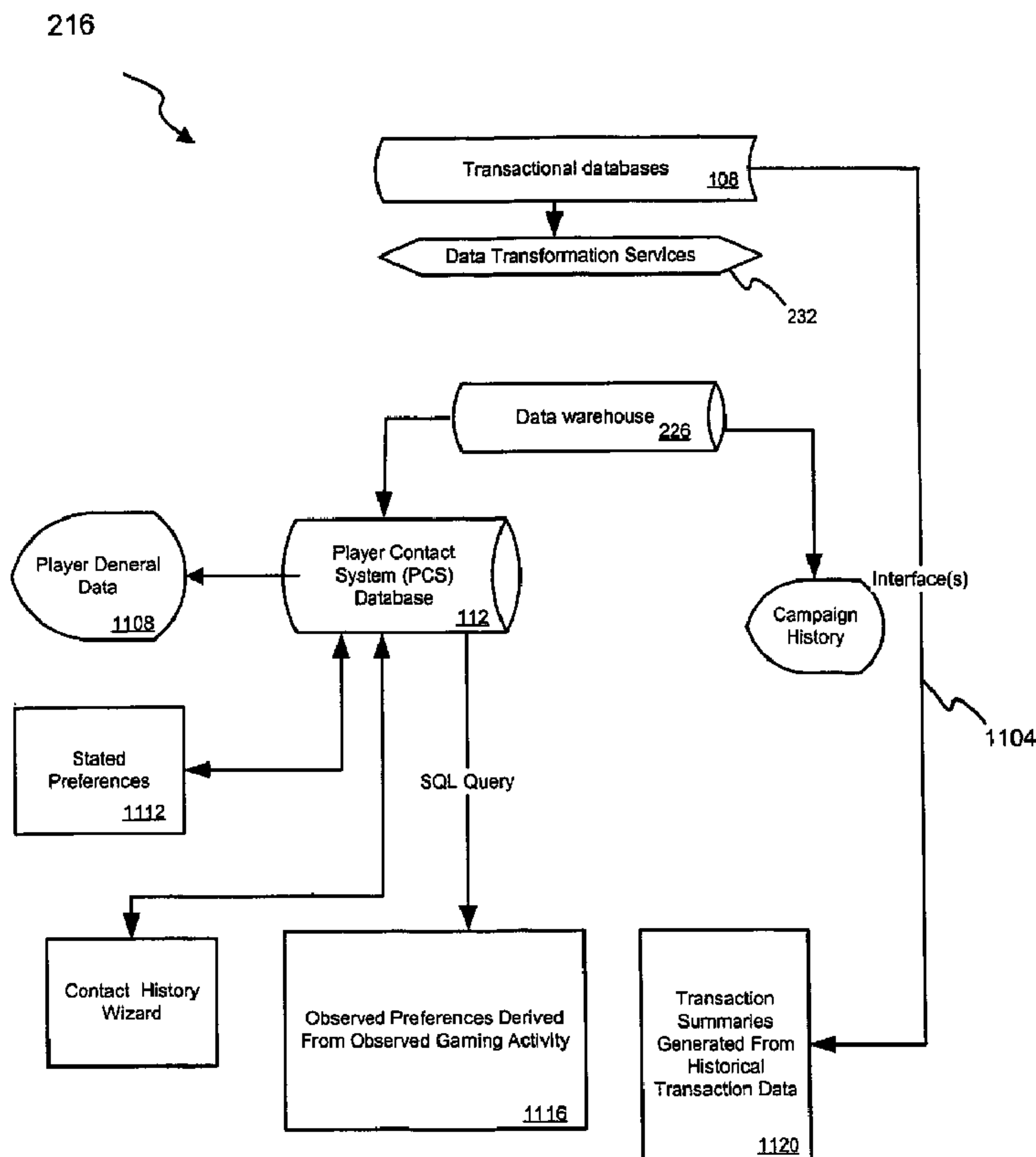




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(57) Abrégé/Abstract:

A computer-implemented system and method for customer contact management is disclosed herein. The inventive system is configured to retain contact information for patrons registered with a particular commercial entity, such as a gaming establishment,

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and to track the preferences of these customers. Such preferences may include, for example, stated preferences (1112) with regard to particular casino games, leisure activities, and offers redeemed. In addition to recording stated preferences, the system determines actual preferences based upon data included within a data warehouse (226). Based on these preferences and other customer information, reports (1120) facilitating the scheduling and analysis of contacts made with these customers may be generated and displayed in order to ensure appropriate allocation of customer service and hosting resources.

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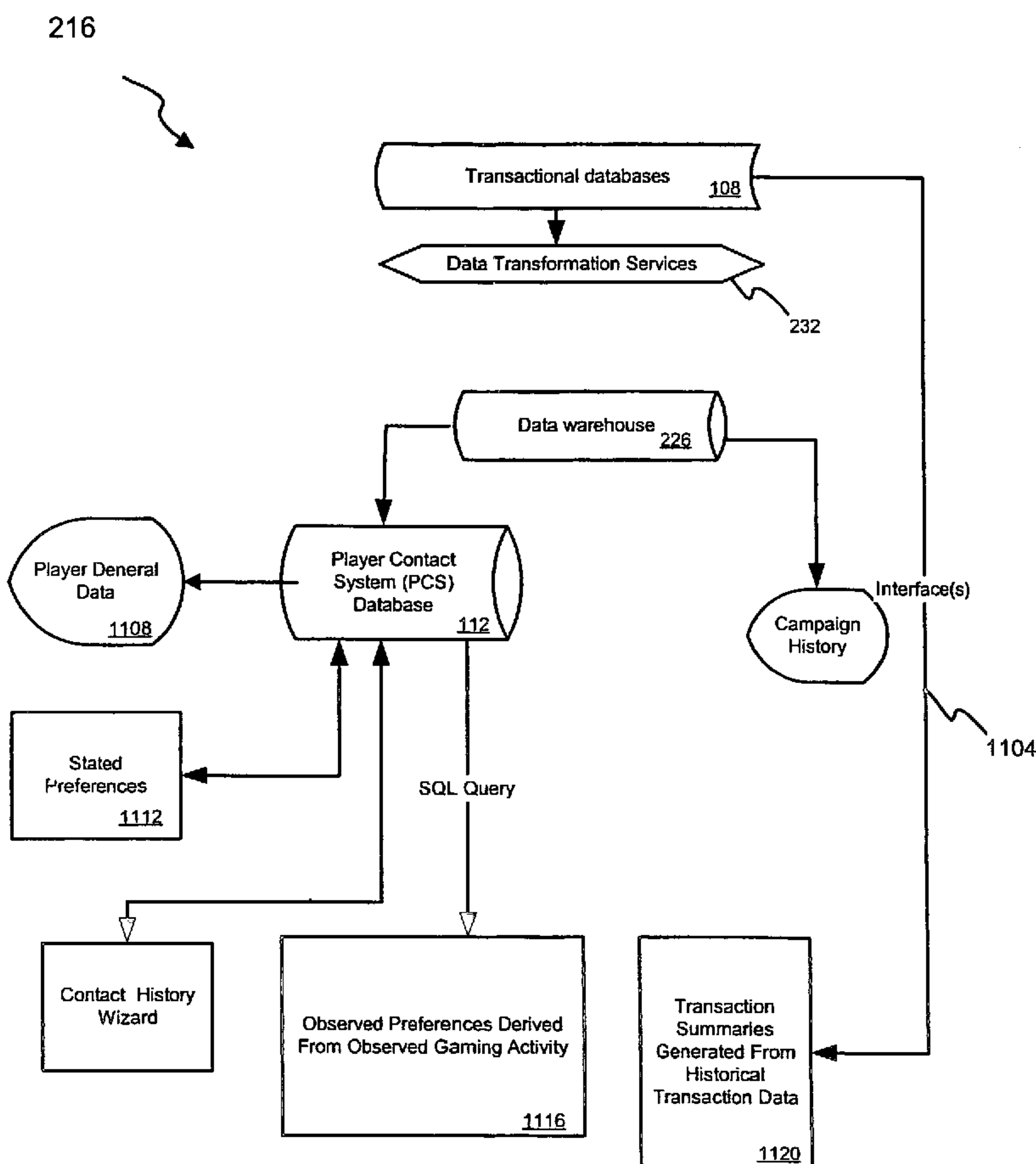
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(54) Title: SYSTEM AND METHOD FOR CUSTOMER CONTACT MANAGEMENT



(57) Abstract: A computer-implemented system and method for customer contact management is disclosed herein. The inventive system is configured to retain contact information for patrons registered with a particular commercial entity, such as a gaming establishment, and to track the preferences of these customers. Such preferences may include, for example, stated preferences (1112) with regard to particular casino games, leisure activities, and offers redeemed. In addition to recording stated preferences, the system determines actual preferences based upon data included within a data warehouse (226). Based on these preferences and other customer information, reports (1120) facilitating the scheduling and analysis of contacts made with these customers may be generated and displayed in order to ensure appropriate allocation of customer service and hosting resources.

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SYSTEM AND METHOD FOR CUSTOMER CONTACT MANAGEMENT

FIELD OF THE INVENTION

5 The present invention relates generally to computerized business information processing systems. More particularly, illustrative embodiments relate to an automated system for generating targeted marketing campaigns and managing customer relationships.

BACKGROUND OF THE INVENTION

10 Businesses engage in marketing of their goods and services both to augment relationships with existing customers and to establish relationships with new customers. In order to ensure that marketing resources are expended productively, marketing campaigns are ideally only to existing customers and to those entities reasonably likely to become customers.

 Many businesses do not maintain a comprehensive repository or database of customer
15 transaction history, and hence lack knowledge of customer demographics and purchasing trends which could potentially be leveraged in developing effective marketing programs. Although other businesses may maintain detailed records of customer activity, many businesses nonetheless remain largely incapable of developing sophisticated marketing offers and campaigns likely to be attractive to both existing and potential customers. This is often
20 because the task of gleaning useful information from the often voluminous records of customer activity has proven to be difficult. Moreover, even when promotional campaigns are formulated using existing customer databases, businesses are often unable to readily estimate the effectiveness of the promotional campaign. Similarly, it is also often difficult to discern change in the behavior of various demographic groups of customers, which precludes
25 formulation of effective promotional campaigns.

 As a consequence of the foregoing, decisions regarding marketing and promotional programs are often made primarily on the basis of the experience and inclination of marketing personnel. As a consequence, substantial marketing resources may be allocated based upon decisions which do not leverage historic transactional and other empirical data.

This may lead to substantial waste of marketing resources, since such resources may then become directed to population groups in which only a relatively small fraction of the group's members are actually interested in the product or service being marketed.

5

SUMMARY OF THE INVENTION

In summary, the illustrative embodiments pertain to a computer-implemented system and method for customer contact management. The inventive system is configured to retain contact information for patrons registered with a particular commercial entity, such as a gaming establishment, and to track the preferences of these customers. In one embodiment such preferences may include, for example, stated preferences with regard to particular casino games, leisure activities, and offers redeemed. In addition to recording stated preferences, the system determines actual preferences based upon data included within a data warehouse. Based on these preferences and other customer information, reports facilitating the scheduling and analysis of contacts made with these customers may be generated and displayed in order to ensure appropriate allocation of customer service and hosting resources.

One aspect or illustrative embodiment of the present invention relates to a customer contact management system containing a data warehouse. The data warehouse typically stores customer demographic and transaction information relating to a plurality of customers. A contact system database, communicatively coupled to the data warehouse, is configured to store observed customer preference information derived from the transaction information. The system further includes a central server including a processor and associated memory. Within the memory is stored a customer contact module for managing the contact system database. In certain embodiments the system generates a user interface through which is displayed a scheduled calls list having entries corresponding to particular customers. The user interface may also be configured to display contact history information associated with particular customers. In addition, the user interface may be further configured to display a graphical representation of a merchant establishment and to superimpose representations of data received from the contact system database upon the graphical representation.

Another illustrative embodiment pertains to a computer-implemented method for customer contact management. The method includes storing customer and transaction

information relating to a plurality of customers. A player detail view containing at least a portion of the customer information pertinent to one of the plurality of customers is displayed. The method further includes deriving, from the transaction information, observed customer preference information associated with the one of the plurality of customers and displaying
5 such observed customer preference information. In certain embodiments the method may also include storing a history of contact made with a given customer and displaying this contact history. A scheduled calls list including an entry corresponding to a given customer may also be displayed, as may a customer list by host. In yet other embodiments a graphical representation of a merchant establishment may be displayed, and representations of the
10 customer information superimposed upon the graphical representation.

In another illustrative embodiment, a customer contact management system includes at least one processor, at least one interface operable to provide a communication link to at least one other device in a data network, a display, and a memory. The at least one processor is configured to store in the memory a plurality of data structures including a data warehouse for
15 storing customer information relating to a plurality of customers associated with a gaming establishment and transaction information involving the plurality of customers, and a contact system database, communicatively coupled to the data warehouse, in which is stored at least observed gaming preference information derived from the transaction information, the observed gaming preference information arranged in a data structure indexed according to at
20 least account numbers for each of the plurality of customers. The at least one processor is configured to co-operate with the at least one interface, the display and the memory to generate a first user interface window on the display that includes an area for entering filtering criteria for querying the contact system database including queries based upon at least the observed gaming preference information stored in the contact system database. The system is
25 further configured to receive an entry of the filtering criteria including a query of the observed gaming preference information, query the contact system database using filtering criteria to determine a subset of the plurality of customers, and output to the display first observed gaming preference information determined for the subset of the plurality of customers. The system is also configured to generate a second user interface window on the display that

includes one or more areas for entering information to schedule at least one contact for each customer in the subset including a first area for entering a mode of communication that employees of the gaming establishment are to use to make the at least one contact, and generate on the display a third user interface window that displays a status of contacts scheduled for each customer in the subset including a list of scheduled contacts associated with a particular employee and a status of each of the scheduled contacts on the list. The system is also configured to receive information for a first set of players currently participating in a gaming activity on a floor of the gaming establishment including a current location of each player in the first set of players, determine a second set of players that exist in both the subset of the plurality of customers and the first set of players, and generate on the display a graphical representation of the floor of the gaming establishment. The graphical representation includes an indicator of the current location of each player in the second set of players on the floor of the gaming establishment.

In another illustrative embodiment, a computer-implemented method for customer contact management includes providing a customer contact management system including at least one processor, at least one interface operable to provide a communication link to at least one other device in a data network, a memory, and a display mechanism. The at least one processor is configured to store in the memory a plurality of data structures including a data warehouse for storing customer information relating to a plurality of customers associated with a gaming establishment and transaction information involving the plurality of customers, wherein the transaction information includes at least information related to gaming activity at the gaming establishment. The data structures further include a contact system database, communicatively coupled to the data warehouse, in which is stored at least observed gaming preference information derived from the transaction information. The at least one processor cooperates with the at least one interface, the memory and the display mechanism to cause the remaining steps discussed in this paragraph to be carried out. In this regard, the method also includes storing, within the data warehouse, the customer information relating to the plurality of customers and the transaction information involving the plurality of customers, and displaying, on the display mechanism, at least a portion of the customer information pertinent to one of the plurality of customers. The method also includes deriving, from the transaction information, the observed gaming preference information associated with the one of the

plurality of customers wherein the observed gaming preference information includes information related to one or more different types of games the one of the plurality of customers has played at the gaming establishment. The method further includes selecting a subset of the plurality of customers to populate the contact system database using filtering
5 criteria including at least the observed gaming preference information, wherein each customer in the subset of the plurality of customers is to be contacted by an employee of the gaming establishment. The method further includes scheduling at least one contact for each customer in the subset of the plurality of customers including scheduling a mode of communication that the employee is to use to contact each customer in the subset of the plurality of customers, and
10 displaying a status of contacts scheduled for each customer in the subset of the plurality of customers including displaying a list of contacts associated with a particular employee and a status of each of the contacts on the list. The method also includes receiving information relating to a first set of players currently participating in a gaming activity on a floor of the gaming establishment including a current location of each player in the first set of players,
15 determining a second set of players that exists in both the subset of the plurality of customers and the first set of players, and generating on the display a graphical representation of the floor of the gaming establishment. The graphical representation includes an indicator of the current location of each player in the second set of players.

In another illustrative embodiment, a computer-readable medium stores instructions
20 which, when executed by at least one processor, cause any one or more of the methods described herein to be carried out.

Other aspects and features of illustrative embodiments will be apparent to those of ordinary skill in the art upon review of the following description of such embodiments, in conjunction with the accompanying figures.
25

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the nature of the features of the invention, reference should be made to the following detailed description taken in conjunction with the accompanying drawings, in which:

30 FIG. 1 provides an overview of a computing environment in which a business information processing system of the present invention may be embodied.

FIG. 2 is a schematic diagram of the structure of a central server included within the information processing system of FIG. 1.

FIG. 3 provides a schematic representation of a user computer included within the information processing system of FIG. 1.

5 FIG. 4 is a data flow diagram illustrating the interaction among various functional components comprising an exemplary embodiment of the system of FIG. 1.

FIG. 5 is a data flow diagram which depicts the cooperation between various functional components of the system of FIG. 1 in effecting a data extraction, transformation and load process.

10

FIG. 6 provides a flowchart representing a high-level sequence of operations performed in connection with creating a promotional campaign in accordance with one aspect of the present invention.

5 FIG. 7 is a flowchart representative of a Segment creation process in accordance with the invention.

FIG. 8 is a flowchart representative of an Offer creation process in accordance with the invention.

FIG. 9 is a flowchart illustrating the campaign creation process of the present invention.

10 FIG. 10 is a flowchart illustrating a data visualization process of the present invention.

FIG. 11 provides a simplified illustrative representation of certain aspects of the structure and function of a Player Contact System (PCS) module relative to other components of the inventive system.

15 FIG. 12 is a flowchart illustrating the operation of the player contact system of the present invention.

FIG. 13 is a flowchart illustrating the operations involved in making calls upon patrons, the scheduling of such calls, and the definition of associations between patrons.

20 FIG. 14 is a flowchart of an exemplary statistical analysis routine which may be employed in connection with the analysis of data accumulated by the player contact system of the invention.

FIG. 15 is a flowchart illustrating a patron locator and data visualization process pertinent to the player contact system of the invention.

25 FIGS. 16 – 48 depict various user interface windows displayed during interaction with a novel campaign management system.

FIGS. 49 - 73 depict various user interface windows displayed during interaction with a player contact system of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

I. SUMMARY OVERVIEW

5 The present invention relates to a computer-implemented system capable of being used to manage contact with customers and otherwise develop customer relationships. Although the exemplary embodiment of the present invention described herein is adapted to the casino industry, the inventive system can be readily applied to other types of business concerns.

10 The inventive system is configured to transform and integrate data from various transactional systems into a central data warehouse. The data integrated within the central data warehouse is accessible to various applications designed to work in concert to improve and manage marketing and business intelligence activities. In the exemplary embodiment the transactional systems providing information to the central data warehouse are operated or controlled by a casino or other gaming establishment, within which a number of gaming machines are located in one or more rooms of a facility. In accordance with one aspect of 15 the invention, data extracted from the transactional systems is transformed in a predefined manner and used to populate designated fields in the data warehouse.

As is described below, the inventive system retains contact information for patrons registered with a particular gaming establishment, and also tracks the preferences of these 20 patrons. Such preferences may include, for example, stated preferences with regard to particular casino games, leisure activities, and offers redeemed. In addition to recording stated preferences, the system determines actual preferences based upon data included within the data warehouse. Based on these preferences, managers employed by the gaming establishment may create reports listing patrons sharing a common preference (e.g., interest 25 in professional football) and assign hosts to contact the listed patrons. Other types of reports could reveal which customers have not visited the gaming establishment since a given date, or which "VIP" customers have not been assigned a host. This enables the gaming establishment to ensure that appropriate levels of its customer service resources are directed to its most valued patrons.

30 The system of the invention may be applied in connection with, for example, (1) designing, managing and analyzing customer contact via a contact management system designed for the casino hospitality industry, (2) provision of visual representations of geographic distributions of selected segments of patrons associated with particular

merchants or gaming establishments, (3) provision of relational and multi-dimensional representations of attribute data for the purpose of data access, mining, modeling, predictive modeling, and other analysis, and (4) formulation of multi-dimensional database queries requiring no actual knowledge of applicable multi-dimensional query languages (e.g., MDX). As is described hereinafter, the synergistic interactivity of the constituent modules of the inventive system leads to significant improvements in functionality relative to existing approaches to computerized business information processing.

II. GENERAL SYSTEM ARCHITECTURE & FUNCTIONALITY

An overview of a computing environment in which the business information processing system 100 of the present invention may be embodied is shown in FIG. 1. In the environment of FIG. 1, the system 100 is implemented using a central server 104 disposed to interface with transactional databases 108, a patron contact system (PCS) database 112, a customer management system (CMS) database 116, and with one or more user computers 120. The central server 104 communicates with the transactional databases 108, PCS database 112, CMS database 116 and user computers 120 over a computer network 124 (e.g., the Internet or a local area network (LAN)). The transactional databases 108 will often include data representative of the interaction between customers and merchants. In certain cases this data may be culled from existing customer databases, merchant loyalty programs, and/or promotional data. In exemplary implementations of the system 100, the transactional databases 108 may include a casino management system, slot accounting system, hotel/property management system, retail or point-of-sale (POS) system, and golf and events management systems. In alternate implementations yet other sources of data may also be tapped as necessary to facilitate additional functionality (e.g., third party databases containing demographic or geographic data, census data, and the like).

FIG. 2 is a schematic diagram of the structure of the central server 104. The central server 104 includes a CPU 202 connected to RAM 204, ROM 208, a network communication module 210 and secondary data storage 212. Included within secondary data storage 212 are a PCS module 216, a CMS module 220, a data visualization module 222, a report writer module 224, a data warehouse 226 and multi-dimensional data storage 228. Secondary data storage also includes a copy of the operating system for the server 104 (not shown), data transformation services 232 and a dimension builder 236 disposed to operate upon the contents of the legacy transactional databases and the data warehouse 226,

respectively. When effecting the functionality described below, the CPU 202 loads into RAM 204 and executes one or more of the program modules stored within secondary data storage 212.

A schematic representation of a user computer 120 is provided by FIG. 3. As shown, the user computer 120 includes a CPU 302 connected to RAM 304, ROM 308 and hard disk storage device 312 containing a copy of the operating system (not shown) for the computer 120. The storage device 312 further includes a PCS client module 350, a CMS client module 354 and a data visualization client module 360, the operation of each of which is described hereinafter. The CPU 302 is also operatively connected to an input device 318 and to a display device 320 through which a user may communicate with user computer 120. Communication with the central server 104 via computer network 124 is facilitated by a network interface module 324, which may comprise a network interface card when user computer 120 is utilized in a LAN networking environment and a modem or the like when user computer 120 interfaces directly with the Internet. The functionality of the system 100 may be accessed by users (e.g., operators of casinos) via one of the user computers 120. In certain implementations the user computer 120 may comprise a portable wireless device, such as a handheld computer or personal digital assistant.

FIG. 4 is a data flow diagram illustrating the interaction among various functional components comprising an exemplary embodiment of the system 100. As is described further below with reference to FIG. 5, data transformation services 232 serve to transform data from the transactional databases 108 prior to storage within the data warehouse 226. In the case in which the system 100 is configured to be utilized in the context of a casino or the like, the transactional databases are seen to include a slot accounting database component 420, a patron tracking database component 424, and a hotel database component 426.

As shown, system stored procedures 440 function to supply data from the warehouse 226 that is required by the PCS database 112 and the CMS database 116. The dimension builder 236 also functions to generate a plurality of multi-dimensional data representations (cubes) based upon the contents of the data warehouse 226, and to store such representations within the multi-dimensional data storage 228. The report writer module 224 draws upon the contents of the multi-dimensional data storage 228 in generating reports of desired complexity (e.g., from simple, transactional-based reports to more complex “drill-down” reports). In addition, a SQL report writer 244 is configured to generate reports based upon the “flat” table structures of the data warehouse 226 described below.

As may be appreciated by reference to FIGS 2-4, the data flow and functionality described with reference to FIG. 4 may be effected by various combinations of modules and elements disposed at the user computers 102 and central server 104. The precise division of functionality between the modules within the user computers 120 (e.g., the PCS client module 350 and the CMS client module 354) and the modules within the central server 104 is not critical to the present invention, and various embodiments of the invention may be predicated upon different distributions of functionality between the central server 104 and the user computers 102. Accordingly, references in the description below to the modules within the central server 104 (e.g., the PCS module 216 and the CMS module 220) are not necessarily intended to be directed exclusively to such modules, and should be construed as being applicable to embodiments in which the relevant functionality is implemented in cooperation with complementary modules disposed within the user computers 102.

FIG. 16 shows a user interface window 1600 presented to a user when initiating interaction with a promotional campaign under development using the CMS module 220. As shown, a General tab 1610 has been selected in the view of FIG. 16. Other tabs (described below) capable of being selected from the window 1600 include a *Segments* tab 1612, *Offers* tab 1616, *Expenses* tab 1618, *Summary* tab 1620, *Forma* tab 1622, *Export Lists* tab 1624 and a *Map* tab 1628. The window 1600 also shows certain parameters of the campaign which have been previously selected. For example, a *Start Date* 1640 is indicated, as well as a *Description* 1644 and *Campaign Name* 1648.

Turning now to FIG. 17, there is shown a user interface window 1700 displayed upon invoking the functionality of the PCS module 216. The user interface window 1700 includes a primary pane 1710 depicting a map of a casino floor. As shown, a user has positioned a mouse pointer 1714 proximate the location of a particular patron. Using a customer identifier or the equivalent, the PCS module 216 retrieves data such as, for example, the name (i.e., "Dorothy Player") from memory and superimposes this information on the pane 1710.

III. EXTRACTION, TRANSFORMATION & LOAD PROCESS

FIG. 5 is a data flow diagram which depicts the cooperation between various functional components of the system 100 in effecting a data extraction, transformation and load (ETL) process 500. It is assumed that data is collected and compiled within the transactional database 108 using conventional techniques. For example, in the gaming industry it is common for patrons to be issued a patron identification card encoded with a

patron identification number uniquely identifying the patron. Within the casino or other gaming area, individual gaming devices are fitted with a card reader, into which the patron inserts the patron tracking card prior to playing the associated gaming device. The card reader reads the patron identification number off the card and informs a central computer of the patron's subsequent gaming activity. This enables individual patron usage to be monitored by associating dated records from the gaming device with patron identification numbers. As a patron interacts with a gaming device and/or visits a hotel, interaction or other transactional data is generated, collected and stored within the transactional database 108. The collected data could be stored within a number of records within a relational database structure of the transactional database 108. Each record may include, for example, a customer identifier associated with a particular patron identification card.

In certain exemplary implementations the ETL process 500 is conducted at least once daily, and automatically copies data from the transactional database 108 into the data warehouse 226. Specifically, based upon the pertinent fields within the database components 420, 424, 426 of the transactional database 108, a data transformation service (DTS) package 510 is developed so as to enable extraction of each of the pertinent fields from the various transactional databases (e.g., the databases 420, 424 and 426). The content of these fields are assembled into staging tables 514, at which point various data validation or integrity operations 518 are performed. Such operations could comprise, for example, validating that a field expected to contain a date does in fact contain information formatted consistently with a date, or confirming that a field expected to contain zip code information does in fact contain a valid zip code. The validated data may then be used as the basis for a variety of data transformation operations 520. For example, new fields may be computed based on the validated data that do not exist within the transactional databases 108 (e.g., a profit margin field could be created on the basis of revenue and cost information fields). Data from external sources could also be appended as part of the data transformation operations 520. In any event, the resultant transformed data is then used to update 524 the data warehouse 226, which stores the table structures created pursuant to the preceding operations.

In the embodiment of FIG. 5 the data within the warehouse 226 is organized on the basis of a plurality of dimensions (e.g., age, gender, time). Data associated with ones of these dimensions is then assembled into cubes and stored within the multi-dimensional data store 228. Various on-line analytical processing (OLAP) services 540 may also be

developed in order to provide an interface through which users may transform or limit the raw data within the data stores 228 in accordance with user-defined or pre-defined functions, and quickly and interactively examine the results in various dimensions of the data. The OLAP services 540 may also be used in performing predictive modeling and reporting 546 in the manner described hereinafter.

IV. CAMPAIGN MANAGEMENT SYSTEM (CMS)

A. Overview

The CMS module 220 and CMS client module 354 are designed to cooperatively function as a tool for the creation, management and analysis of multi-channel marketing campaigns. As is described below, marketing campaigns consistent with the invention consist of one or more offers directed to a particular segment of patrons (e.g., players), hereinafter referred to as a "Segment" or a "Segment population". Campaigns are distributed in a predefined format by way of one or more selected distribution channels. In the exemplary embodiment, the CMS module 220 facilitates the use of MDX in order to substantively improve response times for Segment calculations. The CMS module 220 then converts the MDX query into a SQL query when the actual list of individual records required for export and campaign execution is identified. The expense worksheet, proforma and analysis functions, along with the integration with the mapping and PCS systems are also believed to be unique. Each of the elements of a marketing campaign in accordance with the invention are described in further detail below. In these descriptions reference may be made to FIG. 6, which illustratively represents certain aspects of the structure and function of the CMS module 216 with reference to other components of the system 100.

As is discussed below, the inventive campaign management system is configured to facilitate the targeting of appropriate Offers to specified Segment populations. For example, the system enables definition of a Segment corresponding to those "platinum" patrons which spend at least \$100 per trip at the applicable gaming establishment. In addition, Offers such as free meals or rooms may be defined. A campaign is then constructed at least in part based upon Offers and Segment definitions such as these, and an estimate of the results of one or more potential campaigns is then generated. The results of each potential campaign may then be analyzed, and Offer and Segment definitions adjusted accordingly until a desired return-on-investment (ROI) is attained. Once a campaign has been selected and initiated, the actual performance of the campaign may be evaluated through the tracking of spending and other activity ancillary to the redemption of Offers.

FIG. 6 provides a flowchart 600 representing a high-level sequence of operations performed in connection with creating a promotional campaign in accordance with one aspect of the present invention. Commercial entities may elect to conduct promotional campaigns in order to attract additional business from existing customers and/or to attract new customers or patrons. As shown at 610, a user initiates creation of a promotional campaign by defining one or more Segment populations, which are then stored by the system as corresponding Segment definitions. The campaign creation process also involves defining one or more Offers and storing corresponding Offer parameters (step 620). Appropriate formats for distributing the details of the offers are also selected and the resulting selections are also stored (step 630). In addition, profiles of vendors capable of distributing the defined Offers in the selected formats are defined (step 640). Once these definitions and selections have been made, the promotional campaign may be created in the manner described hereinafter (step 650). The expected results of the campaign may be analyzed during development of the campaign, and the actual results analyzed following its execution (step 660).

B. Segments

The group of customers or patrons included within a Segment population each meet a specific set of criteria defined by a Segment definition. The user defines Segments for use in developing current or subsequent promotional campaigns. Segments are expected to typically be selected based upon characteristics such as age, gender, geographic location and other demographic criteria or patron characteristics. Segment definitions may also be inclusive of those patrons for which transaction histories have not been stored by the applicable merchant. Accordingly, the term “patrons” or “players” as used in the specification includes patrons and potential patrons, whether or not registered with a particular merchant or gaming establishment.

In an exemplary implementation of the system 100, Segments are defined using a Segment definition “wizard” (step 604 of FIG. 6). The wizard is in the form of a graphical user interface (GUI) that provides any easy to use and understand interface for creating complex MDX queries based on measures (data sets that describe attributes of a patron, such as gender, theoretical win, etc.) available in the data warehouse 226. Once a Segment is created, it must later be associated with a campaign (described below). Segments, once defined, are characterized by a Segment profile 612 defined by attributes such as size, worth, average trip theoretical win, etc. As the Segment definition is manipulated, the CMS

module 220 modifies the MDX query that describes the Segment to reflect the changes and uses that query definition to calculate the Segment attribute values. Additionally, as a Segment is associated with various campaigns, the Segment MDX query definition is converted to a SQL query definition so that the records that, in aggregate, make up the Segment can be extracted from the data warehouse 226 for the purpose of creating distribution lists in a format consistent with the format required for the channel(s) and vendor(s) associated with the Segment. The use of MDX to query aggregated data in the data warehouse 226 greatly increases the speed of the query, thereby enabling a user to determine the effectiveness of the Segment definition more quickly than if the query were run against a traditional record set within a relational database. This timely feedback allows greater agility in the Segment definition process, and better ensures accurate and effective segmentation.

Referring now to FIG. 18, there is illustrated a user interface window 1800 through which a user may edit previously defined Segments and create new Segments in accordance with the invention. The window 1800 is accessed by selecting the *Segments* tab 1612 of window 1600 (FIG. 16). In certain embodiments a tree structure (not shown) may be displayed upon selection of the *Segments* tab 1612. Through such a tree structure or the like a user may open an existing Segment to view and/or edit, create a new Segment, rename one or more Segments, and/or create or rename folders to manage and organize existing Segments. In general, the window 1800 enables users to define a group of customers having characteristics comporting with various user-defined criterion. Through use of table-driven query builder, users may define relatively complex Segment definitions using the intuitive drop-down menu design of the user interface window 1800. For more robust queries, selection of a *Query Design Tool* button 1810 displays a design tool interface through which a user may fine-tune, edit, and test more complicated queries.

Segments may be stored and re-used in connection with future promotional campaigns. Such re-used is facilitated through inclusion, within a *Criteria Period* sub-panel 1812 included in a *Segment Dimensions* panel 1814, of a *Start Date* 1816 and an *End Date* 1820 field designed to enable users to indicate a desired criteria period without entering specific dates. For example, in one embodiment the *End Date* field 1820 is set by default at the current date, and the *Start Date* 1816 is set by default to three months prior to the current date. Accordingly, a Segment can be defined once and used simultaneously in

several campaigns, since the actual start/end dates characterizing the Segment will vary depending upon when the campaign is actually conducted.

In addition to the *Segment Dimensions* panel 1814, the window 1800 includes a *General* panel 1830, a *Segments Spec* panel 1834 and a *Formula* panel 1838. In the embodiment of FIG. 18 the *Formula* panel 1838 is populated in real-time with pseudo-code of the SQL query corresponding to the Segment definition criteria entered by the user. The fields of the *General* panel 1830 and additional details regarding the fields of the *Segment Dimensions* panel 1814 are described below in Tables I and II, respectively.

TABLE I

Field of General Panel	Description
Name	The user enters a name and that name is tested against the data warehouse 226 for uniqueness only when the user attempts to save the Segment definition.
Description	This field is used to provide a brief description of the Segment.

TABLE II

Field of Segment Dimensions Panel	Description
Criteria Period Sub-Panel	This panel allows the user to define the date range for the Segment. The date range is dynamic, and statistics based on the associated date range are updated within the campaign that the Segment is being used each time the Segment is recalculated. For example, if a user selects <i>start date is 3 months before today</i> , then the query uses the current date and the 3 months prior to the current date whenever this Segment is calculated.
By Day/By Month	The user selects whether it is desired that the Start Date begin either 'x' number of days, or 'x' number of months, prior to the End Date.
Start Date	The displayed Start Date will be equal to the End Date less the specified number of days/months prior to the End Date. The Start Date will also be updated upon pressing CALC. If the Segment is newly defined, the Start Date will display "undefined" until the CALC button is pressed. The Start Date cannot be before the End Date.
End Date	In the case of a previously defined Segment, the End Date will be displayed as the date at which the Segment was last calculated. If the Segment is newly defined, the End Date will be displayed as "undefined" until the CALC button is pressed. The End Date cannot be greater than the current date.
Text Field	The "Start Date is..." field allows the user to define the date range of the applicable Segment by entering the number of days or months prior to the End Date corresponding to the Start Date.

In the embodiment of FIG. 5 the *Segment Specs* panel 1834 serves as an interface to a read-only table populated by the data warehouse 226. Specifically, the data warehouse 226 populates this table with information relevant to a specified Segment based on the

query results from the warehouse 226. If a user desires to recalculate the table information (for example, in response to a change in the dates the *Criteria Period* sub-panel 1812), then the user may select a CALC button 1852 in order to display the new results or statistics. The results may be made to appear in a predefined color (e.g., red) in cases in which the applicable Segment has never been calculated (or has not been calculated for more than a predefined period of time, such as two weeks), thus indicating that the displayed statistical information or results may be inaccurate.

Again referring to FIG. 18, the user interface window 1800 is also illustrated as including a SAVE button 1870 and a CLOSE button 1874, the functionality of each being described below in Table III.

TABLE III

Button	Description
SAVE	Upon pressing SAVE, a document validation routine checks to ensure that all fields are filled with valid information. If so, the Segment will be saved but the window 1800 will remain open. If an error occurs, a dialog box will inform the user and the Segment will not be saved until the fields in question have appropriate content.
CLOSE	Upon pressing CLOSE, a dialog box will query the user as to whether it is desired to save any changes that have been made since the last SAVE. If so, the validation routine is executed will run and the window will close after the save is completed. If no, the window 1800 closes without any such changes being saved.

Referring now to FIG. 7, a flowchart is provided of the Segment creation process mentioned above with reference to FIG. 6. As shown, the interaction occurring with the CMS database 116 and data warehouse 226 during the Segment creation process is also illustrated in FIG. 7 in order to more fully elucidate this process. As may be appreciated with reference to FIG. 7, the CMS database 116 provides a first or "local" repository of information that is populated by the data warehouse 226.

A first step 704 in creating a Segment is to establish a valid Start Date and End Date for the Segment. This is illustrated by the user interface window 1900 of FIG. 19, which depicts a cursor 1904 within the *End Date* field 1820. In FIG. 19, a user has entered *Name* and *Description* information for a newly created Segment, and is in the process of entering a *Start Date* and an *End Date*. As shown in FIG. 7, the selected *Start Date* and *End Date* are used identify any existing Segments 708 within the CMS database 116 having compatible Start Date and End Date criteria. The set of compatible Segments may then be further narrowed by establishing additional parameters or "measures" consistent with the

organizational parameters of the data warehouse 226 (step 712). In the exemplary embodiment this involves selecting a category and a measure from a set of available measures 710, each of which comprises part of the criteria defining the Segment being created. The foregoing aspects of the Segment creation process are illustratively represented by the screen shots of FIGS. 20 and 21. Specifically, FIG. 20 depicts a user interface window 2000 within which a user is in the process of selecting from a list 2010 of warehouse measures pertinent to the gaming industry in order to further define the Segment definition query. FIG. 21 depicts a user interface window 2100 substantially similar to the window 2000, but in the case of FIG. 21 a user is shown as being in the process of selecting a category from a category list 2110. Once an initial group of measures has been identified, a decision is made of whether or not to retain them (step 718). If a decision is made to keep the measures, then the measures are combined with logical operators and target values in order to form a Segment definition query (step 722); otherwise, a new set of measures is selected pursuant to step 712.

Once a Segment definition 724 has been developed, a corresponding Segment is calculated by applying a query based on the definition to the data warehouse 226 (step 726) via system stored procedures 760. In the exemplary embodiment the result of application of a Segment definition query against the data warehouse 226 is a list of patron identification numbers corresponding to a set of individual patrons meeting the criteria established by the Segment definition.

Once the composition of the Segment has been calculated, it may be spatially analyzed (i.e., geographically mapped) in a step 730. Turning now to FIG. 23, a screen shot is depicted of a user interface window 2300 which illustratively represents the geographic distribution of the results of a Segment definition query. The user interface window 2300 is displayed upon selection of a Map tab 2310, and is color-coded or gray-scaled coded to reflect the clustering of members of the applicable Segment throughout the illustrated geographic area 2320.

A Segment may also be quantitatively analyzed (step 734) subsequent to its calculation pursuant to step 726. For example, FIG. 22 depicts a user interface screen 2200 as it could appear immediately following the execution of the Segment calculation operation of step 726. As may be appreciated from FIG. 22, quantitative analysis may now be performed on the basis of the values displayed within the *Segment Specs* panel 2210. In addition, the accuracy of the applied Segment definition query may be verified by comparing the

values from the *Segment Dimensions* panel 2216 with the text in the Formula display box 2220.

Following completion of the above spatial and quantitative analysis of the calculated Segment, it may be desired to retain the corresponding Segment definition (step 738); otherwise, essentially any aspect of the Segment definition may be changed as desired. Once it has been decided to keep a particular Segment definition, it is stored for subsequent use as an existing Segment 708 within the CMS database 116 (step 742). As is discussed below, if it is decided to utilize a particular Segment definition in the context of a given campaign, the Segment definition is retrieved from the existing Segments 708 within the CMS database 116. The criteria corresponding to the retrieved definition are then applied against the contents of the data warehouse 226 in order to yield a list of patron identification numbers identifying a set of patrons meeting such criteria.

C. Offers

FIG. 8 is a flowchart representative of, inter alia, the Offer creation process 620 described briefly above with reference to FIG. 6. In the exemplary embodiment any number of Offers (e.g. free hotel room, free gaming chips, food discounts, etc.) may be defined in the manner illustrated by FIG. 8. Offers have a plurality of attributes such as name, type (gaming, hotel, food, etc.), location, cost, value, etc. Once an Offer is created, it is stored as an available Offer 810 within the CMS database 116 and made available for use in subsequent promotional campaigns.

Referring to FIG. 8, the Offer creation process 620 is initiated by ascribing a name, description, date and status to a new Offer (step 814). This aspect of the process is illustrated by FIG. 24, which depicts a user interface window 2400 having a *New Offer* panel 2410. As shown, the *New Offer* panel 2410 includes a *General* sub-panel 2414 and an *Offer Details* sub-panel 2418. In the exemplary embodiment each user interface window driven by the CMS module 220 includes an *Offers* tab (see, e.g., the *Offers* tab 2320 of window 2300), which may be selected (i.e., “double-clicked”) in order to display the *New Offer* panel 2410.

Within the *General* sub-panel 2414, a user has begun the process of creating a new Offer by entering a name within an *Offer Name* field 2422 and a description of the Offer within a *Description* field 2426. An Offer status (e.g., active or inactive) may also be indicated through appropriate selection of a status box 2430. If a user desires to use the same name as a previously defined Offer, by checking the “Inactive” status box 2430 the

Offer is automatically moved to an Inactive folder (not shown) and a new Offer may be created with the same name.

The Offer creation process also involves categorizing the Offer and identifying it as a particular type (step 820). This is illustrated by the user interface window 2500 of FIG. 25, which is substantially identical to the window 2400 but further depicts the selection of a category (i.e., "Gaming") from a *Categories* list 2510 within the *Offer Details* sub-panel 2418. In addition, the window 2500 indicates that the user has also selected an Offer type from a drop-down menu associated with a *Types* field 2520.

The Offer creation process continues through specification of a value of the Offer to a potential patron and the cost of the Offer to the offering casino or other gaming establishment (step 824). These values are determined by management of the applicable casino or gaming facility. For example, the value of the Offer may be equivalent to the value of the Offer perceived by the patron receiving the Offer (e.g., a ticket to some form of entertainment having a face value of \$50 would likely be perceived as a \$50 value). Similarly, the cost of the Offer to the casino could simply be the actual cost of extending the Offer to the patron (e.g., the cost of procuring the ticket given to the patron). In the user interface window 2600 of FIG. 26, a user has entered a value of an Offer within a *Value* field 2610 of the *Offer Details* sub-panel 2418 and a cost of the Offer within a *Casino Cost* field 2620. Once an Offer has been saved, it is generally not permitted to be edited other than to change the its description or be declared inactive. This is because Offers are directly associated with promotional campaigns, and changing the values of the *Value* field 2610 or the *Casino Cost* field 2620 would impact the post-analysis of the efficacy of a given campaign.

If it is determined to keep the Offer which has been created (step 828), the Offer is stored as an available Offer 810 for later use in one or more campaigns (step 832).

Additional details regarding the various fields within the *General* sub-panel 2414 of the windows of FIGS. 24-26 are set forth in Table IV. Similarly, further description of the fields of the *Offer Details* sub-panel 2418 are given below in Table V.

TABLE IV

Field of General Panel	Description
Offer Name	A user enters a unique Offer name within the Offer Name field. Upon SAVE or CLOSE, the CMS database 116 will be queried to ensure the Offer name is unique. If it is not, a dialog box will prompt the user to enter a new one.
Date Created	The Date Created is a non-editable text field. Upon SAVE, the current date will be entered in this field.
Creator	The Creator is the person creating the Offer. This field is automatically entered based on the identification provided during the system login process.
Description	The Description field is a text field. It will allow special characters, numbers, etc. The user will input a description of the Offer in this area.
Inactive	If a user would like to end an Offer, the Inactive status box may be checked and the Offer will be put in an Inactive Folder. At that time, the Offer cannot be used in any future campaigns.
No Value	If the No Value status box is selected, the offer properties will not require the input of "Value" or "Cost" data, as the offer will be considered an advertisement.

TABLE V

Field of Offer Details Panel	Description
Categories	The Categories field is a list box that will be populated by the CMS database 116 to include all available Offer categories. A user will select the category that best fits the Offer. In the exemplary embodiment there are several principal predefined categories such, as, for example, Room, Gaming, Special Events, and Entertainment. Each of these general categories includes "Offer Types" unique to that category. For example, a Room (general category) contains a predefined set of Offer types that include (but are not limited to) Casino Rate/Limited Food & Beverage or Full Comp Room/No Food & Beverage.
Types	Upon selection of the category, the Types dropdown will populate from the CMS database 116 with the subtypes of the category chosen. The Types field is a dropdown list of subtypes for the chosen Category. The user selects a type that is best suited to the Offer.
Location	Location is a text field in which is entered the location where the Offer is valid. For example, "Benihana" or "Bellagio".
Value	Value is a text field of the currency format in which the value of the Offer to the guest is entered.
Casino Cost	Casino Cost is also a text field of the currency format in which the cost of the Offer to the Casino or other gaming establishment is entered.

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D. Channels

Marketing campaigns can be executed through a number of channels, including, but not limited to, direct mail, email, telemarketing, door-to-door. Each Segment receiving an Offer within a campaign can be delivered via any number of channels. When integrated, the PCS module 216 provides information regarding telemarketing channels for campaigns utilizing this approach.

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E. Distribution Formats

As is described below, during the process of creating a promotional campaign specific vendors and channels will be specified through which the campaign is executed. Since different vendors may utilize different equipment when developing campaign-related material for particular channels, various distribution formats specific to particular vendors and channels may be defined. Typically, a distribution format defines the specifics of the electronic files generated and sent to vendors in connection with campaigns of various types (e.g., mailing, or e-mail, or telemarketing). Exemplary distribution formats may, for example, specify the required fields for such electronic files, the display order, the data types to be output, and the delimiter(s) to be used for the output files.

Turning again to FIG. 8, there is shown a flowchart representative of the Offer distribution format creation process 630. The process 630 may be initiated by selecting a *Distribution* tab 2330 (FIG. 23) from any window relating to the campaign management system. For example, selection of the *Distribution* tab 2330 could result in display of the user interface window 2700 of FIG. 27. Through the window 2700 a user may open an existing distribution format for viewing and/or editing, create a new distribution format, rename an existing distribution format, and create or rename folders to manage and organize existing distribution formats. In particular, through a *New Distribution Format* panel 2710 a user may create or edit distribution formats by adding or deleting fields, entering the maximum size allowed for particular fields, and place the fields in the desired order (step 842). Then, using an *Output* sub-panel 2720, the user selects the preferred delimiter for the chosen format (step 846). Radio buttons 2810 on the sub-panel 2720 allow a user to choose the delimiter for the distribution format, with comma-delimited being the default selection in the exemplary embodiment. The selection of "Other" enables the Char-Delimited field, which allows the user to enter one letter as a delimiter.

If it is determined to keep the distribution format which has been created (step 850), the format is stored as an available distribution format 854 for later use in the campaign export process (step 856).

Additional details regarding the various fields within a *General* sub-panel 2820 of the distribution format windows of FIGS. 27-28 are set forth in Table VI. Similarly, further description of the fields of the *Offer Details* sub-panel 2418 are given below in Table VII.

TABLE VI

Field of General Sub-Panel	Description
Distribution List Name	Distribution List Name is a text field in which the user assigns a name to the particular distribution list.
Creator	Creator is a non-editable text field which is automatically populated based upon login information supplied by the creator of the distribution format.
Last Modified	Last Modified is a non-editable text field which auto-populates based on the last time the format was saved with changes.

TABLE VII

Field of Fields Sub-Panel	Description
Available	Available is a database-populated list of all available fields. These fields are used to create a template for the Distribution Format. Upon selection of a field from the list, the user will click the > to move that field into the Selected table, simultaneously removing it from the list.
Selected	This list constitutes all fields selected by the user. A user may remove a field from the Selected table by clicking on <. At the same time as the removal, that field is added back into the Available list. The user may move the fields in the Selected table up and down as required, using the ^ and v buttons, thereby changing the order in which the distribution format is later returned when exported to a file.

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F. Vendors

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Again referring to FIG. 8, there is shown a flowchart representative of the Vendor creation process 640. In the exemplary embodiment each Vendor corresponds to a commercial vendor of materials or services used in the execution of a campaign. For example, a Vendor may be utilized for printing or otherwise producing brochures distributed through one or more channels in connection with execution of a campaign.

15

The Vendor creation process 640 may be initiated by selecting a *Vendor* tab 2340 (FIG. 23) from any window relating to the campaign management system, which results in display of a user interface window 2900 such as that depicted in of FIG. 29. Through the window 2900 a user may open an existing Vendor for viewing and/or editing, create a new Vendor, rename Vendors, and create or rename folders to manage and organize existing Vendors. In particular, through a *Vendor* panel 2910 a user may create or edit Vendors by specifying contact information, indicating the Vendor's format preferences, and adding notes regarding the Vendor (step 860). An *Available Channels* table 2926, generally dynamically created based upon the number of marketing channels in the CMS database 116, is disposed within a *Channels and Distribution Format* sub-pane 2930. Users can

20

select those marketing and fulfillment channels that the Vendor is capable of handling (step 864), each of which is associated with a default distribution format specifying the format/style preferred by the Vendor (step 868). The selection of a fulfillment channel is illustrated by the window 3000 of FIG. 30, in which a *Direct Mail* channel 3010 has been selected. FIG. 30 also indicates that a user is in the process of associating a distribution format from within a drop-down list of distribution formats 3020 with the *Direct Mail* channel 3010. Referring now to the user interface window 3100 of FIG. 31, it is seen that after a distribution format (i.e., *Mass Mail*) has been selected from the list of formats 3020, a *Distribution Format Quick View* panel 3110 is populated with a preview of the selected format. FIG. 31 also indicates that the user is also in the process of selecting *Telemarketing* 3120 as an additional *Available Channel* 2926 provided by the Vendor.

If it is determined to keep the Vendor which has been created (step 872), the format is stored as an available Vendor 874 for later use in one or more campaigns (step 876).

Additional details regarding the various fields within the Vendor panel 2910 of the Vendor windows of FIGS. 29-31 are set forth in Table VIII. Similarly, further description of the fields of the *Distribution Format Quick View* panel 3110 are given below in Table IX.

Table VIII

Field of Vendor Panel	Description
Company Name	The Company Name will be checked against the database upon saving to ensure its uniqueness. In the event that the name is already in use, the validation will lead to a dialog box, which asks the user if they wish to overwrite the current information or create a new company.
Address1	The Address1 field will accept all numbers, letters, apostrophe, pound sign, and a hyphen. (i.e.: 29 1st Street).
Address2	The Address2 field is not required. It will also accept all numbers, letters, apostrophe, pound sign, and a hyphen. (i.e.: #B-34).
City	The City field will accept letters, hyphen, and apostrophe only.
State	The State field will accept letters, hyphen, and apostrophe only.
Country	Country will allow input of letters, hyphen, and apostrophe only.
Country Code	The Country Code is a prefix for the telephone number. Only numbers will be allowed.
Phone	Phone will accept hyphens and numbers only.
FAX	Fax will accept hyphens and numbers only.
Contact Name	Contact Name is not a required field. Contact Name will accept letters, comma, hyphen, and apostrophe only.
Title	Letters, apostrophe, hyphen, and comma will be accepted.
Phone Ext	Phone Ext is not a required field.
Secondary Contact	Secondary Contact is not a required field. It will enact the same validation as Contact Name.
Title	Title is not a required field.
Phone Ext	Phone Ext is not a required field.

TABLE IX

Field of Quick View Panel	Description
Name	The Name field consists of a dropdown box populated by the CMS database 116 with all available distribution formats. The user may choose a distribution format to view or they may click on the ellipses button in the table to the left in order to make a selection. Once a selection is highlighted, all the fields in that particular distribution format will populate in the list box below.
Delimiter	The delimiter field is a read only text field, which is populated by the CMS database 116 with the delimiter associated with the selected distribution format.

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G. Creating a campaign

FIG. 9 is a flowchart illustrating the campaign creation process 650 of the present invention. As shown, the interaction occurring with the CMS database 116 and data warehouse 226 during the campaign creation process is also illustrated in FIG. 9 in order to more fully elucidate this process. As may be appreciated with reference to FIG. 9, the CMS

database 116 provides a first or “local” repository of information that is populated by the data warehouse 226. In the exemplary embodiment the functionality of the inventive campaign management system is effected through execution of program instructions stored within the CMS module 220 and the CMS client module 354.

5 As was discussed above, the data warehouse 226 is filled via the extraction, transformation and load process (ETL) 500 of FIG. 5..

A first step 904 in creating a campaign is to establish a valid start date, end date, and name for the campaign. In the exemplary embodiment the start date for the campaign may correspond to the date upon which promotional materials for the campaign are distributed to existing and/or potential patrons, or any other date in some way corresponding to the beginning of the campaign. The establishment of campaign start/end dates is illustrated by the user interface window 3200 of FIG. 32, in which a user has entered a name for the campaign in a *Campaign Name* field 3210 after selecting the *General* tab 3214. In addition, the user has utilized a drop-down calendar 3220 to facilitate entry of campaign start/end date information into a *Start Date* field 3224 and an *End Date* field 3228, respectively. As is indicated by FIG. 32, a campaign may also be further defined by entry of appropriate information into a *Campaign Code* field 3232, *Description* field 3236, and a *Creator* field 3240. When a campaign’s Start Date is reached, the campaign is tagged as active and certain attributes can no longer be modified. Additionally, active and completed campaigns have actual redemption activity associated with them, whereas campaigns in creation stages are characterized by only proforma redemption metrics.

Any number of Segments are chosen from the *Available Segments* 708 and associated with the campaign (step 918). This process is illustrated by the user interface window 3300 of FIG. 33, which is displayed upon selection of a *Segments* tab 3310. As shown, the window 3300 includes a *Select Segments* panel 3320 containing an *Available Segments* list 3324 and a *Selected Segments* sub-panel 3328. In the example of FIG. 33, a user is in the process of associating a Segment from the *Available Segments* list 3324 with the current campaign (i.e., the campaign having a Campaign Name of “Superbowl Campaign”). Segments are selected from the *Available Segments* list 3324 and added (associated) to the current campaign by use of the arrow buttons 3330. In the user interface window 3400 of FIG. 34, which illustrates the user interface window 3300 of FIG. 33 as it could exist at a later time, the user has highlighted a particular Segment 3410 within the *Selected Segments* sub-panel 3328. As shown, the user is in the process and of establishing

campaign-specific date parameters for this Segment within a *Date Range* sub-panel 3420 of a *Select Criteria* panel 3430, thereby yielding a campaign Segment definition 922 (FIG. 9).

Referring again to FIG. 9, once a campaign Segment definition 922 has been determined, the user may elect to calculate a corresponding campaign Segment population (step 924). If so, the campaign Segment population is calculated by applying the campaign Segment definition 922 against the contents of the data warehouse 226 (step 928). Once a campaign Segment population has been calculated, it may be analyzed both spatially (step 930) and quantitatively (step 934).

It is observed that by changing the date range for a Segment definition, corresponding changes accrue in the corresponding Segment population as a different set of patrons will typically qualify relative to the patron set qualifying under the original date range. For example, if a particular Segment definition requires a theoretical win of \$1000 over a nine month period, a potentially different set of patrons will be identified by altering the Segment definition to specify a date range spanning one month.

FIG. 35 depicts a user interface window 3500 illustratively representing the type of quantitative analysis which may be effected with respect to selected campaign Segment populations. As is indicated by FIG. 35, a *Selected Segments* sub-panel 3510 accessible upon selection of the *Segments* tab 3310 displays various statistical information associated with a pair of campaign Segment populations. These statistics include, for example, total theoretical win 3520 for the Segment population, average theoretical win per patron 3530 within the Segment population, and average theoretical win per patron per trip 3534. It is noted that once a set of potential Segments for a campaign have been selected and the corresponding Segment populations calculated, a prioritization calculation determines the appropriate placement for each member of all the Segments selected. That is, if a patron qualifies for more than one Segment within a campaign, the patron will be placed into the Segment given the highest priority in the system. As a consequence, in the exemplary embodiment each Segment population identified within the window 3500 contains a mutually exclusive set of patrons (i.e., individual patrons are not "duplicated" within different Segment populations). This ensures that only a single Offer is distributed to each patron in connection with execution of a given campaign, and places patrons within the most highly "ranked" of the various Segments in which they could be included for a given campaign. Although Segments may be so ranked in any order desired, ranking will often be done on the basis of theoretical win per patron.

Turning now to FIG. 36, there is shown a user interface window 3600 illustratively representing the type of spatial analysis which may be effected with respect to selected Segment populations. As is indicated by FIG. 36, the window 3600 is displayed upon selection of a *Map* tab 3610. The map 3620 illustratively represents the geographical distribution of the campaign Segment populations identified within a *Segments* panel 3624. In the embodiment of FIG. 36 the set of population members within a given zip code are aggregated and the composite results for each zip code are displayed. Spatial analysis the map 3620 may be performed by using various mapping tools, as well as by simply viewing it in accordance with the legend information contained within a *Map Legend* panel 3640. The quantitative and spatial analysis window 3500 and 3600 permit a user to evaluate various economic attributes of a given Segment population, which facilitates determination of whether to actually include the corresponding Segment definitions within the campaign under development.

Once a set of one or more Segments have been selected for inclusion within the campaign (step 938), any number of predefined Offers can be associated with each Segment (step 942). FIG. 37 shows a user interface window 3700 containing a primary panel 3710 displayed upon selection of an *Offers* tab 3714. As shown, the primary panel 3710 includes a *Selected Segment and Offer Association* sub-panel 3718 and an *Available Offers* list 3722. In the example of FIG. 37 a user is in the process of associating Offers from the Available Offers list 3722 with the individual Segments of the open campaign identified within the *Selected Segment and Offer Association* sub-panel 3718. This is shown as being effected by selecting an Offer from the *Available Offers* list 3722 and “dragging and dropping” the selected Offer onto a Segment in the sub-panel 3718 in order to perform the association. As shown within a user interface window 3800 of FIG. 38, other attributes may then be associated with the Offers copied to the sub-panel 3718. For example, in the embodiment of FIG. 38 a period of time during which a given Offer may be redeemed can be set by specifying a Valid Start date 3810 and a Valid End date 3816 using a drop-down calendar 3820. An expected redemption percentage 3826 during the specified redemption period may also be entered. In order to facilitate estimation of redemption rates, the data warehouse 226 may be configured to support the training of predictive models utilizing, but not limited to, cluster and decision tree modeling protocols. To the extent available, users may utilize such predictive models to associate redemption rates with Offers within a campaign.

Once an Offer has been associated with each Segment of a campaign, a summary of statistical information characterizing each Offer and Segment of a campaign may be viewed (step 950). This is illustrated by the user interface window 3900 of FIG. 39, which is seen to include a *By Segment* summary panel 3910 and a *By Offer* summary panel 3914. As shown, the *By Segment* summary panel 3910 provides certain statistical information relating to the various Segments 3920 of the applicable campaign. Similarly, the *By Offer* summary panel 3914 provides various statistics pertinent to the *Offers* 3930 of the campaign.

Turning now to FIG. 40, there is shown a user interface window 4000 containing an *Estimated Expenses* panel 4010 through which various expense items may be associated with a campaign (step 954). The expenses entered via the worksheet 4020 within the *Estimated Expenses* panel 4010 frequently correspond to those additional expenses or “hard costs” associated with execution of a promotional campaign; that is, to those costs ancillary to the inherent costs of the Offers extended during execution of the campaign. For example, such additional expenses could comprise the costs of television or print advertising, mailing costs, printing costs and the like, but would not include the cost to a casino of offering a free night of accommodations through a particular Offer. In FIG. 40, a user is shown entering a value with a *Quantity* field 4030 of the expenses worksheet 4020, and will then enter a value within a *Cost* field 4034. A total cost value will then be calculated and appear within the corresponding *Total Cost* field 4040. The expense items occupying the rows of the worksheet 4200 can be added and removed by means of a right-click context menu (not shown). Although it is assumed that estimated costs are being entered within the worksheet 4020, at the conclusion of the applicable campaign actual expenses could subsequently entered in a different portion of the worksheet 4020 (not shown).

In a particular embodiment the development of a promotional campaign is considered complete and amenable to a pro forma analysis when all Segments, channels, Offers, redemption rates, Vendors, expenses and distribution formats have been defined. Once these definitions have been completed, the expected pro-forma results 956 of the campaign may be generated (step 958). As is discussed below, the results 962 of this pro-forma analysis may be analyzed in conjunction with, or independently of, the active/post campaign performance data 964 resulting from the actual execution of the campaign itself (step 966). Specifically, once a campaign has begun to be executed (i.e., is active), the active campaign performance data 964 may be compared to the pro-forma results 956, while the post campaign performance data 964 may be compared to the pro-forma results 956 at

the conclusion of the campaign. A variance 970 between the pro-forma results 956 and the active/post campaign performance data 964 may be determined in connection with each comparison.

FIG. 41 depicts a user interface window 4100 containing a used for quantitative analysis of a campaign. As shown, the user interface window includes a *Pro-Forma* tab 4110, an *Analysis* tab 4114 and a *Variance* tab 4118, with the *Pro-Forma* tab 4110 having been selected in the embodiment of FIG. 41. Selection of these tabs results in population of the window 4100 with the pro-forma results 956, the active/post campaign performance data 964, and the variance 970, respectively. After a campaign has been launched, data relating to the redemption of Offers during patron trips to the applicable casino or other gaming establishment, i.e., "redemption trip data" (step 974) is used in subsequent campaign analysis (step 978). The variance 970 is also updated in association with updating of the active campaign performance data 964 which occurs in response to each iteration of step 978.

Referring to FIG. 41, a results table 4126 is displayed upon selection of the *Pro-Forma* tab 4110. In the exemplary embodiment similar results tables are displayed upon selection of the *Analysis* tab 4114 and the *Variance* tab 4118. As shown, a first column 4130 of the results table 4126 includes various objects comprising a significant portion of the applicable campaign 4132 (e.g., *Segments* 4134, *Offers* 4136, distribution channels 4138). An *Accounts* column 4150 provides an indication of the raw counts associated with each object, while an estimated redemption percentage column 4152 indicates the redemption percentage estimated for the *Offers* objects 4136.

If the pro-forma results 956 generated on the basis of a given campaign definition are deemed acceptable, it may be determined to keep the campaign (step 982). If not, and as is indicated by FIG. 9, essential any aspect of the campaign definition may be modified. For example, different *Segments* may be used, different *Offers* may be associated with different *Segments*, and/or the campaign expense structure may be modified. If it is decided that the campaign is acceptable, the information defining the campaign (e.g., *Segments*, *Offers*, *Vendors*, distribution formats) is stored within the CMS database 116 as a campaign definition 984. In addition, the *Vendors* for the campaign are associated with the *Segments* of the campaign as a function of fulfillment channel (step 988).

Referring now to FIG. 42, a user interface window 4200 is shown in which a *Vendor* is being associated with a *Segment* for a particular *Offer* fulfillment channel. In particular,

selection of an *Export Lists* tab 4210 results in display of a file export table 4214 organized as a function of fulfillment channel. As shown, the rows of the file export table 4214 are divided into groups corresponding to the fulfillment channels of *Direct Mail* 4218, *E-Mail* 4220 and *Telemarketing* 4222. In the example of FIG. 42, a particular *Vendor* 4226 is being associated with *Segment* 4230 for purposes of *Direct Mail* 4220 fulfillment; that is, *Vendor* 4226 will distribute Offers to members of *Segment* 4230 via direct mail. Once this association has been effected, a format for distribution (i.e., *Dist Format* 4240) via the *Direct Mail* 4218 fulfillment channel will be chosen.

Referring again to FIG. 9, once Vendors and distribution formats have been selected, the data defining a given campaign is exported in files to the applicable Vendors in the selected distribution formats (step 992). In particular, one file is sent to each Vendor for each Segment/channel combination. FIG. 43 is a user interface window 4300 which again depicts the file export table 4214, which is displayed upon selection of the *Export Lists* tab 4210. As shown, since both a *Vendor* 4310 and a *Distribution Format* 4240 have been specified for each Segment within the *Direct Mail* 4218 category, the user has chosen to export the corresponding data to files by selecting a *Vendor Export* button 4230. In the exemplary embodiment the file for each fulfillment channel includes data (e.g., name, account number, address) for the patrons included in the applicable Segment that is arranged in accordance with the selected distribution format. These files are then sent to the applicable Vendors for fulfillment, which appropriately process them and forwards the specified Offers to patrons or other consumers (step 994).

As mentioned above, as Offers are redeemed by patrons or consumers via one or more transactional systems (step 974), the corresponding redemption events are recorded in the applicable transactional databases 108 and subsequently transferred to the data warehouse via the ETL process 500. The CMS database 116 then recognizes the redemption record and updates the campaign attributes 984 to include the redemption event and any associated records appropriate for the completion of a financial performance analysis 966 vis-à-vis the proforma financials. In addition, Offer performance records can be further utilized to train predictive models for use in future campaigns.

H. Data Process Visualization

FIG. 10 is a flowchart illustrating a data visualization process 1000 of the present invention. In the embodiment of FIG. 10, it is contemplated that the process 1000 will be executed primarily by the CMS module 220 and the CMS client module 354. As shown,

the interaction occurring with the CMS database 116, data warehouse 226 and an external mapping server 1006 during the data visualization process is also illustrated in FIG. 10 in order to more fully elucidate this process. In the exemplary embodiment the data visualization process 1000 may be utilized in connection with providing a visual representation of the geographic distribution of members of an individual Segment or of the collection of Segments included within a campaign.

In one embodiment the external mapping server 1006 may be commercially operated by a third party engaged in providing geographic information systems (GIS) and other mapping services to Internet-enabled client browsers. For example, ESRI (<http://www.esri.com/software/arcims/index.html>) operates an ArcIMS Server which facilitates access to, and interaction with, Internet mapping and GIS data from a Web browser.

Referring to FIG. 10, the data visualization process 1000 is initiated through issuance of a request to the CMS database 116 for data relating to a Segment or set of Segments within a campaign (step 1004). Once this data has been received or pending its receipt, the external mapping server 1006 is queried (step 1012) and geographic information concerning the identified area is returned (step 1016). The returned geographic data is then joined with the data received from the CMS database 116 and/or data warehouse 226 that is specific to the Segment or collection of Segments of interest (step 1020). At this point the resultant geographic representation of the Segment data may be spatially analyzed in the manner described below (step 1030).

FIGS. 44-46 depict user interface windows through which certain aspects of spatial analysis of mapped Segment data may be performed consistent with the invention. In each of FIGS. 44-46, mapped Segment data 4410 is displayed within a primary panel 4414 exhibited upon selection of a *Map* tab 4418. In the exemplary embodiment the mapped Segment data 4410 comprises a geographic representation of the patrons comprising the Segments of the campaign having a *Campaign Name* 4420 of "Superbowl Campaign".

Turning now to FIG. 44, a user has selected an Identify tool 4430 in connection with viewing of the mapped Segment data 4410. The selection of the *Identify* tool 4430 is further indicated by the icon 4434 proximate the displayed cursor 4438. As is illustrated by the user interface window 4500 of FIG. 45, the *Identify* tool 4430 may be used to obtain detailed information concerning an attribute of the mapped Segment data 4410. Specifically, clicking upon the mapped Segment data 4410 causes a dialog to appear,

which will generally consist of a table containing general and statistical data relevant to the attribute. In the case of FIG. 45, a *Map Properties* dialog 4510 and a *Class Breaks Editor* dialog 4514 have been opened. The *Class Breaks Editor* dialog 4514 may be used to create manual class breaks as the data classification method for the mapped Segment data 4410 in its entirety, and provides one example of the interactive nature of the mapping process.

Referring now to the user interface window 4600 of FIG. 46, a user has utilized one of the selection tools (not shown) to open an *Attribute Viewer* window 4610 comprising an attribute table characterizing the mapped Segment data 4410. The attribute table provides an indication of the number of patrons, i.e., *Patron Count* 4614, as a function of ZIP code 4616. Within the attribute table, highlighted rows 4620 correspond to geographic features highlighted on the mapped Segment data 4410.

FIG. 10 also indicates that the results of the spatial analysis of the mapped Segment data (step 1030) may also be used to create one or more reports. For example, in the embodiment of FIG. 10 a *Feature Analysis* report 1050 and an *Attribute Analysis* report 1054 may be generated. In this regard the attribute table displayed within the *Attribute Viewer* window 4610 exemplifies that type of data which could form the basis of an *Attribute Analysis* report 1054. In contrast, a *Feature Analysis* report 1050 is typically intended to provide a visual representation of the geographic distribution and location of the patrons within one or more Segments. Accordingly, information in the form of, for example, the mapped Segment data 4410 may be used in creating a *Feature Analysis* report 1050.

As is indicated by FIG. 10, in addition to being spatially analyzed the mapped Segment data 4410 may be scrutinized from differing perspectives using interactive mapping tools (step 1040). For example, FIG. 47 shows a user interface window 4700 through which a user is defining the coverage of an extent 4710 by clicking and dragging with using a zoom-in tool 4720. Once the extent 4710 has been defined and then selected for viewing, it is transformed into the new map 4810 within the user interface window 4800 of FIG. 48..

III. PLAYER CONTACT SYSTEM (PCS)

A. Overview

The PCS module 216 of the system 100 is designed to provide a mechanism for system users (e.g., the staff of a casino) to identify, manage and analyze relationships with

valued customers or potential patrons. As is described hereinafter, the deployment of the PCS module 216 in conjunction with the data warehouse 226 is believed to be unique and to offer the advantages of providing greater access to detailed historical data (i.e., finer data granularity) and of reducing the load on the underlying transactional systems (as represented by the transactional databases 108). In addition, this reduced loading of the underlying transactional systems is believed to enhance the performance of the system 100.

FIG. 11 provides a simplified illustrative representation of certain aspects of the structure and function of the PCS module 216 relative to other components of the system 100. During operation of the PCS module 216, historical and otherwise “pre-processed” data may be obtained from both the dedicated PCS database 112 and the data warehouse 226. In contrast, any required “real time” data is retrieved via interface 1104 from transactional databases 108. In order to determine the extent of any requirements for such real time data, the PCS module 216 queries the transactional databases 108 (e.g., upon user access of the PCS module 216) in order to determine if a user account being accessed has had activity since the last update of the data warehouse 226; if so, the PCS module 216 requests and obtains the updated information as needed during the session via interface 1104. If there has been no activity on the applicable user account recorded in the transactional databases 108 since the last update of the data warehouse 226, the PCS module 216 pulls data exclusively from the data warehouse 226. This configuration significantly reduces load on the underlying transactional system (as represented by transactional databases 108) and enables access to a broader range of historical data than would otherwise be obtainable from a conventional transactional system.

In certain embodiments the PCS module 216 may be configured to operate in the absence of data warehouse 226. However, in such implementations it is anticipated that the granularity of the data available would be more coarse than that furnished in configurations including a data warehouse. The PCS module 216 preferably includes “plug-and-play” configurability, so that the existence of the warehouse 226 can be identified at installation or modified to “point” to the warehouse 226 if it is subsequently added to the system 100.

B. Player General Data

A patron general data component 1108 comprises a repository of information with respect to patrons which have registered with an underlying transactional system (e.g., a system operated by a casino) and thus are known to one or more of the transactional databases 108. In the exemplary embodiment, the patron general data component 1108

includes at least the following information for each tracked patron or customer: account number, name(s), address and phone number. Related geographic and other demographic data may also be included to the extent available from the applicable transactional database 108.

5 **C. Stated Preferences**

A stated preferences component 1112 comprises a plurality of data points a table of information indexed by account number that describe various preferences and dislikes, as reported by the patron to the system 100 (e.g., via a casino staff member). Examples include hobbies, sporting events, dining, gaming preferences and dislikes.

10 **D. Observed Preferences**

An observed preferences data structure 1116 includes a plurality of data points a table of information indexed by account number which are calculated based upon various metrics descriptive of patterns of behavior discerned from analysis of certain transactions stored within the data warehouse 226. In the exemplary embodiment the table of data points stored within the preferences data structure 1116 is updated at regular intervals (e.g., 15 once per day) using transformed sets of data provided during these intervals by the data transformation services 232. The preferences data reflected by the preferences data structure 1116 may be based upon activity over various default time periods (e.g., most recent 30, 60 or 90 days). Alternately, users may specify the duration of the time period 20 represented by the preferences data stored by the data structure 1116 (e.g., most recent 74 days) Attributes of these transactions are stored within the PCS database 112, and the contents of the observed preferences data structure 1116 is distilled from this stored information. These preferences contained within the data structure 1116 may include, for example, (1) gaming preferences based on observed time played or actual win or theoretical 25 win as recorded (derived or observed) from a casino's management system (2) favorite restaurant based on number of visits to restaurants as recorded in the warehouse 226 on the basis of restaurant-related transactions stored within the transactional databases 108.

E. Transaction Summaries; Gaming History

A transaction summaries component 1120 comprises a set of data points collectively 30 presenting a complete view of a patron's gaming activity as recorded in the casino management system and data warehouse 226. The PCS module 216 preferably uses a folder-tree type of GUI that allows users to drill down into finer grains of detail as needed to acquire information relating to the gaming activity metrics of interest. Representative

metrics include, for example, number of visits to the applicable casino, theoretical win (i.e., the product of the aggregate amount of money exchanged during playing of a given game and the percentage of such aggregate amount expected to be retained by the applicable casino installation), average theoretical win per visit, actual win/loss for slot machines and table games, and amount of compensatory products and services (“comps”) consumed (e.g., room, food, show tickets, and travel). Different sets of these metrics will generally be tracked by the separate installations of the system 100 in different casino establishments. In addition, the metrics tracked will also tend to differ in installation of the system 100 which include a data warehouse 226 relative to installations in which a data warehouse 226 is not present.

F. Campaign History

A campaign history component 1124 includes information identifying the marketing campaigns associated with a given customer account, as well as the status of the campaign and any associated offers. This information may vary from installation to installation of the system 100, and between installations including a data warehouse 226 and those not including a data warehouse 226.

G. Operation of Player Contact System

FIG. 12 is a flowchart 1200 illustrating the operation of the player contact system of the present invention. As shown, the interaction occurring with the PCS database 112 and data warehouse 226 during the campaign creation process is also illustrated in FIG. 12 in order to more fully elucidate this process. As may be appreciated with reference to FIG. 12, the PCS database 112 provides a first or “local” repository of information that is populated by the data warehouse 226. In the exemplary embodiment the functionality of the player contact system is effected through execution of program instructions stored within the PCS module 216 and the PCS client module 350.

Referring to FIG. 12, in one embodiment of the inventive player contact system several different types of information regarding players or other patrons are accessible to various system users. In particular, a view 1204 may be provided of the set of players currently located on the “floor” of a gaming establishment, another view 1208 may be provided of the players assigned to a particular host employed by the establishment, and yet another view 1210 of a list of the calls to be made to the players assigned to a given host may also be displayed. Access to the views 1204, 1208 and 1210 will often be restricted as a function of the role of the system user within the gaming establishment. For example,

player hosts and the like will often be granted access to views 1204 and 1210, while access to view 1208 may be available exclusively to management personnel. As is discussed below, each of these views is generated by applying a filter comprised of various criteria or “warehouse measures” to the player data stored within the data warehouse 226. In addition, operations relating to the making of calls upon patrons (step 1240) or the scheduling of such calls (step 1242) may be conducted from within the contexts of the various views 1204, 1208 and 1210.

FIG. 49 depicts a user interface window 4900 providing an illustrative representation of one potential player location view 1204 of the locations of players within a gaming establishment. As shown, the interface window 4900 includes a floor diagram pane 4910 illustrating the layout of various gaming machines 4916 within the applicable gaming establishment. The locations of certain players 4920 within the gaming establishment are also illustrated within the floor diagram pane 4910, as well as within a player location table 4930. As may be appreciated by reference to FIG. 12, the contents of the user interface window 4900 may be generated by applying filter to warehouse 226 (step 1214) and mapping the results of the filtering operation (step 1218). As is discussed below, such application of a filter to the data warehouse 226 involves defining a set of warehouse measures and then extracting information from the data warehouse 226 corresponding to players fitting the criteria established by the defined warehouse measures. In the case of FIG. 49, the filtering process (step 1214) identifies a subset of the players on the floor of the applicable gaming establishment which meet the filtering criteria. The information extracted through the filtering process (e.g., player identification number and/or name information) may then be associated with corresponding locations within the floor diagram pane 4910 during the mapping process 1218, which is described in further detail below with reference to FIG. 15. As is indicated by FIG. 49, a user may then cause the identify of a particular player to be displayed by moving a cursor 4940 over the location of a particular player 4920.

Turning now to FIG. 50, a user interface window 5000 is shown which illustratively represents a player list table 5010 comprising a player list view 1208. As shown, the player list table 5010 includes a *Player ID* column 5014, a corresponding *Name* column 5018, and a *Rank* column 5020. In the embodiment of FIG. 50 the *Player List Table* 5010 includes a *Player ID* 5024 for all the patrons assigned to the player host logged in to the terminal 120 displaying the user interface window 5000. If an individual having superior viewing rights

to the player host (e.g., a manager of multiple player hosts) were instead logged in to the terminal 120, the *Player List Table* 5010 would instead contain a list of all player hosts and associated patrons. Again referring to FIG. 12, the contents of the user interface window 5000 may be generated by applying a filter to warehouse 226 (step 1224) and generating the view

FIG. 51 depicts a user interface window 5100 containing a calls list table 5110 comprising one potential implementation of the calls list view 1204. The calls list table 5110 is intended to provide a player host with a tabular listing of the calls to be made to the players assigned to such host. In the exemplary embodiment the term “calls” encompasses telephone calls, “in-person” meetings and any other mode of contacting or communicating with patrons. As shown, the calls list table 5110 includes a *Sch Date* column 5114 in which are listed the dates upon which the applicable host is scheduled to make calls to the corresponding players within a *Player list* 5120. It is noted that although all players associated with the applicable host will typically be listed within *Player List Table* 5010, only those players which are scheduled to receive calls from the host are identified within the calls list table 5110. In certain embodiments those scheduled calls within the call list table 5110 which are “overdue” may be displayed in a different color (e.g, red) than that used to display calls which are schedule to occur at a later date. In addition to being manually entered within the calls list table 5110, calls to players may also be scheduled and added to the calls list table 5110 by other means. For example, a player 4920 within the floor diagram pane 4910 may be “right-clicked” and a call to such player may then be scheduled.

Again referring to FIG. 12, the contents of the user interface window 5100 may be generated by applying a filter to warehouse 226 (step 1228) and extracting the identities of a set of patrons for which calls have been scheduled and which meet the other filtering criteria. Such other filtering criteria may be related to any parameter of the data contained within the data warehouse 226 (e.g., birthday, gaming preferences, Offers sent/redeemed, lodging preferences).

Turning now to FIGS. 52A-52D, a user interface window 5200 containing a filter patrons dialog 5210 is depicted. The filter patrons dialog 5210 may be invoked from within several contexts when it is desired to generate a list of patrons meeting various criteria. The use of the filter patrons dialog 5210 in establishing such criteria is illustrated by FIGS. 52A-52D.

Referring to FIG. 52A, the filter dialog 5210 is seen to include a *Category* column 5214 from which a user is selecting a particular category 5216 applicable to the filtering process. In the exemplary embodiment the categories within the *Category* column 5214 are intended to impose a degree of organization upon the potentially large list of warehouse
5 measures available for selection as filtering criteria. That is, each of these measures is placed into a particular category. This organizational approach is further illustrated by FIG. 52B, which shows a particular measure 5220 within the specified category 5216 being selected from a *Measure* column 5224. In FIG. 52C, an arithmetic operator 5230 and a value 5234 have been specified for application against the selected measure 5220. In
10 addition, FIG. 52C represents the manner in which further measures may be chained to the selected measure in connection with development of the desired filtering criteria. Specifically, FIG. 52C depicts a logical operator 5240 being selected, which would define the relationship of any next measure 5250 potentially entered within the dialog 5210 to the measure 5220. In the embodiment of FIG. 52C it has been decided not to enter any such
15 additional measure 5250, and hence the logical operator 5240 is seen to comprise the “END” operator. Finally, FIG. 52D illustrates the selection of a *Filter Calls List* button 5254B, which is one of several buttons 5254 which could be selected at this juncture in order specify the operations executed in response to the contents of the filter dialog 5210. In this case selection of the *Filter Calls List* button 5254B causes display of a *Calls List –
20 Filtered* table 5262, which contains a single entry 5264 corresponding to the results of the filtering process defined by the dialog 5210.

Turning now to FIG. 53, a user interface window 5300 is depicted which includes an initial *Player Detail View* pane 5310. Referring to FIG. 12, the initial *Player Detail View* pane 5310 may be caused to appear through execution of a *Load Player Detail View*
25 operation 1232 from the context of each of the views 1204, 1208 and 1210. As shown in FIG. 53, the initial *Player Detail View* pane 5310 is displayed upon selection of a *General* tab 5314, and enables entry of general contact information for the applicable patron and the patron’s spouse.

If it is decided to define associations between the patron and other patrons or non-
30 patrons (e.g., spousal relationships, friendships) (step 1234), then such relationships may be defined from within the context of the *Player Detail View* (step 1236). This definition process is introduced by FIG. 54, which depicts a user interface window 5400 containing a context menu 5410 displayed upon right-clicking from within the *Player Detail View* pane

5310. As shown, a user is in the process of selecting an “Add Relationship” entry 5414 from the context menu 5410, which enables definition of an association with the applicable patron (i.e., the patron identified by the *Player Detail View* pane 5310) in the manner illustrated by FIGS. 13 and FIGS. 65-67.

5 Referring now to FIG. 13, a flowchart 1300 is provided which illustrates the operations involved in making calls upon patrons (step 1240), the scheduling of such calls (step 1242) and the definition of associations between patrons (step 1236). Considering first the sequence of operations involved in performing the patron association process of step 1236, a search of the records of a patrons data structure 1308 is initially performed
10 (step 1310) as a function of patron identification number or name information entered by a user (step 1314). The search results may yield a list of one or more registered and unregistered patrons, one of which is selected by the user (step 1318). If the user decides that it is desired to create an association between the selected patron and the patron identified during the *Load Player Detail View* operation 1232 (step 1320), then the
15 association is created and stored within a player associations data structure 1324 within the PCS database 112 (step 1322).

FIGS. 65-67 are a set of screen shots illustrating an exemplary user interface through which the player association process 1236 may be effected. Referring to FIG. 65, a user interface window 6500 is depicted within which an *Add Friends and Family* dialog 6510
20 has been displayed. The *Add Friends and Family* dialog 6510 is the first of multiple dialogs launched upon selection of the *Add Relationship* entry from the context menu 5410 (FIG. 54). In the dialog 6510, the user has selected *Search by Player Name* and has begun entering a name within a *First Name* field 6514. As shown in a user interface window 6600 of FIG. 66, a results table 6610 is made to appear within the dialog 6510 immediately
25 following selection of a *Search* button 6614. The results table 6610 is seen to include an entry 6620 for a single patron matching the search criteria. If other registered patrons had met the search criteria, these other patrons would also have had corresponding entries within the results table 6610. After deciding that is desired to create an association between the patron corresponding to the entry 6620 and the patron identified within the *Player
30 Detail View* pane 6630, an *Add* button 6634 is enabled and selected by the user. Selection of the an *Add* button 6634 results in display of a *Select Relationship Type* dialog 6710 within a user interface window 6700 (FIG. 67). In FIG. 67, the user is shown selecting from a drop-down list of relationship types 6720 in order to complete the association process.

Referring again to FIG. 13, the call making process 1240 is initiated in a step 1330 by examining a list of scheduled calls (see, e.g., the *Calls List – Filtered* table 5262 of FIG. 52D). The telephonic or other call upon the identified patron is then made by the responsible player host (step 1332). The host may then elect to record the result of the call and note regarding any impressions or observations of the host (step 1334), which is illustrated by the user interface window 6400 of FIG. 64. As shown, the window 6400 includes a *Make a Call* dialog 6408 displayed upon selection of a *Make Contact* button 6410 from a *Contact History* tab 6414. In FIG. 64, the user is in the process of entering information within a *Notes* field 6420 pertinent to the applicable call. If it is decided to save this information once entered (step 1336), then it is stored within a contact history data structure 1350 (step 1338). See also the user interface window 6100 of FIG. 61, which contains a *Contact Info* sub-pane through which is displayed information from the contact history data structure 1350.

Again referring to FIG. 13, the call scheduling process 1242 is initiated by assigning a host a particular call desired to be made upon or to a patron (step 1350). This essentially entails selecting, typically from a filtered list of patrons, those patrons for which it is desired to schedule calls. This is illustrated by the user interface window 6200 of FIG. 62, which includes a *Schedule Calls* dialog 6210. The dialog 6210 is launched by clicking upon a *Schedule Call* button 6110 (FIG. 61) subsequent to selection of the *Contact History* tab 6114. In FIG. 62, the dialog 6210 has opened with default values present within a scheduled date field 6218 (i.e., the current date) and a *Name* field 6220 (i.e., the name of the open patron). In this case a call is being scheduled only for the patron that is “open” or displayed; however, information regarding the entire series of patrons would be displayed via the *Schedule Calls* dialog 6210 if more than one customer were selected.

As is indicated by FIG. 13, a scheduled date and purpose for the call is then entered (step 1354), which is illustrated by the user interface window 6300 of FIG. 63. In this case the user has entered a purpose for the scheduled call within a *Purpose* field 6310 of FIG. 63. In addition, the user is in the process of using a drop down calendar 6320 to modify the date of the call within a scheduled date field 6330. If it is decided to save this information once entered (step 1360), then it is saved to a calls list 1364 stored within the PCS database 112 (step 1368).

Referring again to FIG. 12, stated gaming preferences provided by a patron may be entered via the user interface window 5500 of FIG. 55 and stored as stated gaming

preferences within the gaming preferences data structure 1116a (step 1240). In FIG. 55, selection of a *Gaming* tab 5510 results in display of a primary pane 5514 containing a *Player Stated Prefs* sub-pane 5516 in which is entered the gaming preferences articulated or otherwise provided by a patron. Within the sub-pane 5516, a user is seen to be in the process of selecting among many *Table Game* options listed within drop-down menu 5518. The user may also enter additional table game, bet and skill information within the sub-pane 5516, as well information relating to slot games based upon the information provided by the applicable patron (i.e., the patron identified within the *Player Detail View* pane 5310).

As is indicated by FIG. 12, observed gaming preferences for the applicable patron are calculated based upon the actual gaming preference data for the patron maintained within the PCS database 112 (step 1244) and may then be displayed (step 1246). In the exemplary embodiment this actual gaming preference data is “pre-calculated” based upon preferences information for the applicable patron accessed from the data warehouse and stored within the gaming preferences data structure 1116a. In FIG. 56, various observed gaming preferences for the applicable patron may be viewed through the user interface window 5600. As shown, the user has selected from among various warehouse measures, and has also actuated a *Refresh* button in order to update the displayed information. The user interface window 5600 advantageously provides significant information as to the activities of the applicable patron on the floor of the gaming establishment.

Gaming history for the applicable patron is also calculated based upon gaming history information maintained within a gaming history data structure 1120a of the transaction summaries component 1120 (step 1250). In the exemplary embodiment gaming history may comprise, for example, the play history, revenues, reinvestment information, number of trips or visits, theoretical win, actual win, as well as more specific gaming results for slots and table games, associated with the applicable patron. These historical gaming results may be represented as a function of time in the manner illustrated by FIG. 57 (step 1254), which depicts a user interface window 5700 having a *Play History* panel 5710 that is displayed upon selection of a *Play History* tab 5720. An upper portion 5730 of panel 5710 includes information identifying the applicable patron, while a lower panel portion 5734 includes a revenue/reinvestment table 5740. As shown, the revenue/reinvestment table 5740 contains revenue and reinvestment measures organized as a function of time. This information is typically displayed in a “read-only” format and is intended to permit users to analyze the revenues and costs associated with the applicable patron.

Referring again to FIG. 12, dining and leisure preferences for the applicable patron may also be entered (step 1258). FIG. 58 illustrates a user interface window 5800 containing a *Dining* pane 5810 that is displayed upon selection of a *Dining* tab 5820. In this case a user has entered information within a *Patron Dining Prefs* field 5830, a *Patron Dining Dislikes* field 5834, a *Patron Comments* field 5838 and a *Patron Beverage and Tobacco Preferences* field 5840. Similarly, FIG. 59 depicts a user interface window 5900 including a *Leisure* pane 5910 that is displayed upon selection of a *Leisure* tab 5920. As shown, the *Leisure* pane 5910 includes a number of fields through which patron preferences regarding leisure activities may be entered or updated.

As is illustrated by FIG. 12, the PCS database 112 includes an Offers data structure 1262 containing information regarding Offers associated with the patron identified within the *Player Detail View* pane 5310. The information within the data structure 1262 characterizes each such Offer as either active or inactive (i.e., utilized or expired), along with the value and redemption amount thereof. In addition, aggregate Offer values and redemption amounts are also maintained for the applicable patron. This Offer information for the applicable patron is calculated based upon the information within the data structure 1262 (step 1266) and then may be displayed (step 1270). FIG. 60 depicts a user interface window 6000 containing an *Offer* pane 6010 displayed upon selection of an *Offer* tab 6020. As shown, information regarding Offers sent to the applicable patron may be viewed through the *Offer* pane 6010. Information regarding active Offers is presented through an *Active Offers* sub-pane 6030, while information pertaining to inactive Offers is conveyed via an *Inactive Offers* sub-pane 6034. An additional sub-pane 6050 provides information concerning Offer revenue and redemption information.

Turning again to FIG. 12, contact history information 1272 relating to the contacts made with the applicable patron (e.g., telephone calls from a player host to the patron) may be loaded (step 1274) and displayed upon request of a user (step 1278). The contact history information 1272 may comprise the player host or other individual initiating the contact with the patron, the date of the contact, as well a summary of the result of the contact. FIG. 61 shows a user interface window 6100 containing a *Contact History* pane 6108 that is displayed upon selection of the *Contact History* tab 6114. As may be appreciated with reference to FIG. 61, a user may review the contact history information for the applicable patron that is displayed through the *Contact History* pane 6108.

In the exemplary embodiment of FIG. 12, the contents of the PCS database 112 are updated regularly (e.g., daily) with information from the data warehouse 226. For example, the gaming preferences data structure 1116a may include information relating to the type of slot machines the applicable patron frequently plays, whether the patron tends to play other games (e.g., Blackjack and then Baccarat) before or after playing slots, the denominations typically used, and similar information. This information will generally be updated on a daily basis so as to accurately reflect the current gaming preferences of the applicable patron.

As shown in FIG. 12, patron general data component 1108 includes a Patrons data structure 1282 and a Player Detail data structure 1286. The Patrons data structure 1282 preferably comprises of a list of the account numbers for registered patrons and is linked to the other data structures within the PCS database 112. The Player Detail data structure 1286 includes various identifying information pertaining to each patron (e.g., address, phone number).

Turning now to FIG. 14, a flowchart is provided of an exemplary statistical analysis routine 1400 which may be employed in connection with the analysis of data accumulated by the player contact system of the invention. Execution of the routine 1400 enables a user (e.g., a patron host or host manager) to view the activity or gaming performance of specified patrons. The routine 1400 may be applied to a complete or filtered set of the patrons associated with particular host(s), and facilitates comparison of performance over different date ranges. That is, date range parameters may be specified in order to define different periods of interest, and variance in performance then computed between the defined periods. Either standard or "custom" periods may be defined by entering desired date ranges (step 1410). In the exemplary embodiment performance results may be pre-calculated for various standard periods (e.g., month-to-date, year-to-date, week-to-date, etc.). FIG. 68 depicts a screen shot of a user interface window 6800 containing a *Statistical Analysis* pane 6810 through which such standard and custom periods may be defined. In FIG. 68, a user is in the process of entering a date within a *Start* field 6812 for the first date range, i.e., *Range One* 6814, of a customized period. As shown, the user may also enter start/end date information defining a second period, i.e., *Range Two* 6820. By default, any reports generated based upon the contents of the user interface window 6800 will be predicated upon the set of patrons assigned to the user (e.g. patron host) currently logged in.

Referring again to FIG. 14, upon selection of a *Calc* button 6830 (FIG. 68) an MDX query is generated based upon the information entered through the *Statistical Analysis* pane 6810 (step 1420). After passing through interface 1430, the MDX query is applied to multi-dimensional data storage 228. In response, data concerning the subset of patrons specified by the query is reported to the interface 1430. FIG. 69 shows a screen shot of a user interface window 6900 in which a *Calc* button 6930 of a *Statistical Analysis* pane 6910 has just been selected. As shown, the user has selected the system-defined date ranges of “Last Month” for *Range One* 6914 and “Month to date” for *Range Two* 6920. The presence of the *Statistical Calculation* pop-up 6928 having progress bar 6930 indicates that calculations necessary for generation of a report are being performed. In FIG. 70, a screen shot of a user interface window 7000 is depicted in which the *Statistical Analysis* pane 7010 displays a report 7020 of the type which could result from similar such calculations. As shown, the report 7020 includes a *Revenue & Reinvestment* column 7030 containing multiple revenue and reinvestment measures. Corresponding statistical data is shown in subsequent columns, including a *Custom Date (R1)* column 7050 for the first date range, a *Custom Date (R2)* column 7054 for the second date range, a *Variance (R1-R2)* column 7060 reflective of the variance between the results of like kind for the two date ranges, and a *Variance%* column 7064 indicative of the corresponding variance percentage..

I. Patron Locator and PCS Data Visualization

FIG. 15 is a flowchart illustrating a patron locator and data visualization process 1500 pertinent to the player contact system of the invention. In the embodiment of FIG. 15, it is contemplated that the process 1500 will be executed primarily by the PCS module 216 and the PCS client module 350. As shown, the interaction occurring with the PCS database 112, data warehouse 226 and an external mapping server 1506 during the data visualization process is also illustrated in FIG. 15 in order to more fully elucidate this process. In the exemplary embodiment the data visualization process 1500 may be utilized in connection with providing a visual representation of the location of specified patrons or Segment members on the “floor” of the applicable gaming establishment.

As initial step 1510 in the process 1500, the floor layout of the applicable gaming establishment (i.e., the relative position and arrangement of the various gaming tables and devices) is geocoded into a predefined format and provided to the external mapping server 1506 for use as map layer source data 1514. The process 1500 also operates upon patron location data obtained from a property source system 1518 within the transactional

databases 108. Such source system 1518 will often comprise a slot accounting system, which contains information as to the locations of registered patrons within the gaming establishment (e.g., patron #A currently playing slot machine #X). This patron location information from the property source system 1518 is transferred through an interface 1522 and stored within a Players on Floor table 1526 within memory 212 of the server 104. In the exemplary embodiment the data from the Players on Floor table 1526 and PCS databases 112 is either pushed to the PCS client module 350 or provided upon request. The PCS client module 350 may then invoke an appropriate mapping service from the external mapping server 1506, join the information provided by the mapping service with attribute data furnished by the PCS databases 112, and generate reports facilitating the analysis of location and/or attributes of specified patrons.

In one embodiment the external mapping server 1506 may be commercially operated by a third party engaged in providing geographic information systems (GIS) and other mapping services to Internet-enabled client browsers. For example, ESRI (<http://www.esri.com/software/arcims/index.html>) operates an ArcIMS Server which facilitates access to, and interaction with, Internet mapping and GIS data from a Web browser.

Referring to FIG. 15, the data visualization process 1500 is initiated through issuance of a request to the PCS database for data relating to a particular patron or Segment population (step 1530). Once this data has been received or pending its receipt, the external mapping server 1506 is queried (step 1532) and location information concerning the identified area of the floor of the gaming establishment is returned (step 1536). The returned geographic data is then joined with the data received from the PCS database 112 and/or data warehouse 226 that is specific to the patron or Segment population of interest (step 1540). At this point the resultant localized geographic representation of the Segment data may be spatially analyzed in the manner described below (step 1550). FIG. 15 also indicates that the results of the spatial analysis of the mapped patron data (step 1550) may be further used to create one or more reports. For example, in the embodiment of FIG. 15 a *Feature Analysis* report 1560 and an *Attribute Analysis* report 1564 may be generated.

FIGS. 71-73 depict user interface windows through which certain aspects of spatial analysis of mapped Segment data may be performed consistent with the invention. Referring to FIG. 71, a user interface window 7100 containing a primary pane 7110 is depicted. In the exemplary embodiment the user interface window 7100 is loaded upon

selection of a particular button (not shown) from toolbar 7120. In FIG. 71, the user is in the process of previewing a map of the floor of the applicable gaming establishment through primary pane 7110. The user has also moved a mouse pointer 7130 over a highlighted stand 7140 in order to ascertain the identity 7150 of the patron currently interacting with the device at the stand 7140. In the user interface window 7200 of FIG. 72, an interactive mapping tool (i.e., a zoom tool 7210) is being used to specify a smaller map extent 7220, from which a new map may be rendered.

FIG. 73 provides another example of the manner in which interactive mapping tools may be used consistent with the invention. As shown, FIG. 73 depicts a user interface window 7300 containing a primary pane 7310 and a patron list pane 7320. In FIG. 73 a user has caused the representation 7330 of a particular patron within the primary pane 7310 to be highlighted by selecting the patron's name 7340 from a table 7350 within the patron list pane 7320. In the exemplary embodiment the representation 7330 may take the form of a large flashing red dot, thus providing a readily discernible visual indicator of the location of the applicable patron within the gaming establishment.

J. Report Writer

The report writer module 224 is configured to process both transactional and analytical data processed by the player contact system. In the exemplary embodiment the report writer module 224 uses industry-standard XML to define the format and layout of reports, as well as to define the columns and selection clauses that control the displayed data points.

In the case of analytical data, the report writer module 224 (i) defines base levels of information, and (ii) provides an interactive client that allows a user to drill down into the data and print a report from the selected data level of the interactive client as formatted hard-copy.

During operation, the report writer module 224 provides a user with lists of the dimensions and measures available to them in connection with a desired report. The user then "drags" the dimensions into the "X" and "Y" positions depicted via display device 320 of a user computer 120, and also drags the measures into the display section provided. The report writer module 224 also provides for multiple dimensions, as well as the ability to "drill down" into a dimension for further clarification (e.g., in the case of a report with "time" as one of the dimensions, a user would be capable of drilling down from "Year" into

"Quarter" into "Month" into "Day"). The comprehensive reports and visualization tools provided by the exemplary embodiment of the system 100 described herein facilitate understanding of customer demographic information. . This information can be used to develop new marketing campaigns and adjust the focus of existing campaigns.

5 The foregoing description, for purposes of explanation, used specific nomenclature to provide a thorough understanding of the invention. However, it will be apparent to one skilled in the art that the specific details are not required in order to practice the invention. In other instances, well-known circuits and devices are shown in block diagram form in order to avoid unnecessary distraction from the underlying invention. Thus, while specific embodiments have
10 been described and illustrated, such embodiments should be viewed as illustrative only, and not as limiting the invention as defined by the accompanying claims.

**THE SUBJECT-MATTER OF THE INVENTION FOR WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMED IS DEFINED AS FOLLOWS:**

1. A customer contact management system, comprising:

5 at least one processor;

at least one interface operable to provide a communication link to at least one
other device in a data network;

a display;

a memory;

10 said at least one processor being configured to store in said memory a plurality of
data structures including:

1) a data warehouse for storing customer information relating to a plurality of
customers associated with a gaming establishment and transaction information
involving said plurality of customers;

15 2) a contact system database, communicatively coupled to said data
warehouse, in which is stored at least observed gaming preference information
derived from said transaction information, said observed gaming preference
information arranged in a data structure indexed according to at least account
numbers for each of said plurality of customers;

20 wherein the at least one processor is configured to co-operate with the at least one
interface, the display and the memory to:

25 a) generate a first user interface window on the display that includes an area
for entering filtering criteria for querying the contact system database
including queries based upon at least the observed gaming preference
information stored in the contact system database;

b) receive an entry of the filtering criteria including a query of the observed
gaming preference information;

- c) query the contact system database using said filtering criteria to determine a subset of the plurality of customers;
- d) output to the display first observed gaming preference information determined for the subset of the plurality of customers;
- 5 e) generate a second user interface window on the display that includes one or more areas for entering information to schedule at least one contact for each customer in the subset including a first area for entering a mode of communication that employees of the gaming establishment are to use to make the at least one contact;
- 10 f) generate on the display a third user interface window that displays a status of contacts scheduled for each customer in the subset including a list of scheduled contacts associated with a particular employee and a status of each of the scheduled contacts on the list;
- g) receive information for a first set of players currently participating in a gaming activity on a floor of the gaming establishment including a current location of each player in the first set of players;
- 15 h) determine a second set of players that exist in both the subset of said plurality of customers and the first set of players; and
- i) generate on the display a graphical representation of the floor of the gaming establishment wherein the graphical representation includes an indicator of the current location of each player in the second set of players on the floor of the gaming establishment.
- 20
2. The system of claim 1 wherein said contact system database further includes customer demographic information and stated customer preference information.
- 25 3. The system of claim 1 wherein said contact system database further includes a campaign history component identifying marketing campaigns associated with ones of said plurality of customers.

4. The system of claim 3 wherein said campaign history component includes information relating to status of offers associated with said marketing campaigns.
5. The system of claim 1 wherein said contact system database further includes a gaming preferences component and an offers component containing information pertaining to offers associated with ones of said plurality of customers.
6. The system of claim 5 wherein said contact system database further includes a contact history component.
7. The system of claim 1 wherein the system is further operable to output to the display a scheduled calls list, said scheduled calls list including entries corresponding to ones of said plurality of customers.
8. The system of claim 1 wherein the system is further operable to output to the display contact history information associated with ones of said pluralities of customers, said contact history information providing a record of contact made with said ones of said pluralities of customers.
9. The system of claim 1 wherein the system is further operable to output to the display a customer list by host, said customer list by host associating groups of said customers with various host personnel.
10. The system of claim 1 further wherein the system is further operable to output to a graphical representation of at least a portion of the gaming establishment and to superimpose representations of data received from said contact system database on said graphical representation.
11. The system of claim 10 wherein said gaming establishment operates from one or more commercial premises, said graphical representation comprising a spatial representation of the premises of said gaming establishment.
12. A computer-implemented method for customer contact management, said method comprising:

providing a customer contact management system comprising:

- 1) at least one processor;
- 2) at least one interface operable to provide a communication link to at least one other device in a data network;

5

- 3) a memory; and

- 4) a display mechanism, said at least one processor being configured to store in said memory a plurality of data structures including:

10

- a) a data warehouse for storing customer information relating to a plurality of customers associated with a gaming establishment and transaction information involving said plurality of customers wherein the transaction information includes at least information related to gaming activity at the gaming establishment; and

15

- b) a contact system database, communicatively coupled to said data warehouse, in which is stored at least observed gaming preference information derived from said transaction information;

wherein the at least one processor co-operates with the at least one interface, the memory and the display mechanism to cause the following steps to be carried out:

20

storing, within the data warehouse, the customer information relating to said plurality of customers and the transaction information involving said plurality of customers;

displaying, on the display mechanism, at least a portion of the customer information pertinent to one of said plurality of customers;

25

deriving, from said transaction information, the observed gaming preference information associated with said one of said plurality of customers wherein said observed gaming preference information includes information related to one or more different types of games said one of said plurality of customers has played at the gaming establishment;

selecting a subset of said plurality of customers to populate the contact system database using filtering criteria including at least the observed gaming preference information wherein each customer in the subset of said plurality of customers is to be contacted by an employee of the gaming establishment;

5 scheduling at least one contact for each customer in the subset of said plurality of customers including scheduling a mode of communication that the employee is to use to contact each customer in the subset of said plurality of customers;

10 displaying a status of contacts scheduled for each customer in the subset of said plurality of customers including displaying a list of contacts associated with a particular employee and a status of each of the contacts on the list;

receiving information relating to a first set of players currently participating in a gaming activity on a floor of the gaming establishment including a current location of each player in the first set of players;

15 determining a second set of players that exists in both the subset of said plurality of customers and the first set of players; and

generating on the display a graphical representation of the floor of the gaming establishment wherein the graphical representation includes an indicator of the current location of each player in the second set of players.

20 **13.** The method of claim **12** further including storing demographic information and stated customer preference information associated with the subset of said plurality of customers to the contact system database.

25 **14.** The method of claim **12** further including storing campaign history information, said campaign history information identifying at least one marketing campaign associated with the subset of said plurality of customers to the contact system database.

15. The method of claim **14** wherein said campaign history information includes data relating to status of at least one offer associated with said at least one marketing campaign.
- 5 16. The method of claim **12** further including storing a history of contact made with at least a first customer in the subset said plurality of customers and displaying said history of contact for the first customer.
17. The method of claim **12** further including displaying a scheduled calls list, said scheduled calls list including an entry corresponding to at least a first customer in the subset of said plurality of customers
- 10 18. The method of claim **12** further including displaying a customer list by host, said customer list by host associating groups of said customers with various host personnel.
19. The method of claim **12** further including displaying a graphical representation of a merchant establishment and superimposing representations of said customer information on said graphical representation.
- 15 20. The method of claim **19** wherein said merchant establishment operates from one or more commercial premises, said graphical representation comprising a spatial representation of the premises of said merchant establishment.
21. A computer-readable medium storing instructions which, when executed by at least one processor, cause the method of any one of claim **12** to claim **20** to be carried out.

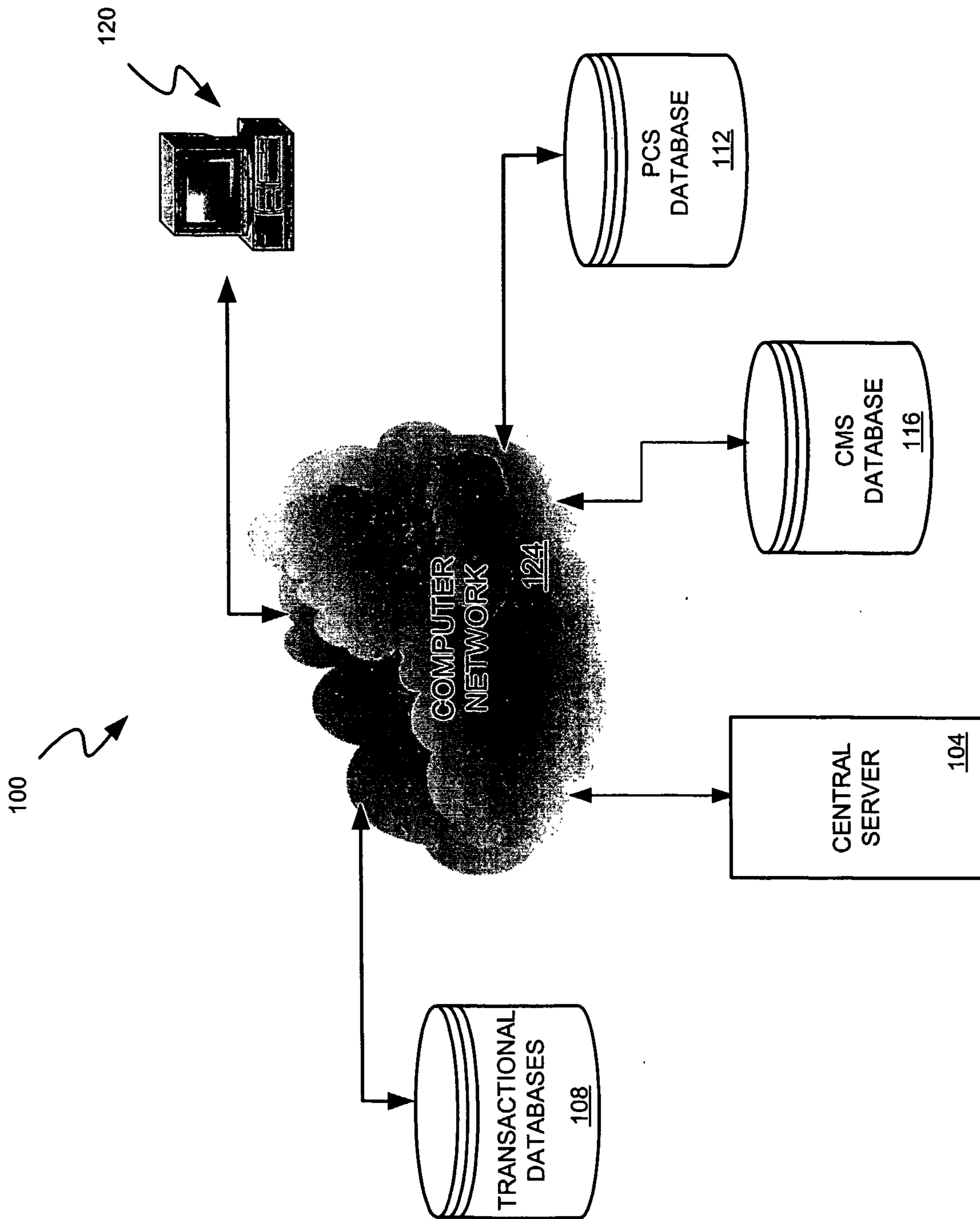


FIG. 1

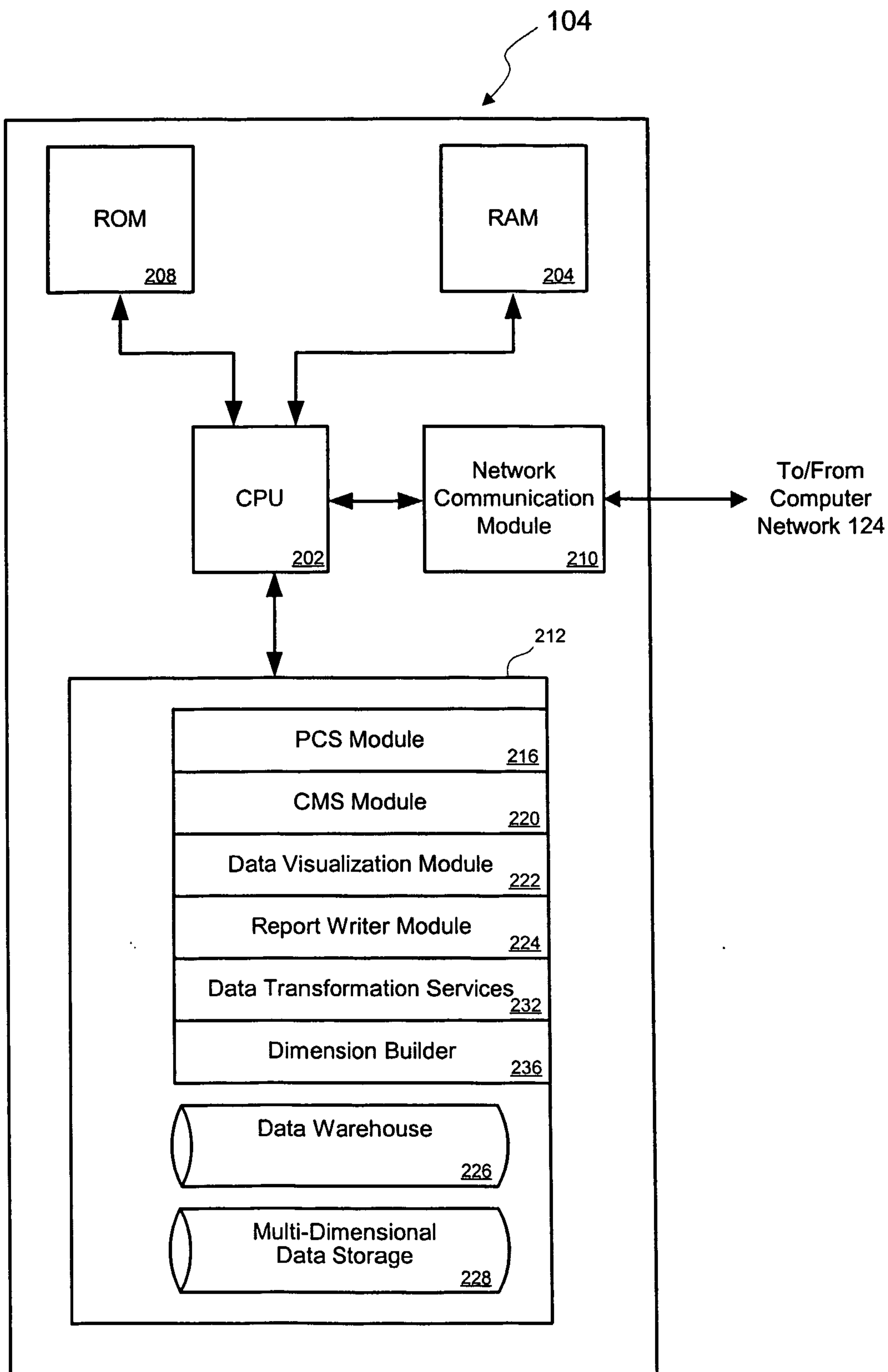


Fig. 2

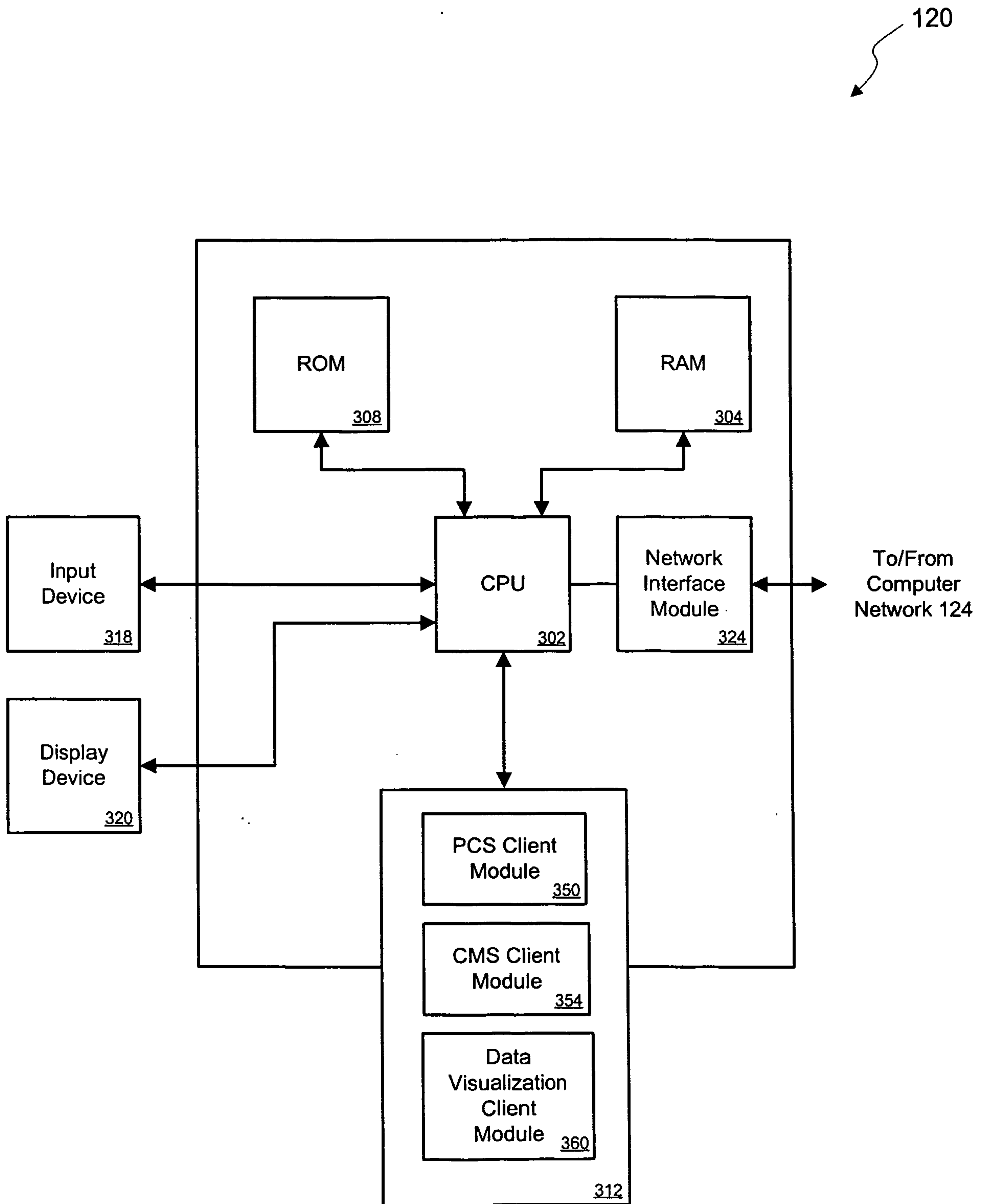


Fig. 3

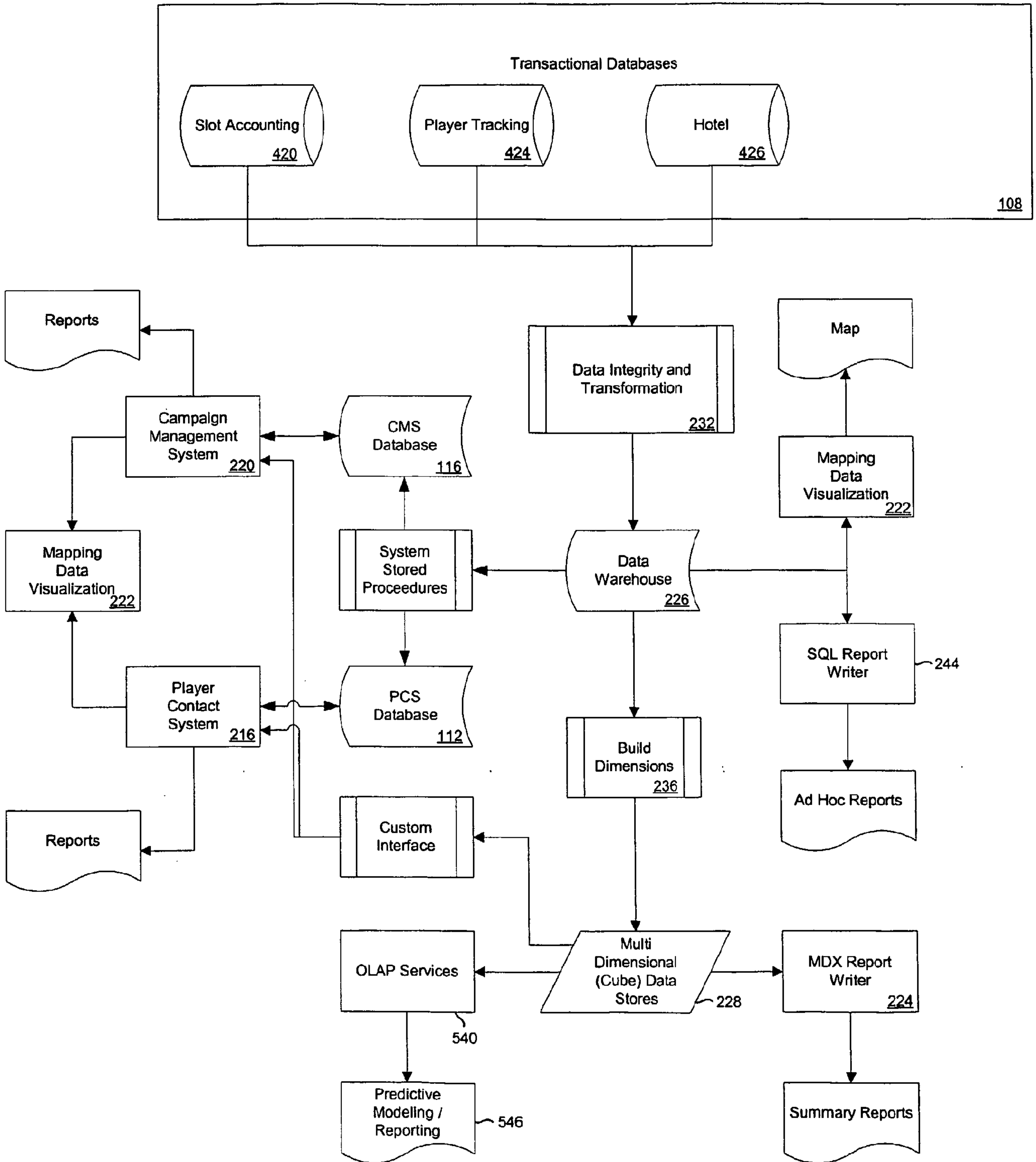


Fig. 4

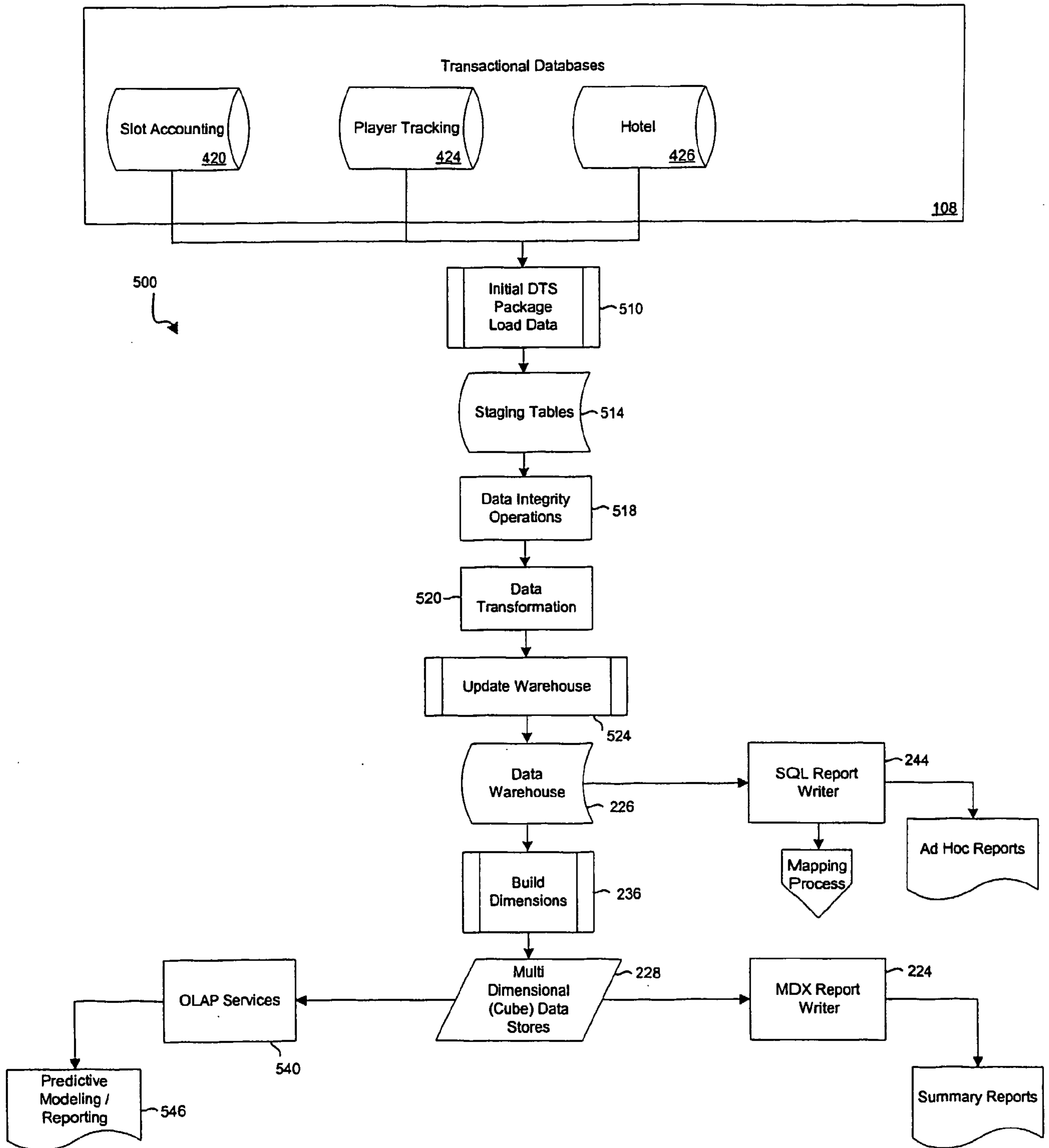


Fig. 5

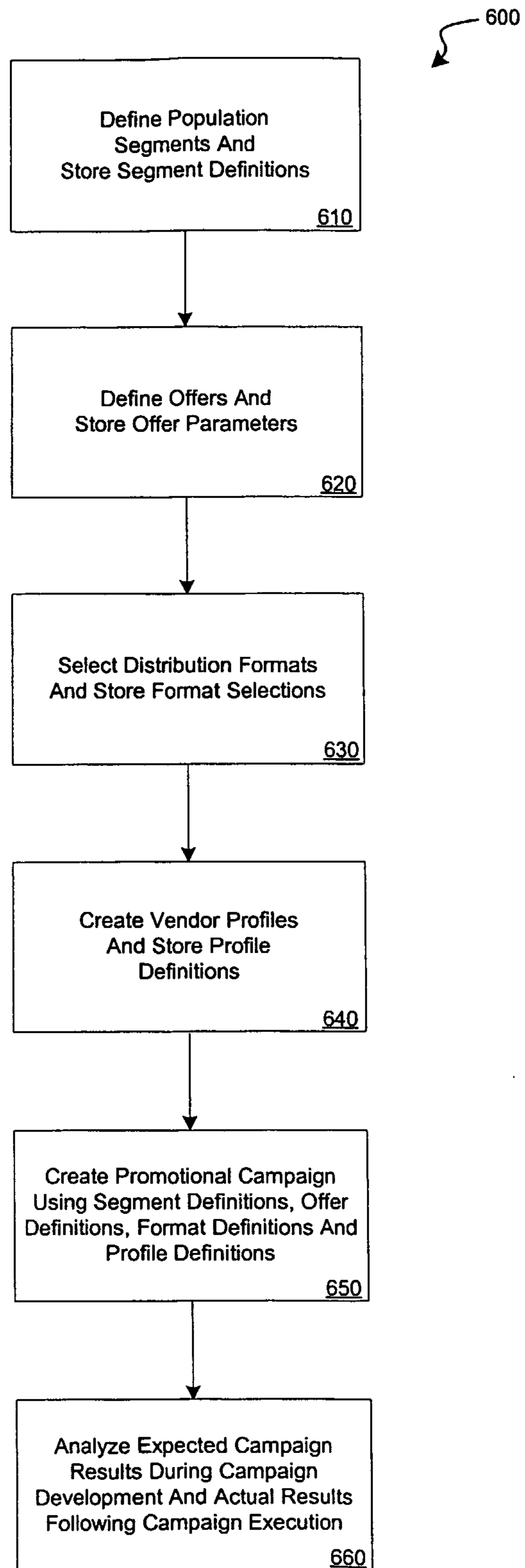
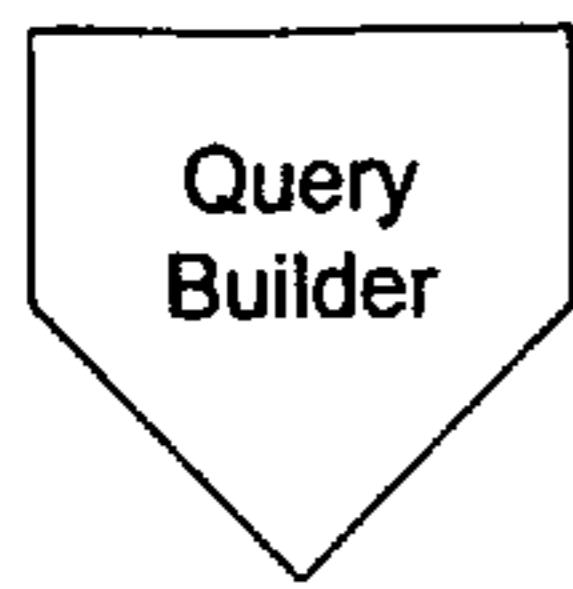


Fig. 6

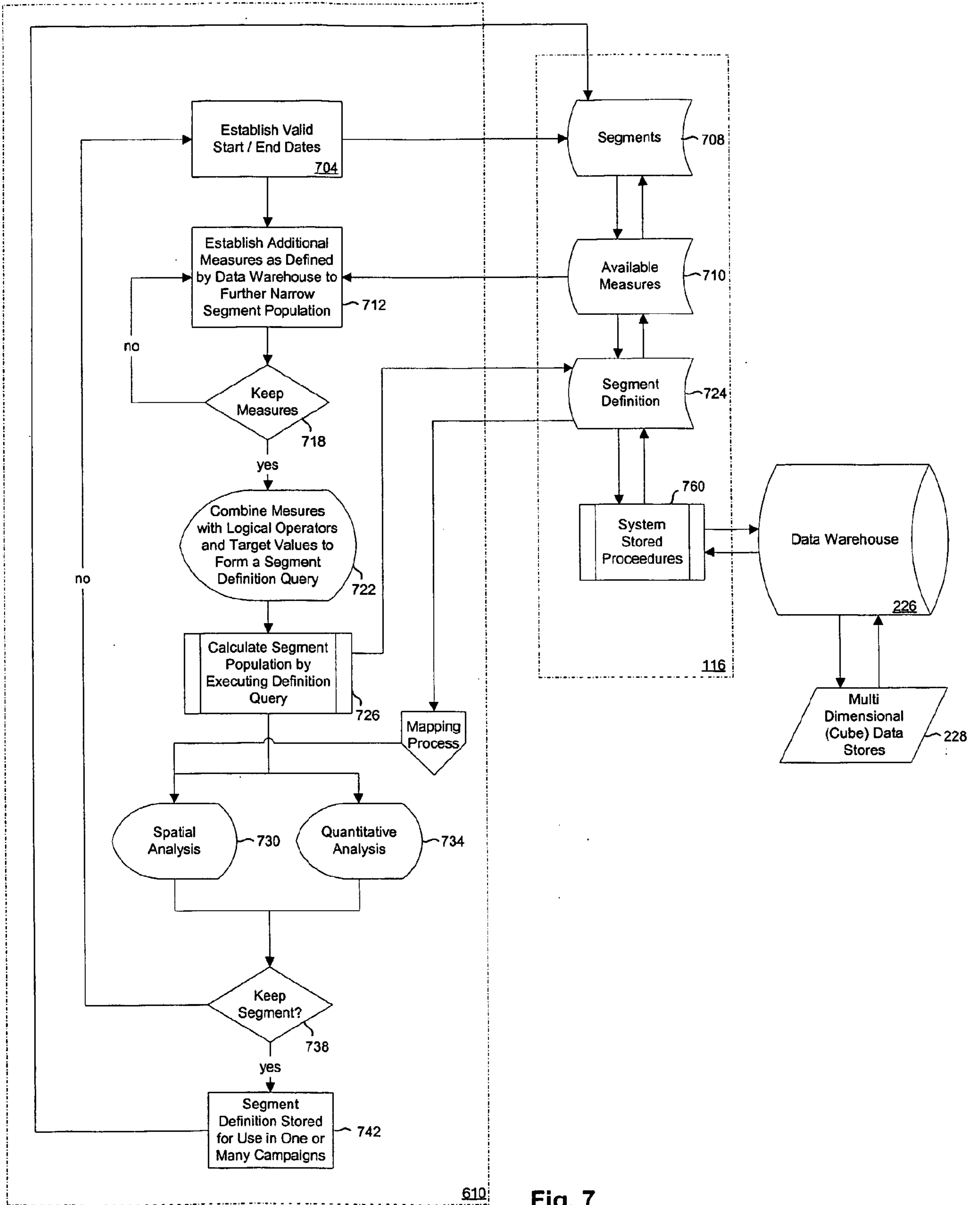


Fig. 7

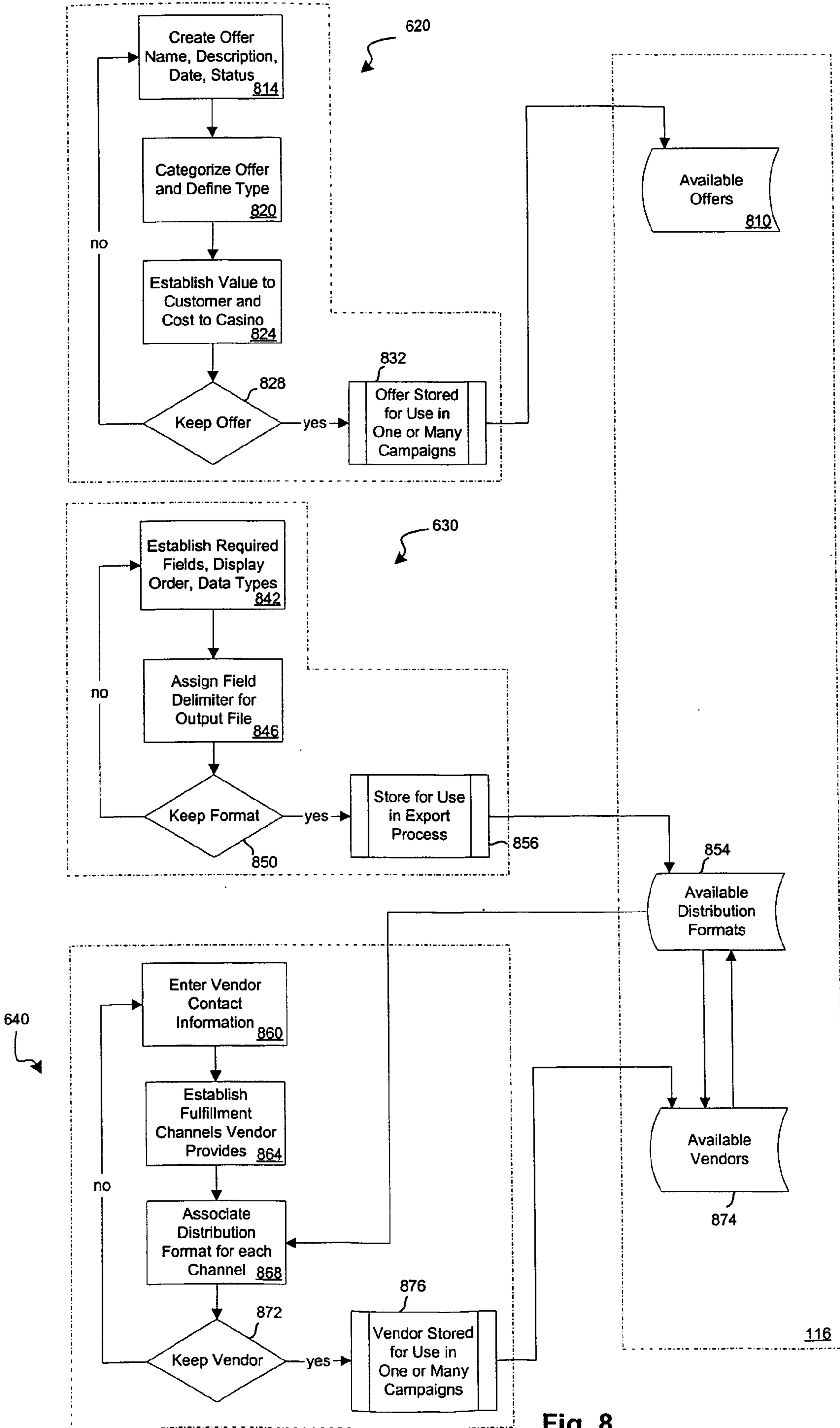


Fig. 8

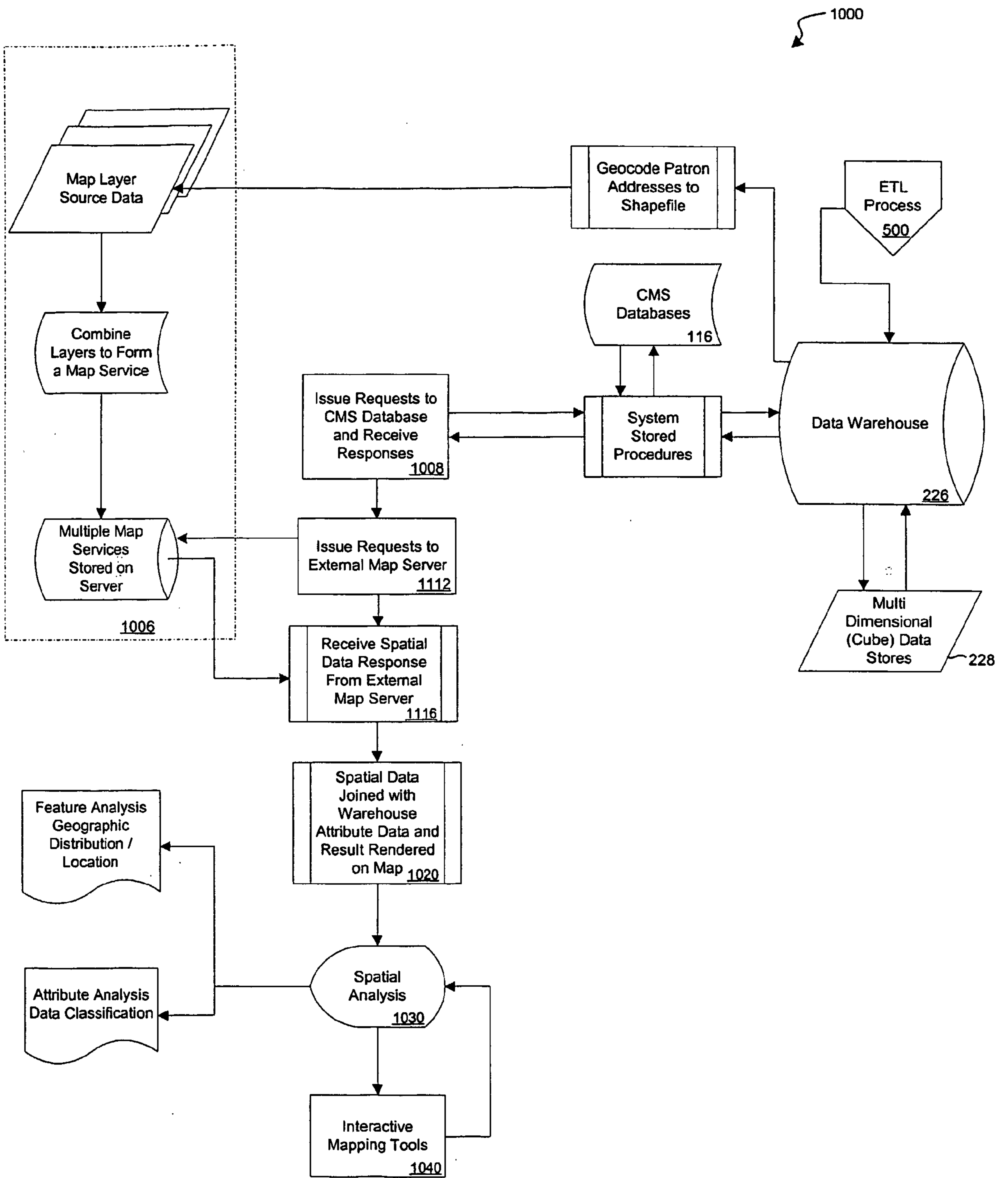


Fig. 10

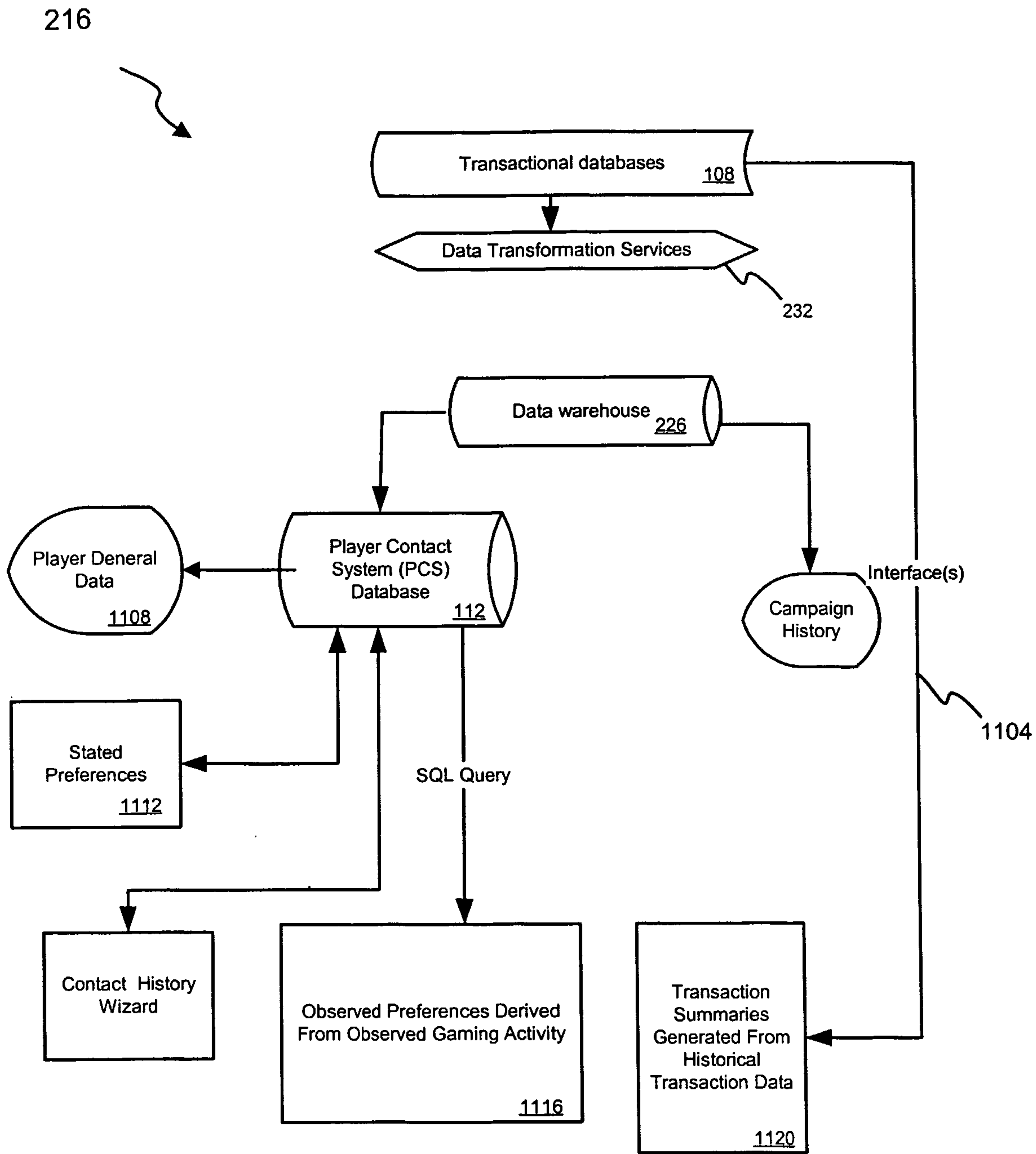


Fig. 11

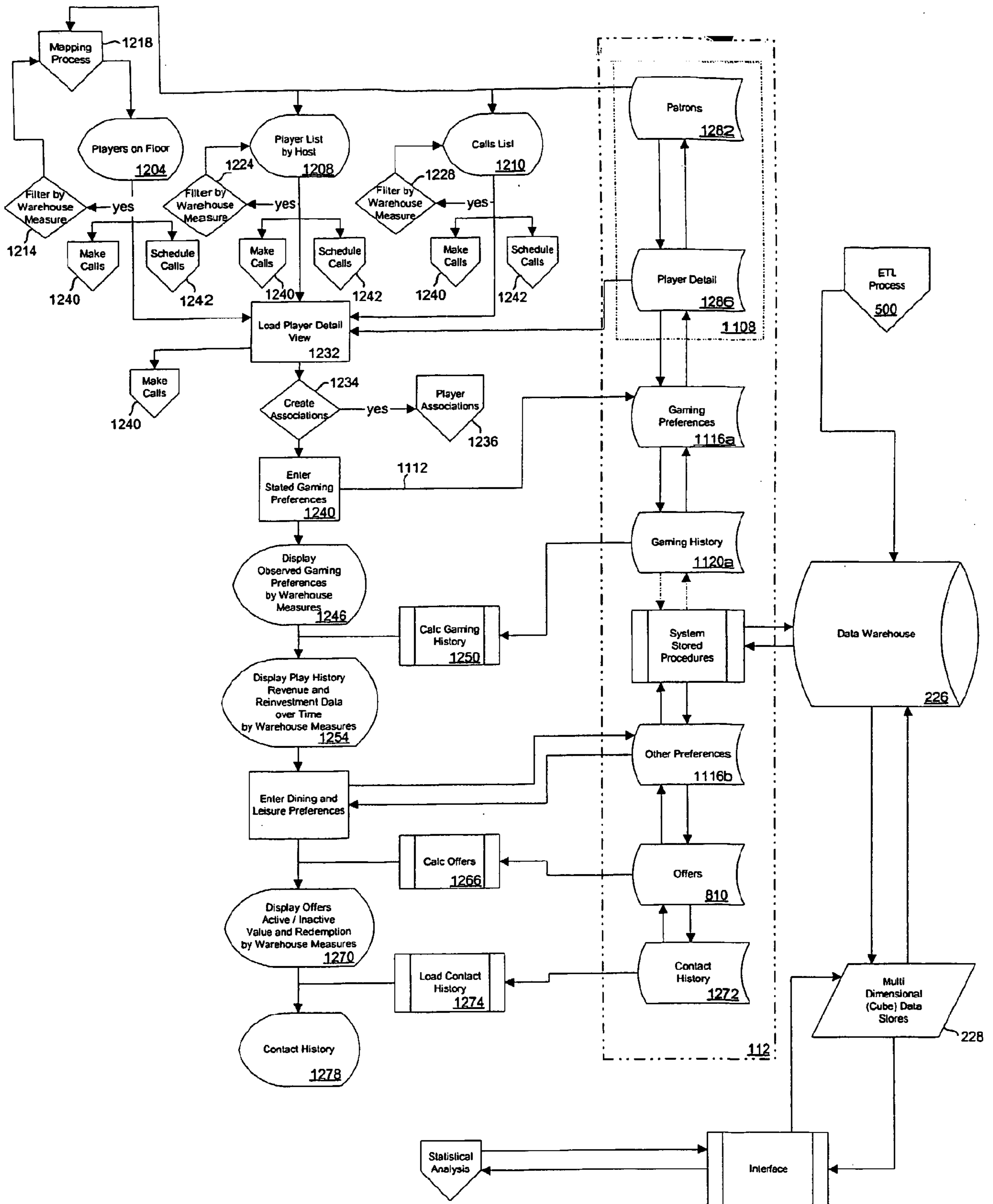


Fig. 12

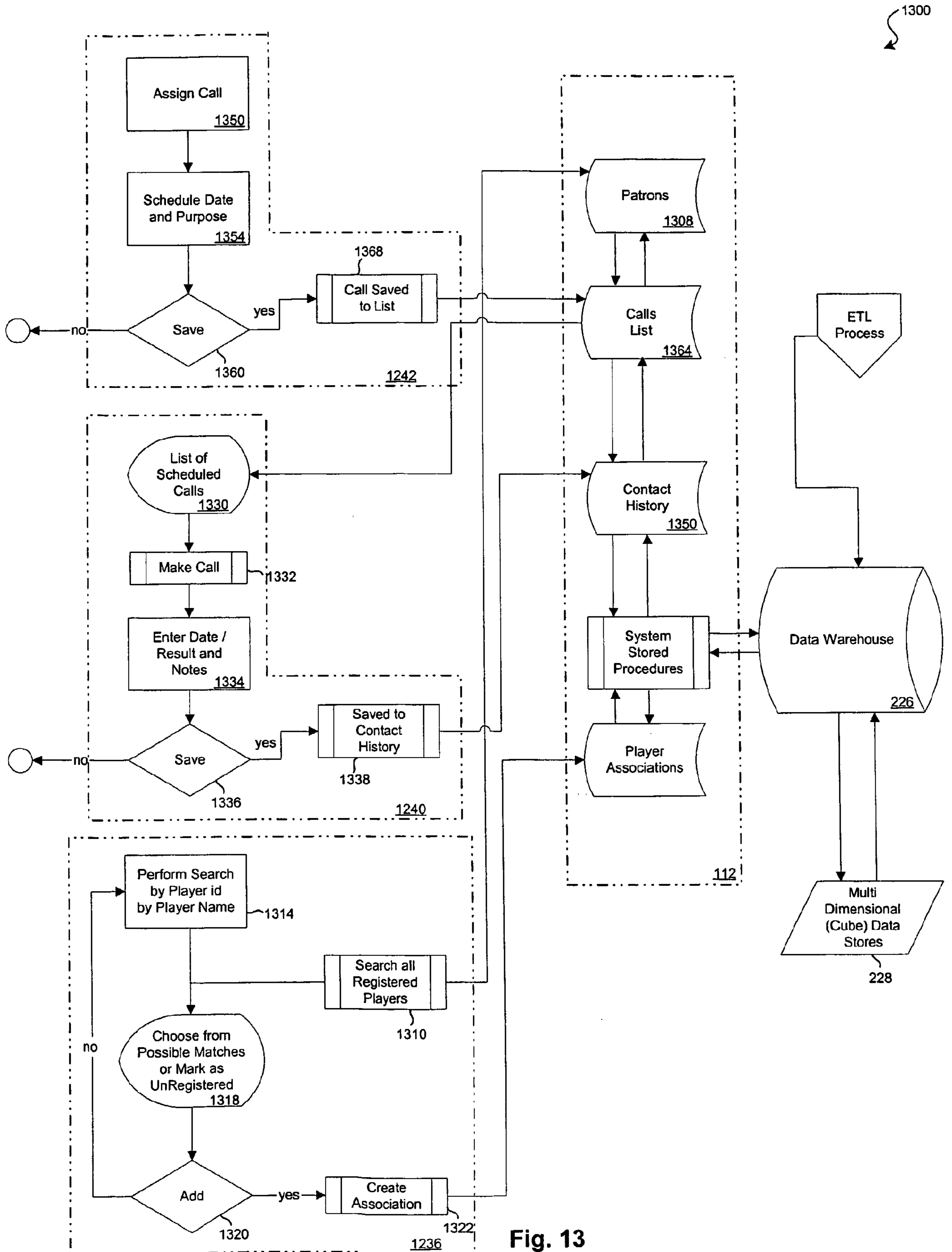


Fig. 13

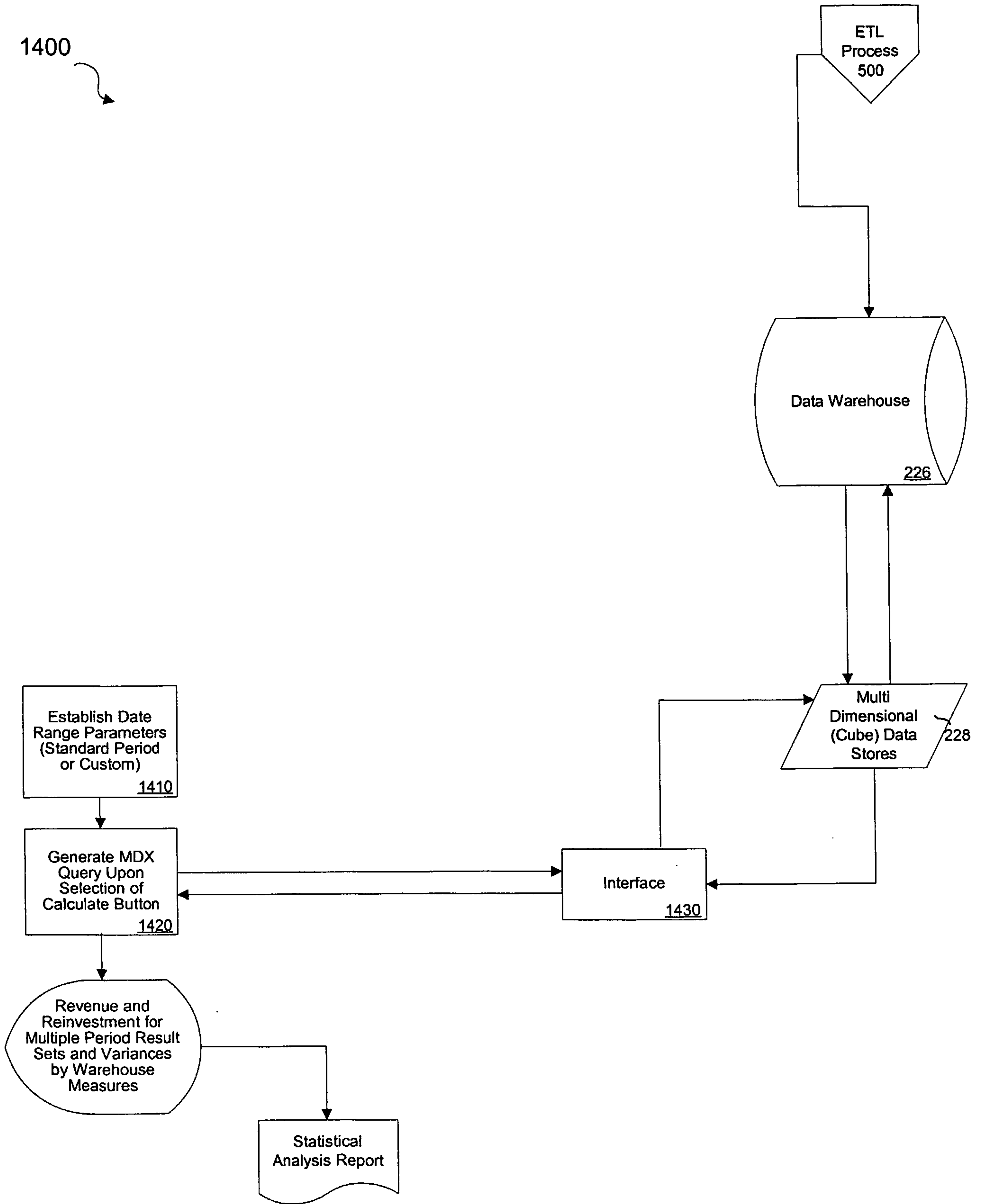


Fig. 14

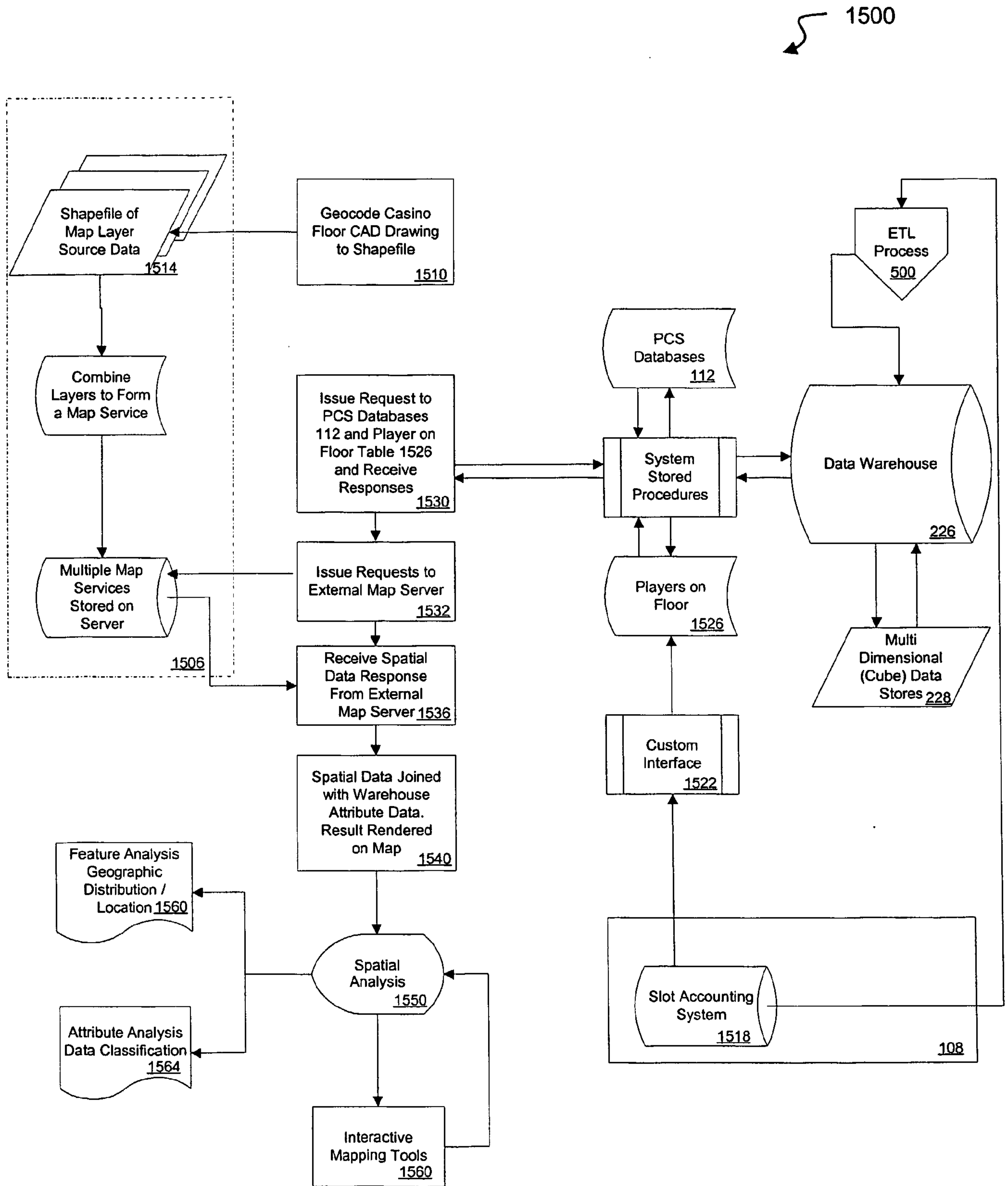


Fig. 15

1600

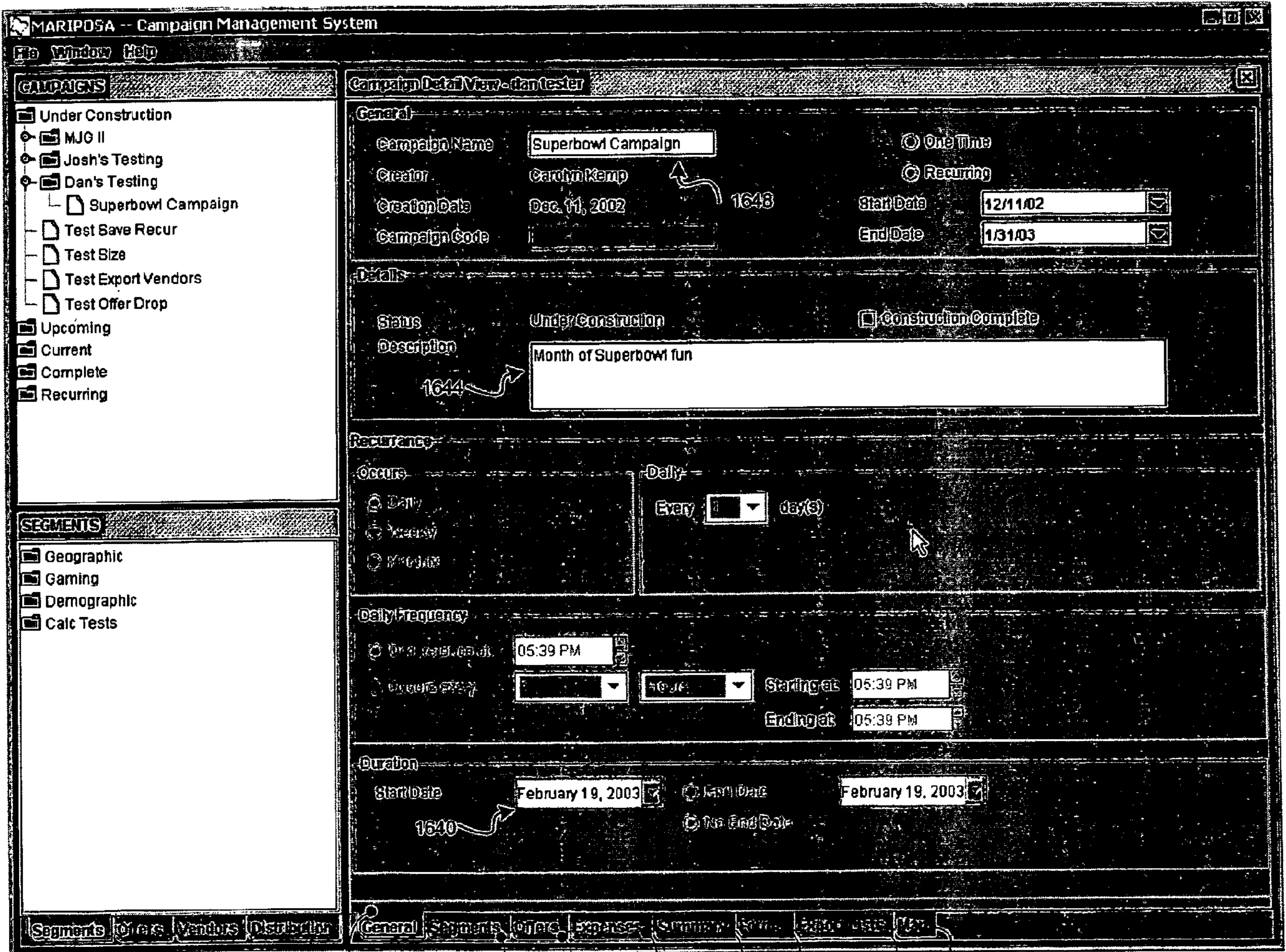


Fig. 16

1700

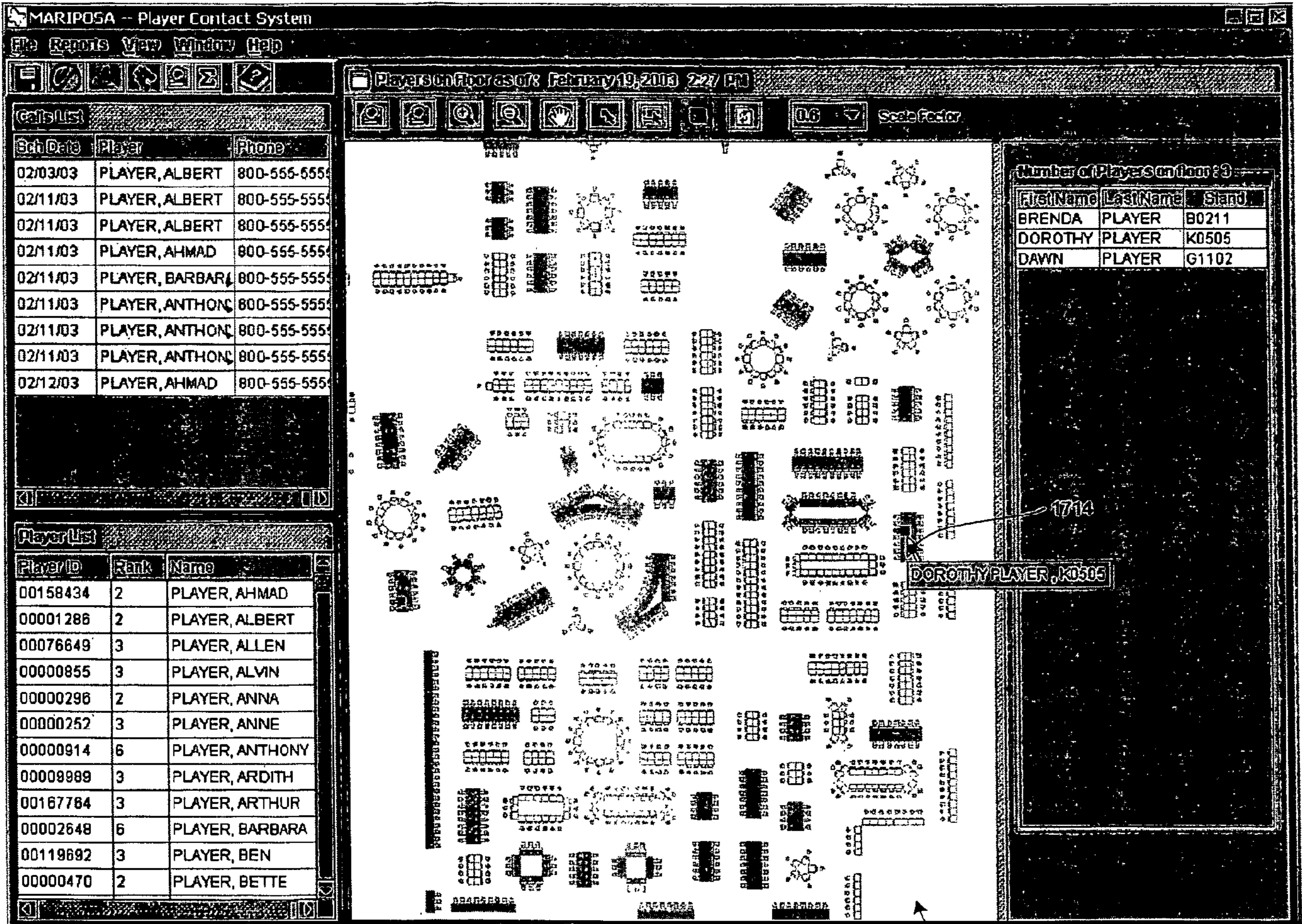


Fig. 17

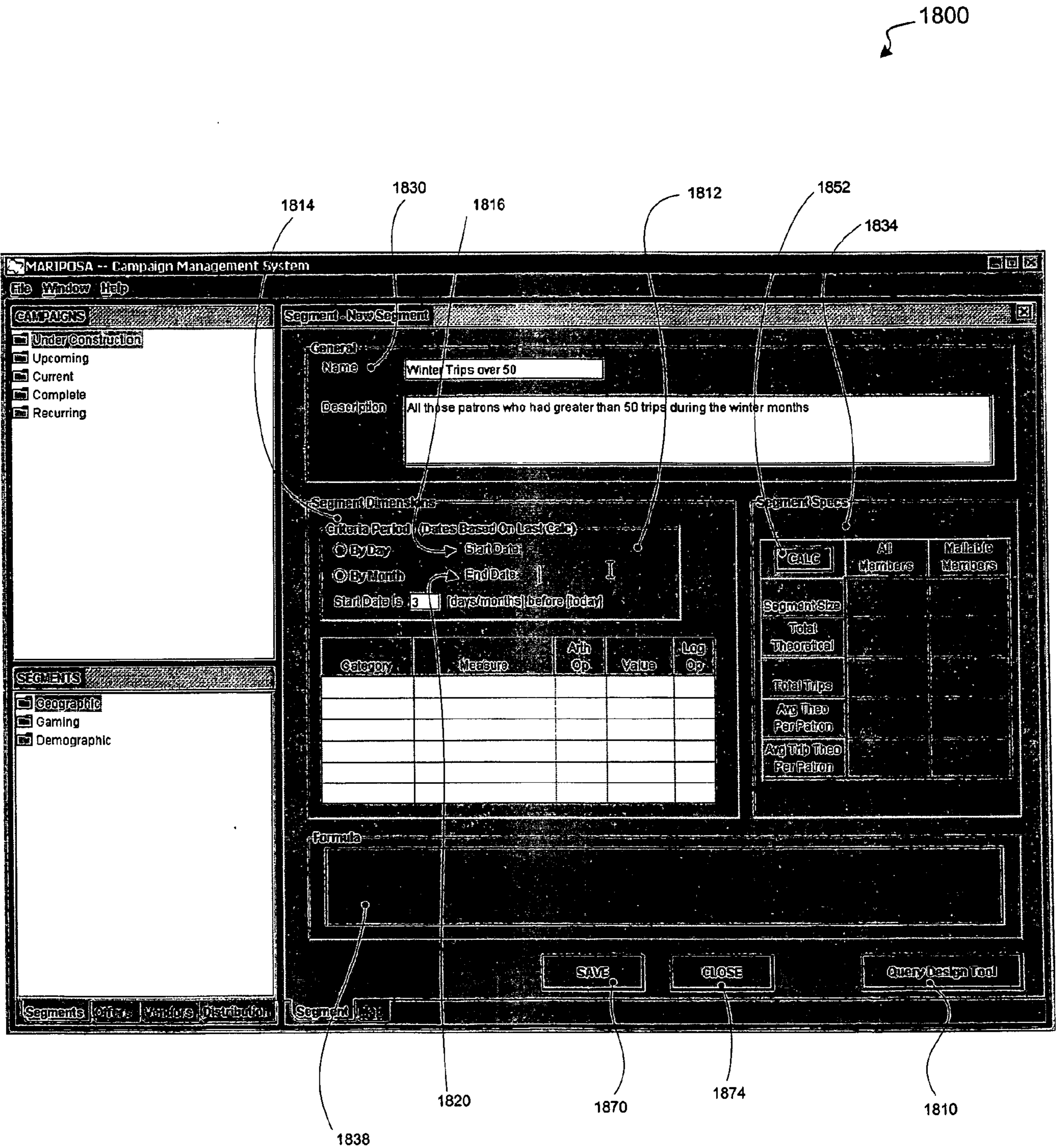


Fig. 18

1900



MARIPOSA -- Campaign Management System

File Window Help

CAMPAIGNS

- Under Construction
- Upcoming
- Current
- Complete
- Recurring

SEGMENTS

- Geographic
- Gaming
- Demographic

Segment - New Segment

General

Name: Winter Trips over 50

Description: All those patrons who had greater than 50 trips during the winter months

Segment Dimensions

Criteria Period (Dates Based on Last Cal.)

By Day Start Date: End Date: I

By Month 1820 End Date: 1904 I

Start Date is 3 (days/months) before today

Category	Measure	Arith Op	Value	Log Op

Segment Specs

	ALL Members	Mailable Members
CALC		
Segment Size		
Total Theoretical		
Total Trips		
Avg Theo Per Patron		
Avg Trip Theo Per Patron		

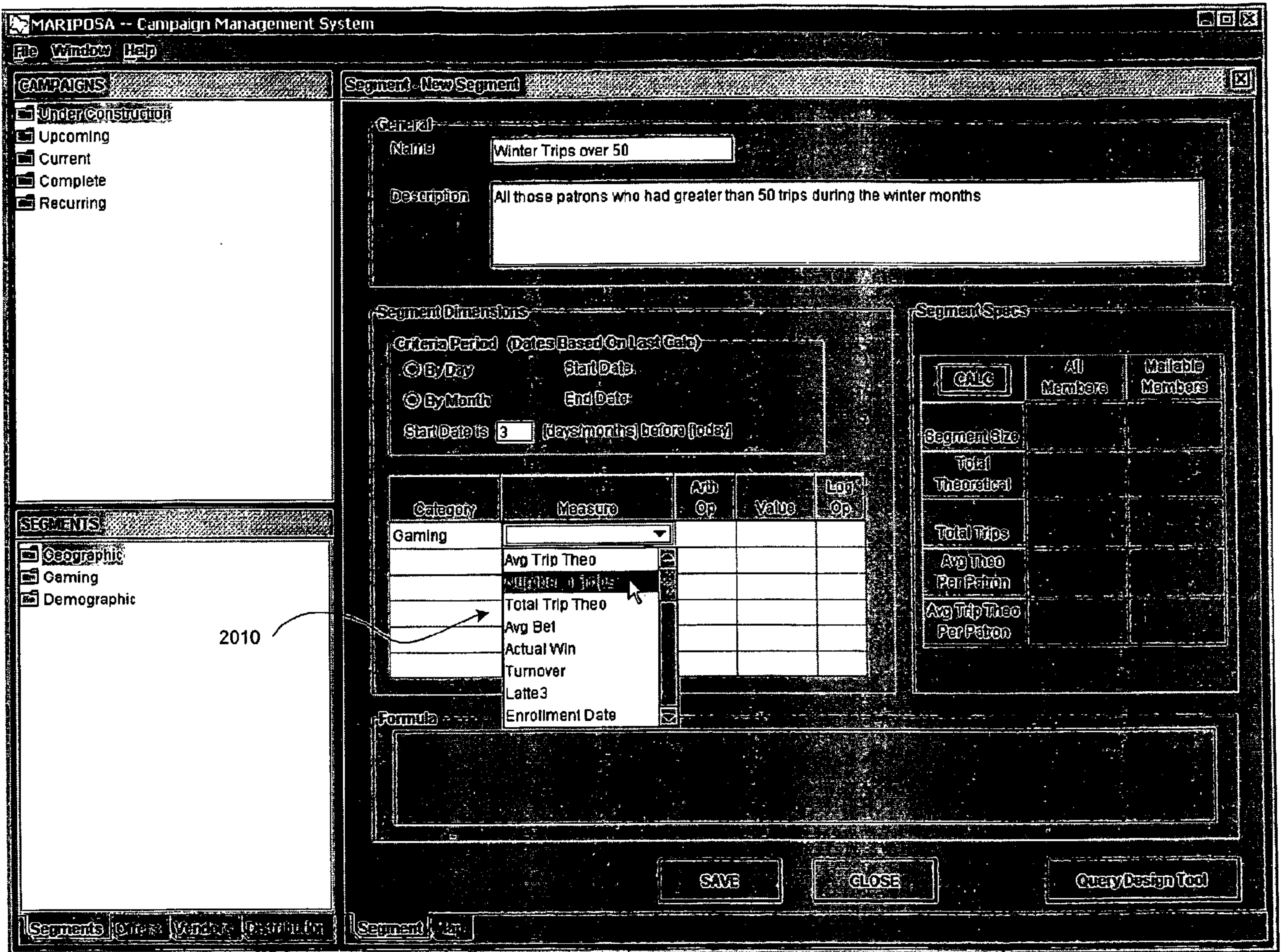
Formula

SAVE CLOSE Query Design Tool

Segments View Views Designer Segment

Fig. 19

2000



2010

Fig. 20

2100

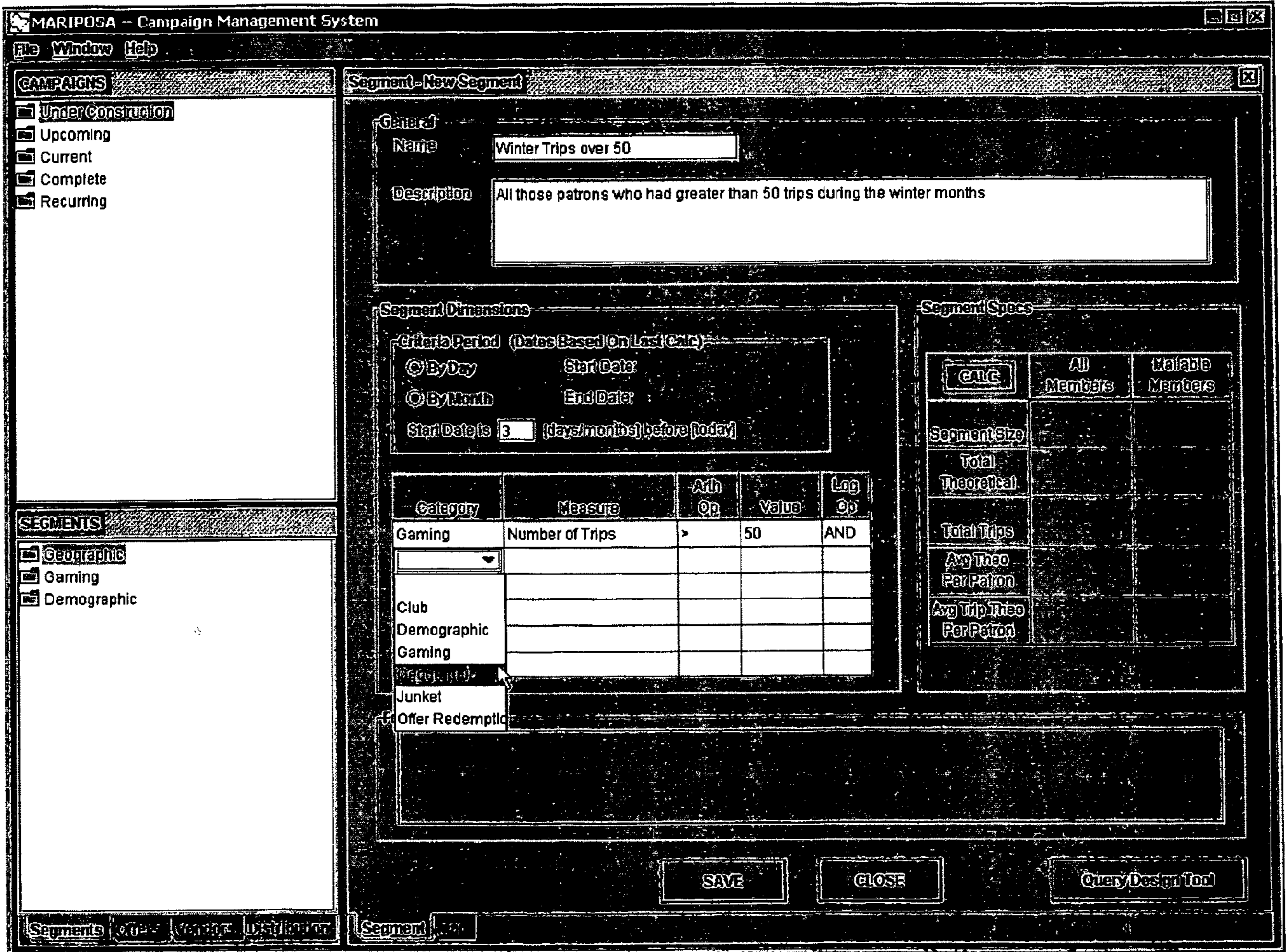
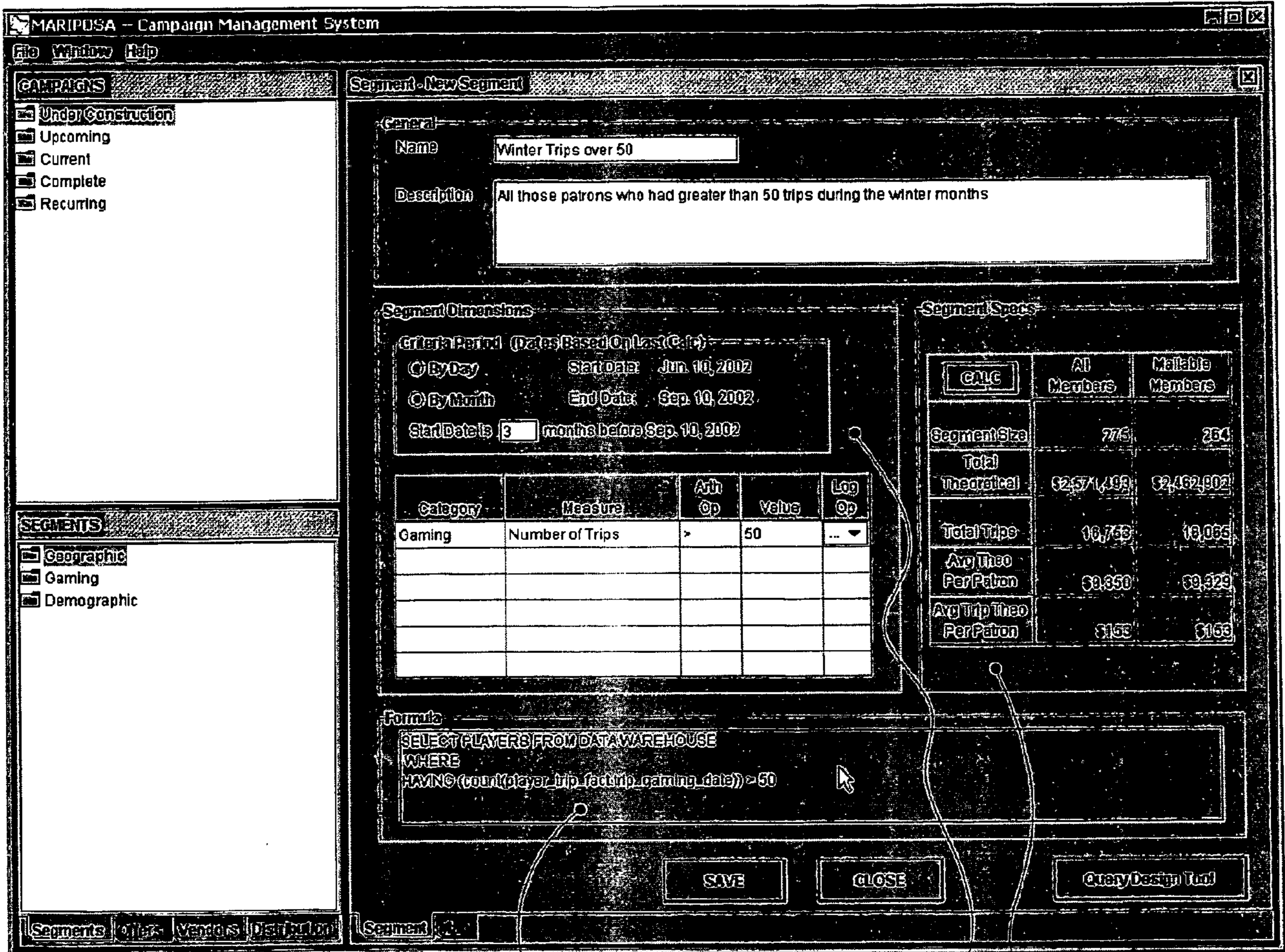


Fig. 21

2200



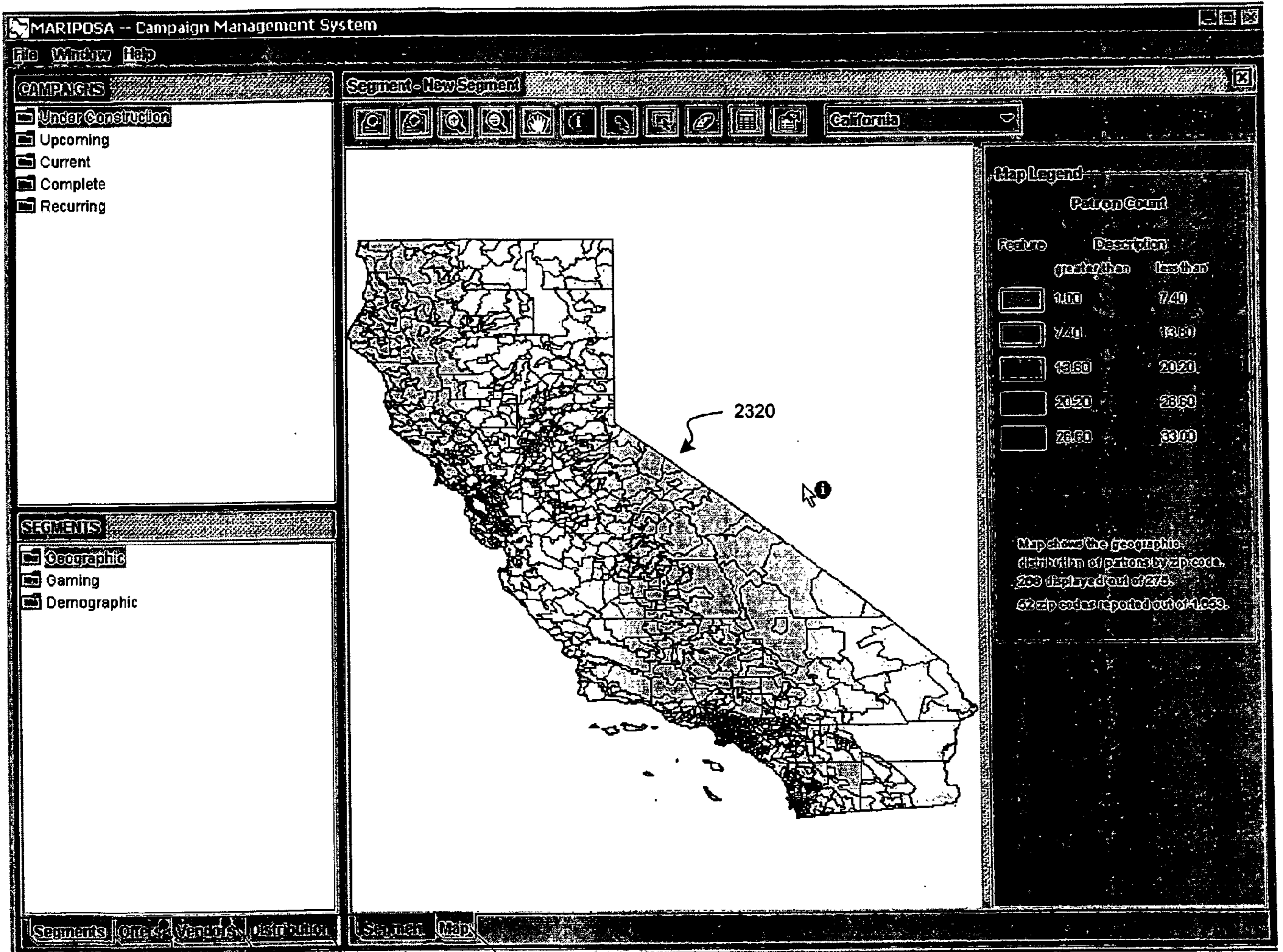
2220

2216

2210

Fig. 22

2300



2320

2330

2310

2340

Fig. 23

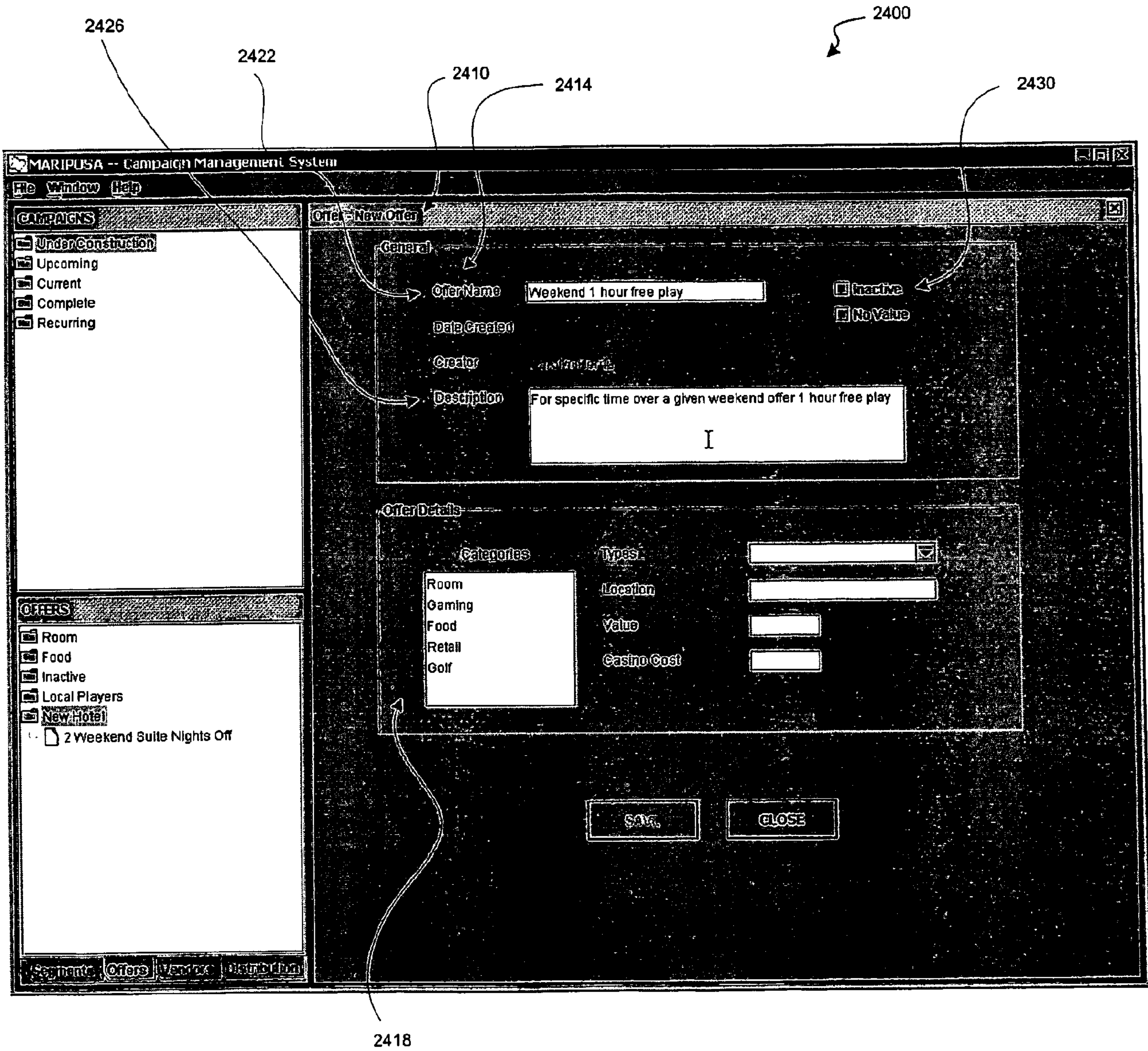


Fig. 24

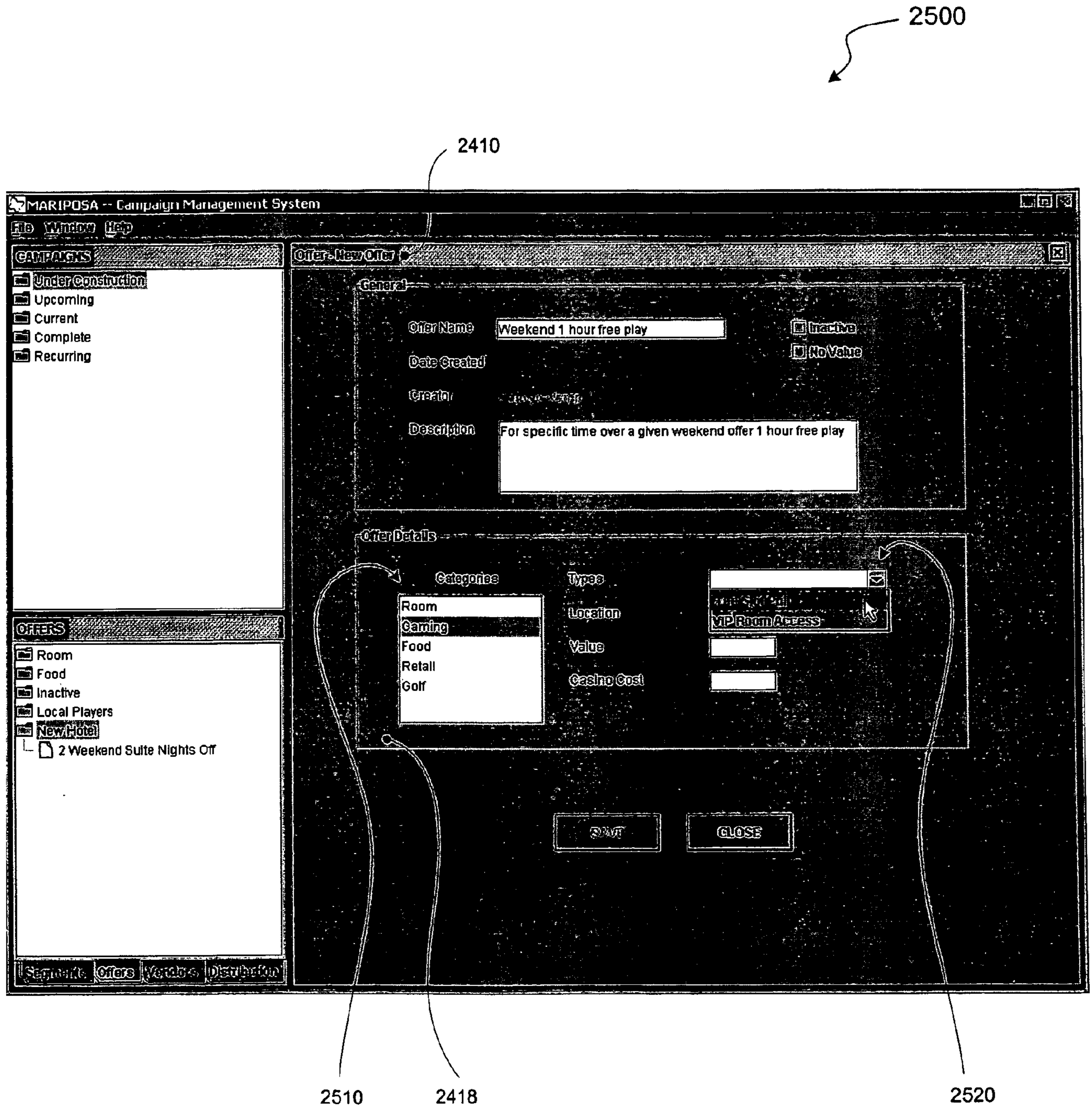


Fig. 25

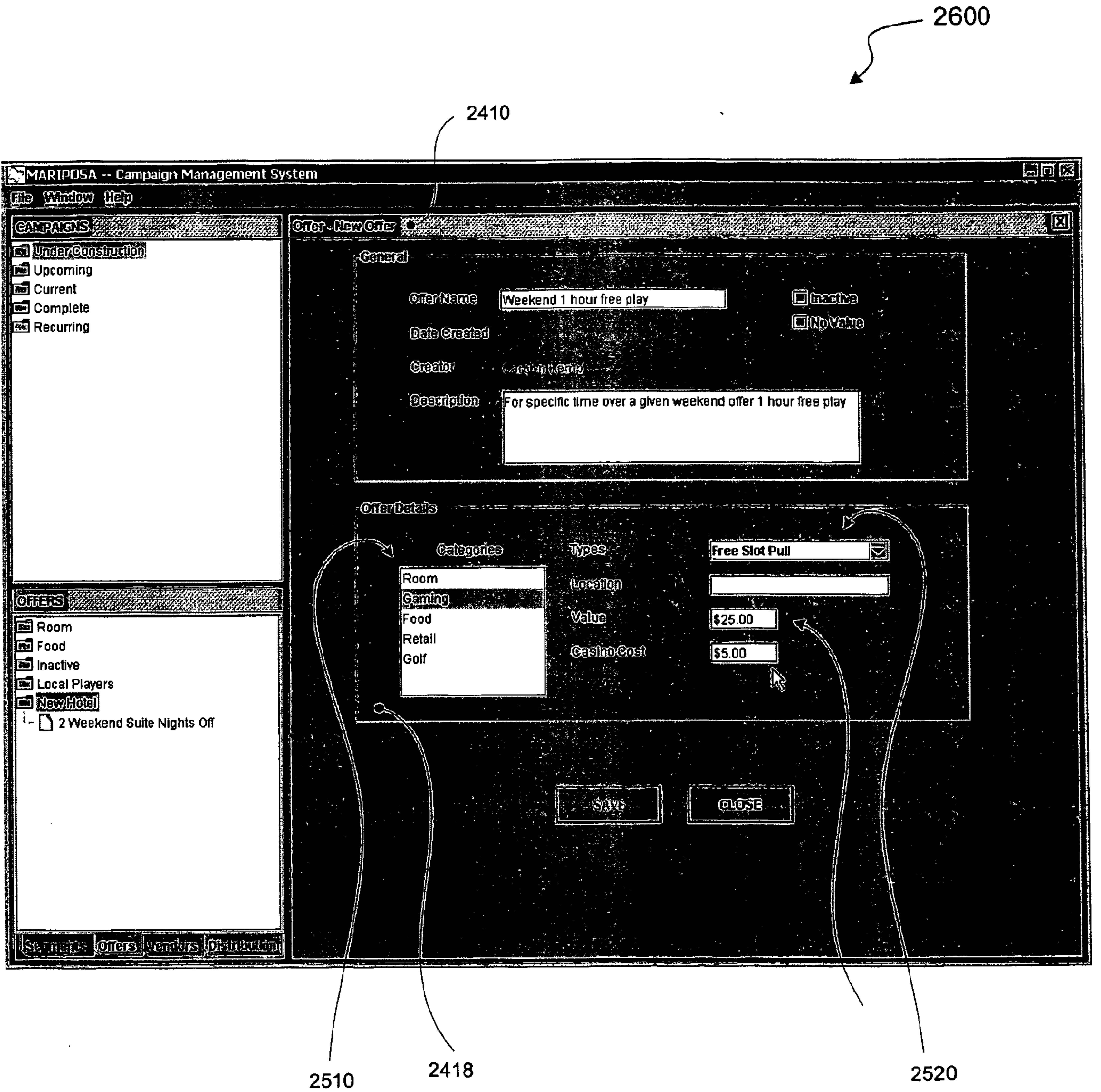


Fig. 26

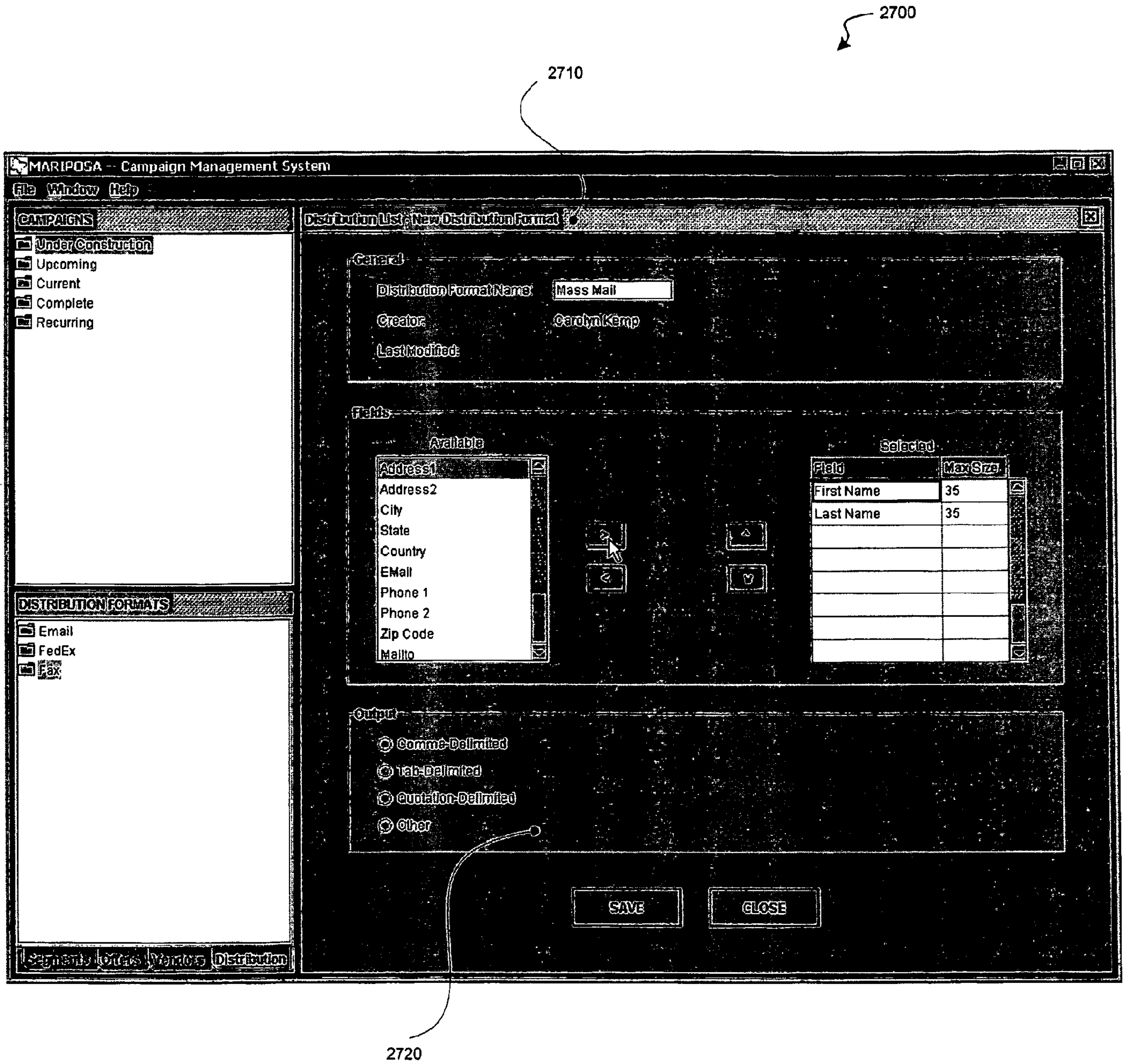


Fig. 27

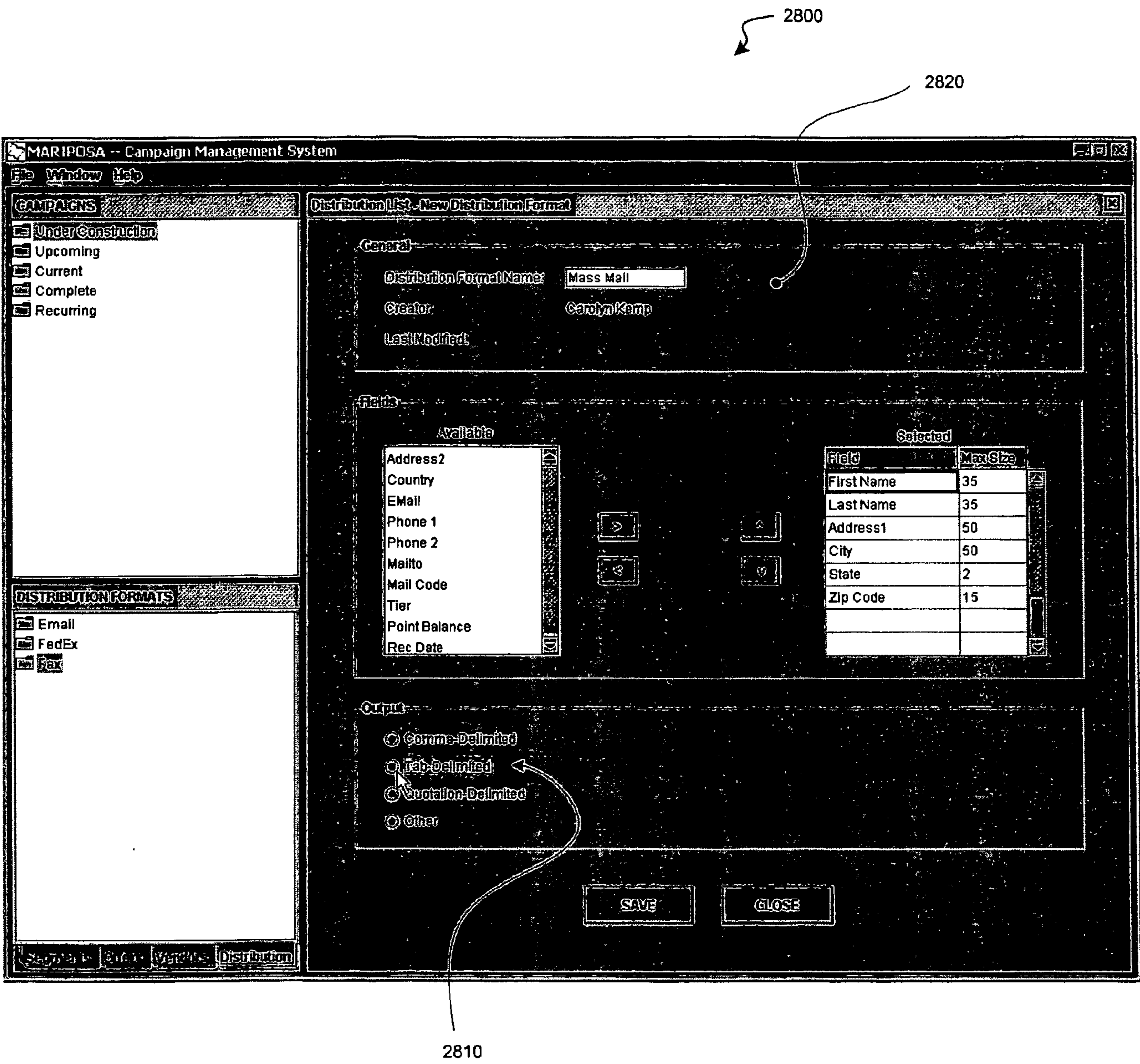


Fig. 28

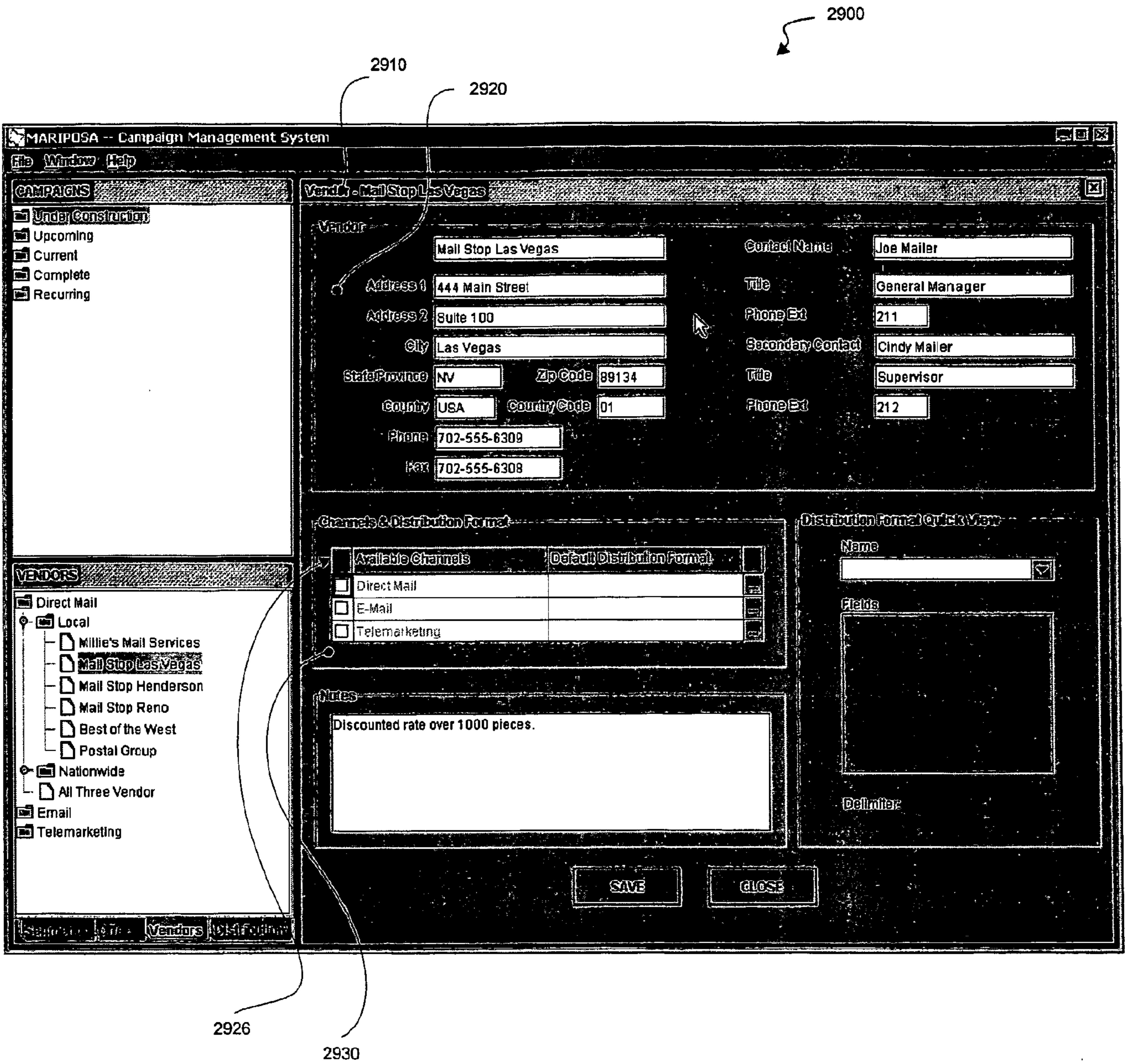
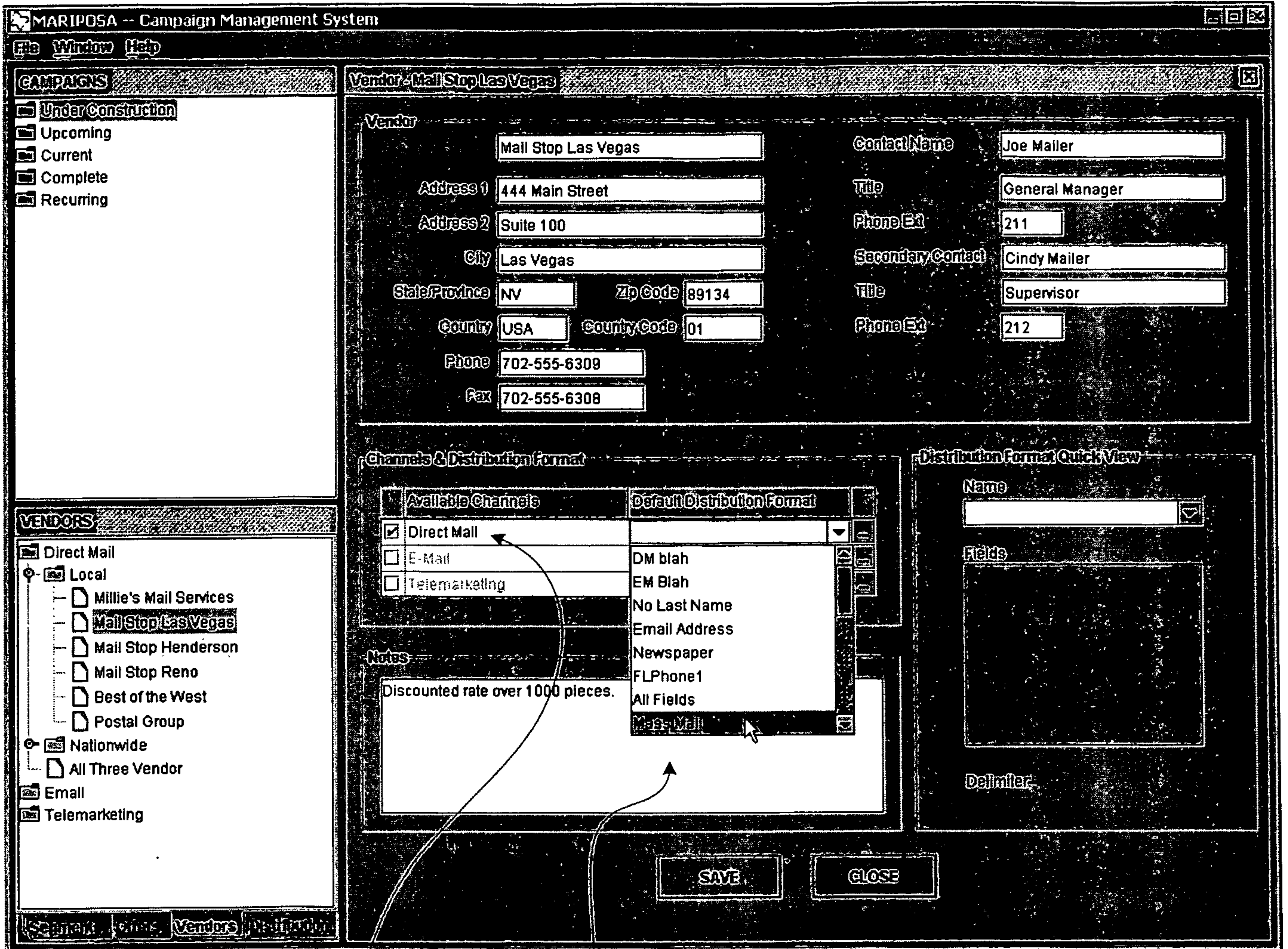


Fig. 29

3000

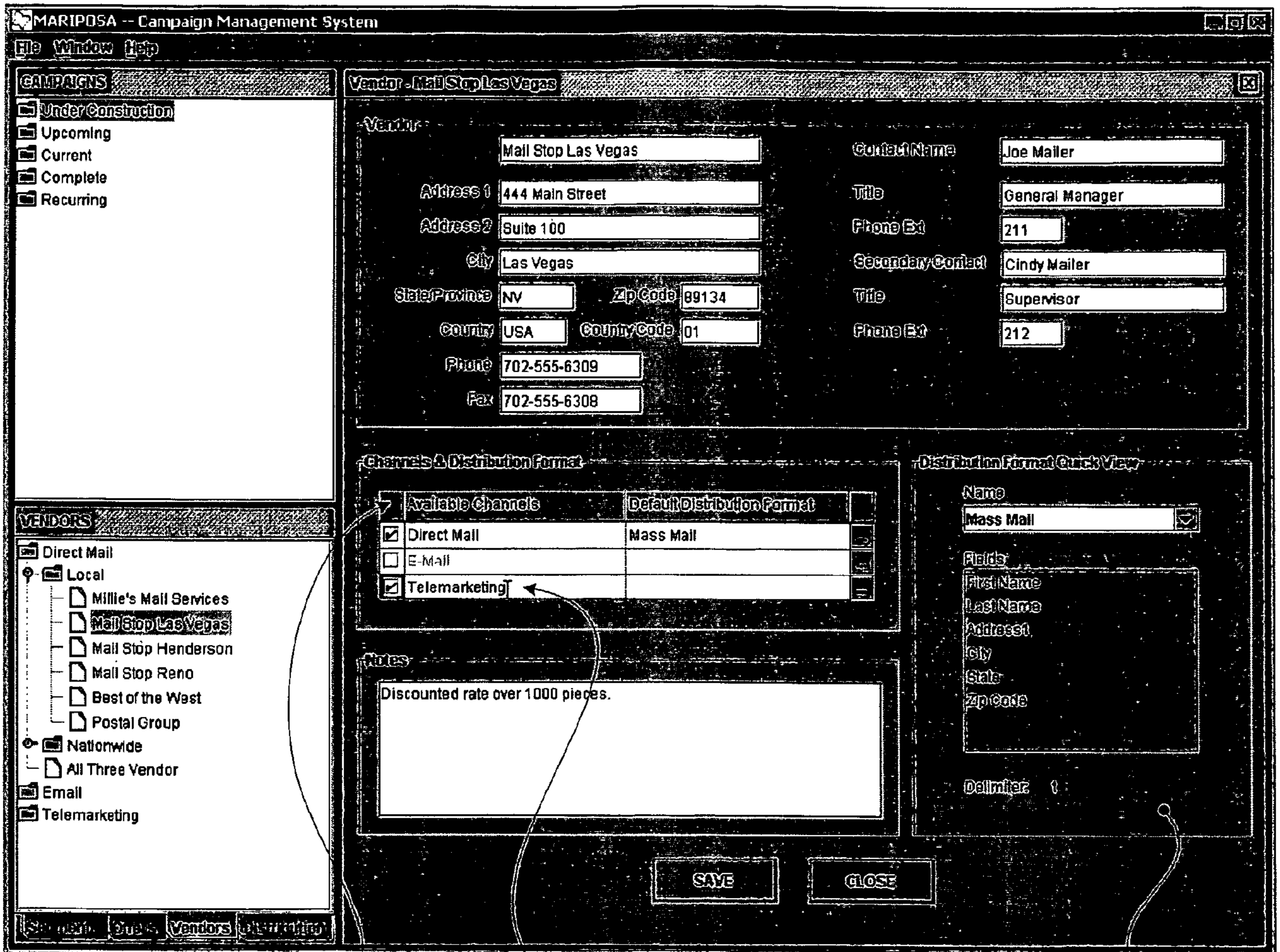


3010

3020

Fig. 30

3100



2926

3120

3110

Fig. 31

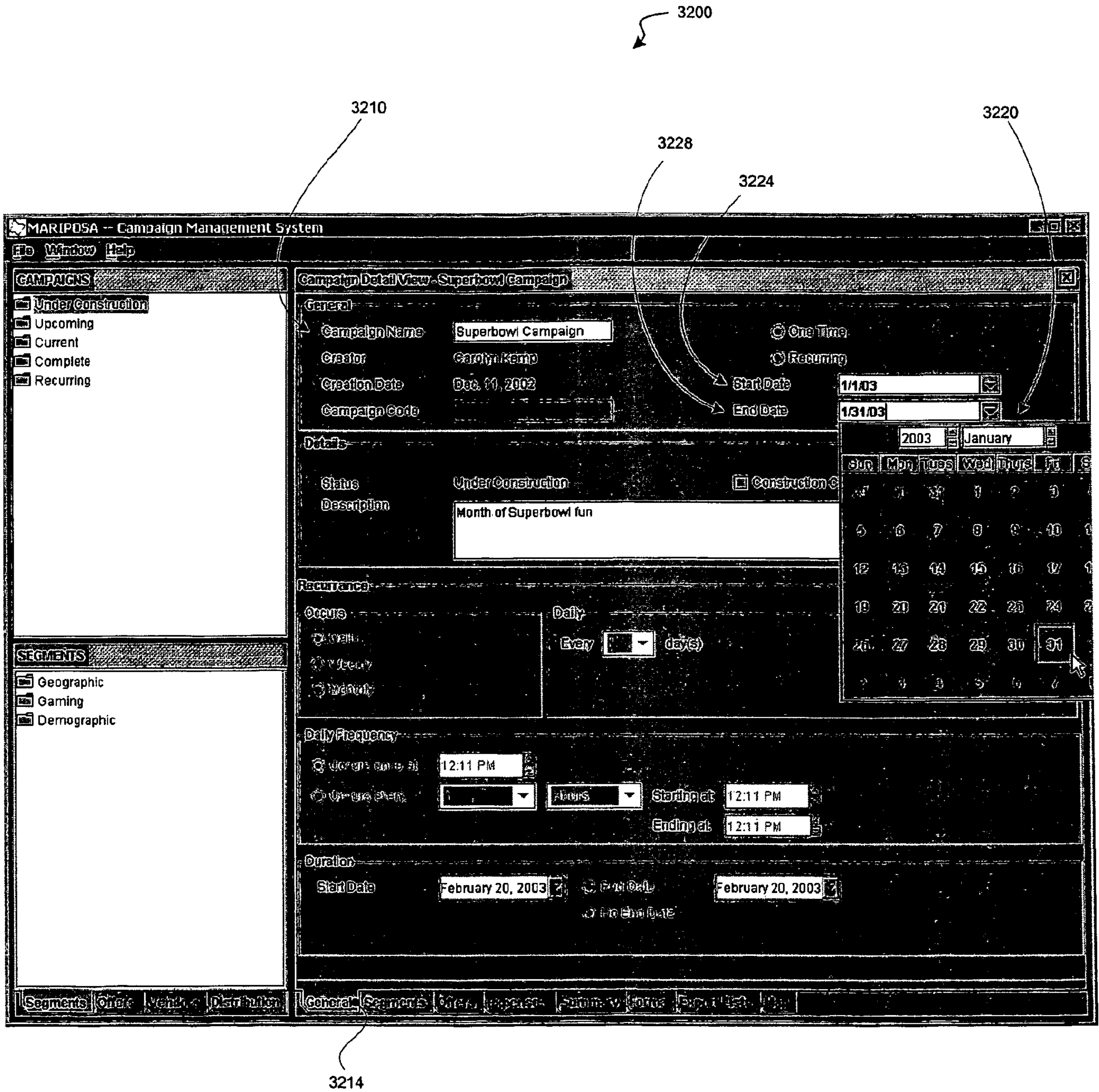


Fig. 32

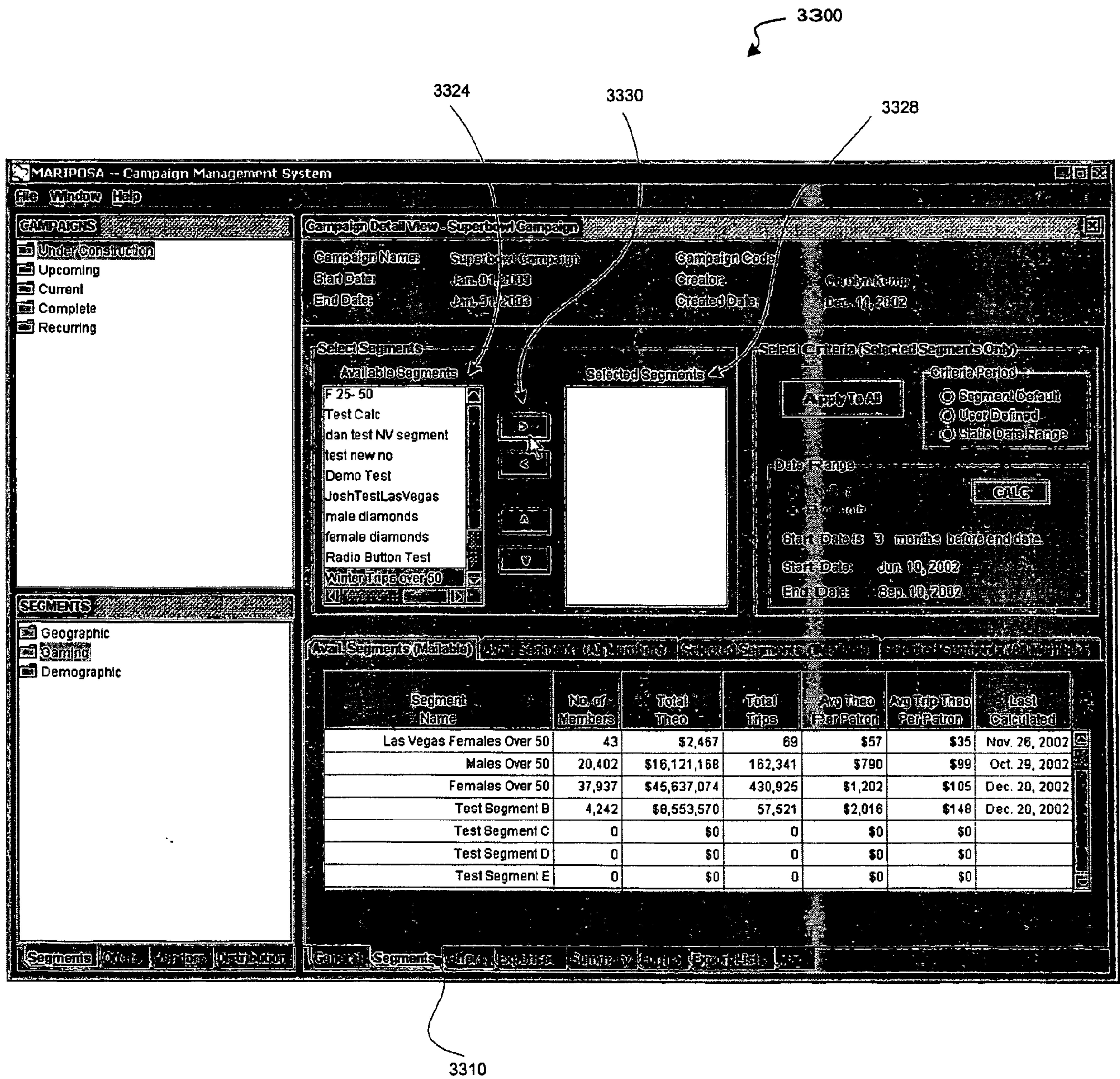


Fig. 33

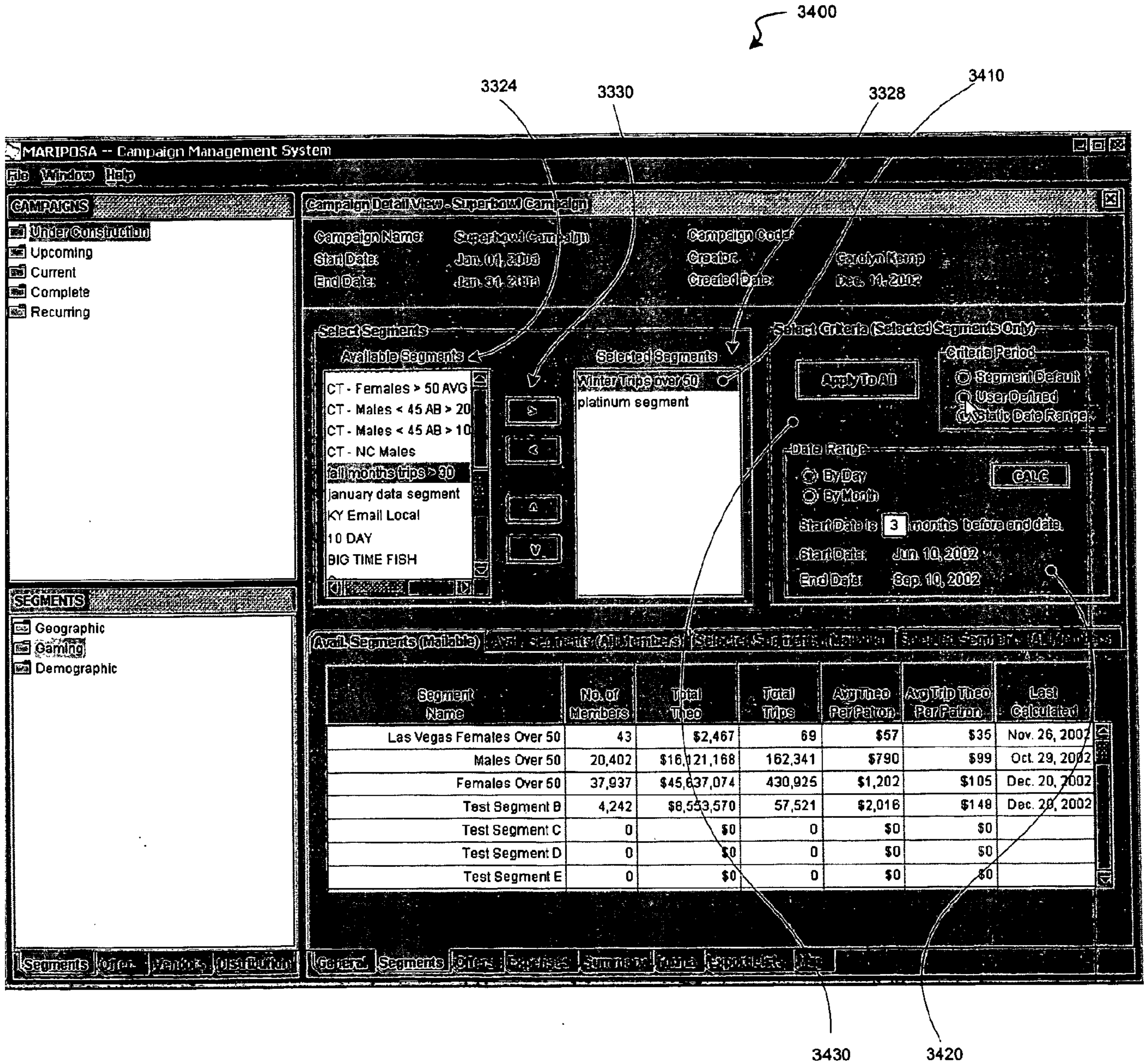


Fig. 34

3500

MARIPOSA -- Campaign Management System

File Window Help

CAMPAIGNS

- Under Construction
- Upcoming
- Current
- Complete
- Recurring

SEGMENTS

- Geographic
- Gaming
- Demographic

Campaign Detail View - Superbowl Campaign

Campaign Name: Superbowl Campaign Campaign Code:
 Start Date: Jan 01, 2003 Creator: Carolyn Kemp
 End Date: Jan 31, 2003 Created Date: Dec 11, 2002

Select Segments

Available Segments: CT - Females > 50 AVG, CT - Males < 45 AB > 20, CT - Males < 45 AB > 10, CT - NC Males, fall months trips > 30, january data segment, KY Email Local, 10 DAY, BIG TIME FISH

Selected Segments: Winter Trips over 50, platinum segment

Select Criteria (Selected Segments Only)

Criteria Period: Segment Default, User Defined, State Date Range

Apply To All

Date Range: By Day, By Month

Start Date is 3 months before end date.

Start Date: Jun 10, 2002
 End Date: Sep 10, 2002

3500

Segment Name	No. of Members	Total Theo	Total Trips	Avg Theo Per Patron	Avg Trip Theo Per Patron	Last Calculated
Winter Trips over 50	264	\$2,462,902	18,065	\$9,329	\$153	Feb. 20, 2003
platinum segment	1,728	\$4,706,372	31,976	\$2,723	\$147	Feb. 20, 2003
Totals	1,992	\$7,169,274	48,041	\$3,599	\$149	(CALC)

3310 3520 3530 3510 3534

Fig. 35

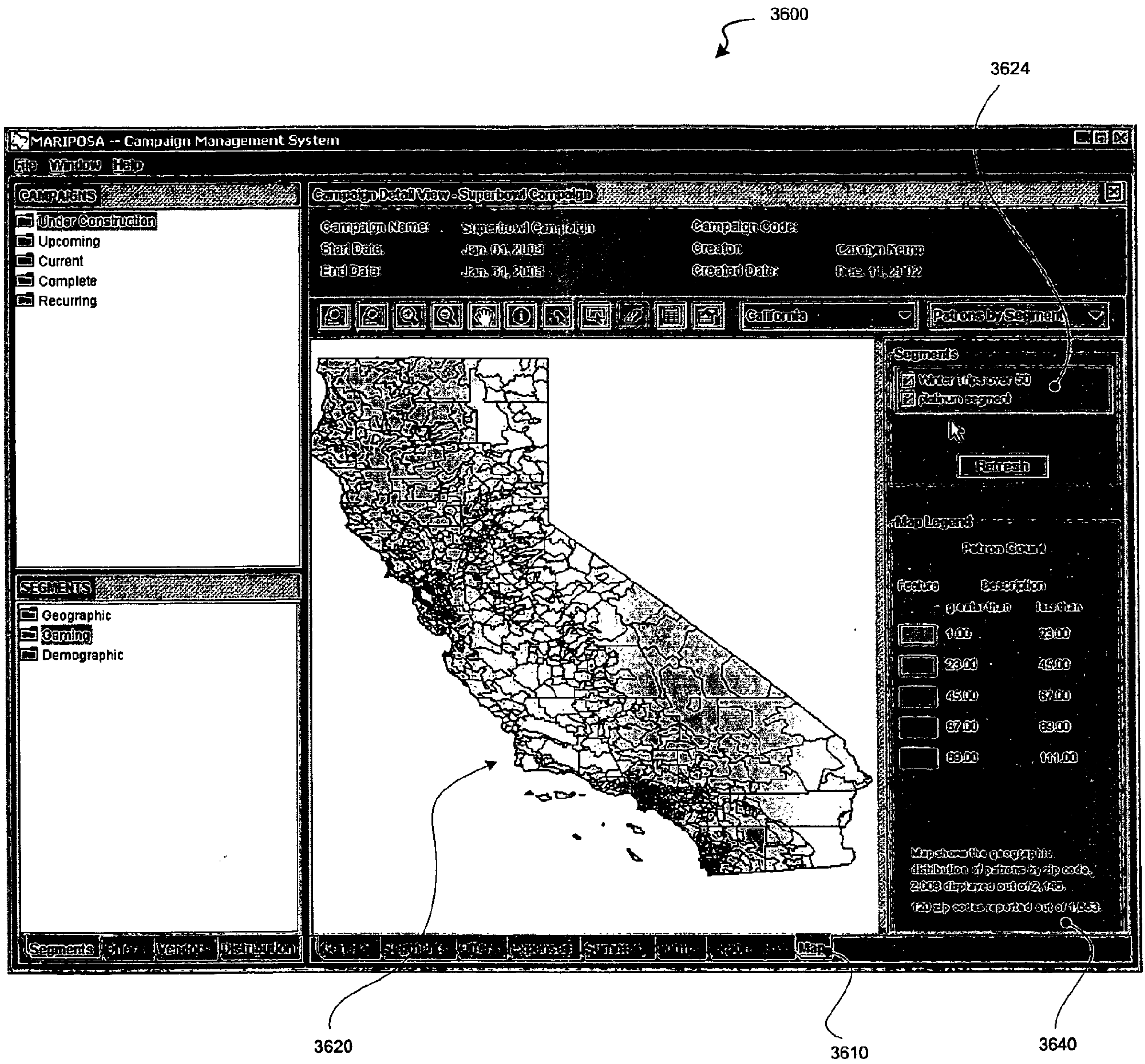


Fig. 36

3700

MARIPOSA - Campaign Management System

File Window Help

CAMPAIGNS

- Under Construction
- Upcoming
- Current
- Complete
- Recurring

SEGMENTS

- Geographic
- Gaming
- Demographic

Campaign Detail View - Superbowl Campaign

Campaign Name: Superbowl Campaign Campaign Code: Creator: Carolyn Kemp

Start Date: Jan 01, 2003 End Date: Dec 31, 2003 Created Date: Dec 11, 2002

Selected Segment and Offer Association				Available Offers	
Offer	Valid Start	Valid End	Redem %	Offers	Value
<input type="checkbox"/> Direct Mail				\$150 Free Play	150
<input type="checkbox"/> Winter Trips over 50				2 Free Dinner Buffets	30
<input type="checkbox"/> platinum segment				2 Weekend Suite Nights Q	300
<input type="checkbox"/> E-Mail				Free Room Upgrade	234
<input type="checkbox"/> Winter Trips over 50				2-For-1 Bracelet	34
<input type="checkbox"/> platinum segment				Room Offer #4	330
<input type="checkbox"/> Telemarketing				Table Games \$2 Limit	35
<input type="checkbox"/> Winter Trips over 50				Home Sweet Home	78
<input type="checkbox"/> platinum segment				Manager's special	123
				Free 5000 Points	5
				this offer name is justy	250
				2 weekend nights off	345
				Free Stuff	123
				BIG TEST CHANGE	234
				DEMO I	234
				asfd	23
				Weekend 1 hour free play	25

Segments Offers Sponsor Summary Form Sources

3718

3714

3710

3722

Fig. 37

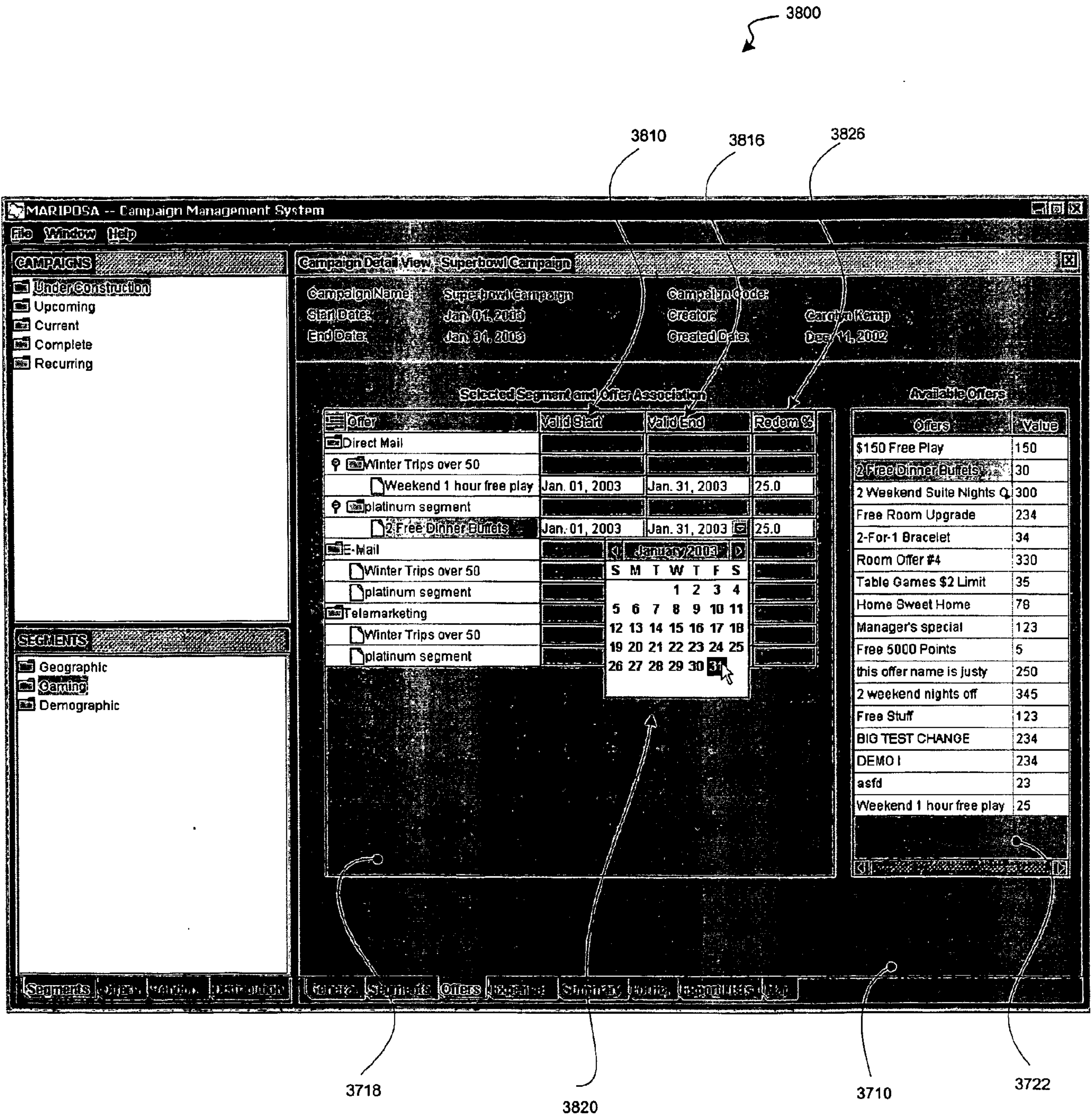


Fig. 38

3900

3910

MARIPOSA -- Campaign Management System

File Window Help

CAMPAIGNS

- Under Construction
- Upcoming
- Current
- Complete
- Recurring

SEGMENTS

- Geographic
- Gaming
- Demographic

Campaign Data View - Super Bowl Campaign

Campaign Name: Super Bowl Campaign Campaign Code:
 Start Date: Jan. 04, 2003 Creator: Carolyn Kemp
 End Date: Jan. 31, 2003 Created Date: Dec. 11, 2002

By Segment

Segment Name	Criteria Start Date	Criteria End Date	Size	Mailable
Winter Trips over 50	Jun. 10, 2002	Sep. 10, 2002	275	264
platinum segment	Jun. 10, 2002	Sep. 10, 2002	1,872	1,728

By Offer

Offer Name	Offer ID	Quantity	Offer Value	Cashio Cost
2 Free Dinner Buffets	39	1,728	\$51,840.00	\$34,560.00
Weekend 1 hour free play	101	264	\$6,600.00	\$1,320.00

Segments Offers Vendors Distribution Campaign Summary Offers Expenses Summary Reports Reports Help

3920

3914

3930

Fig. 39

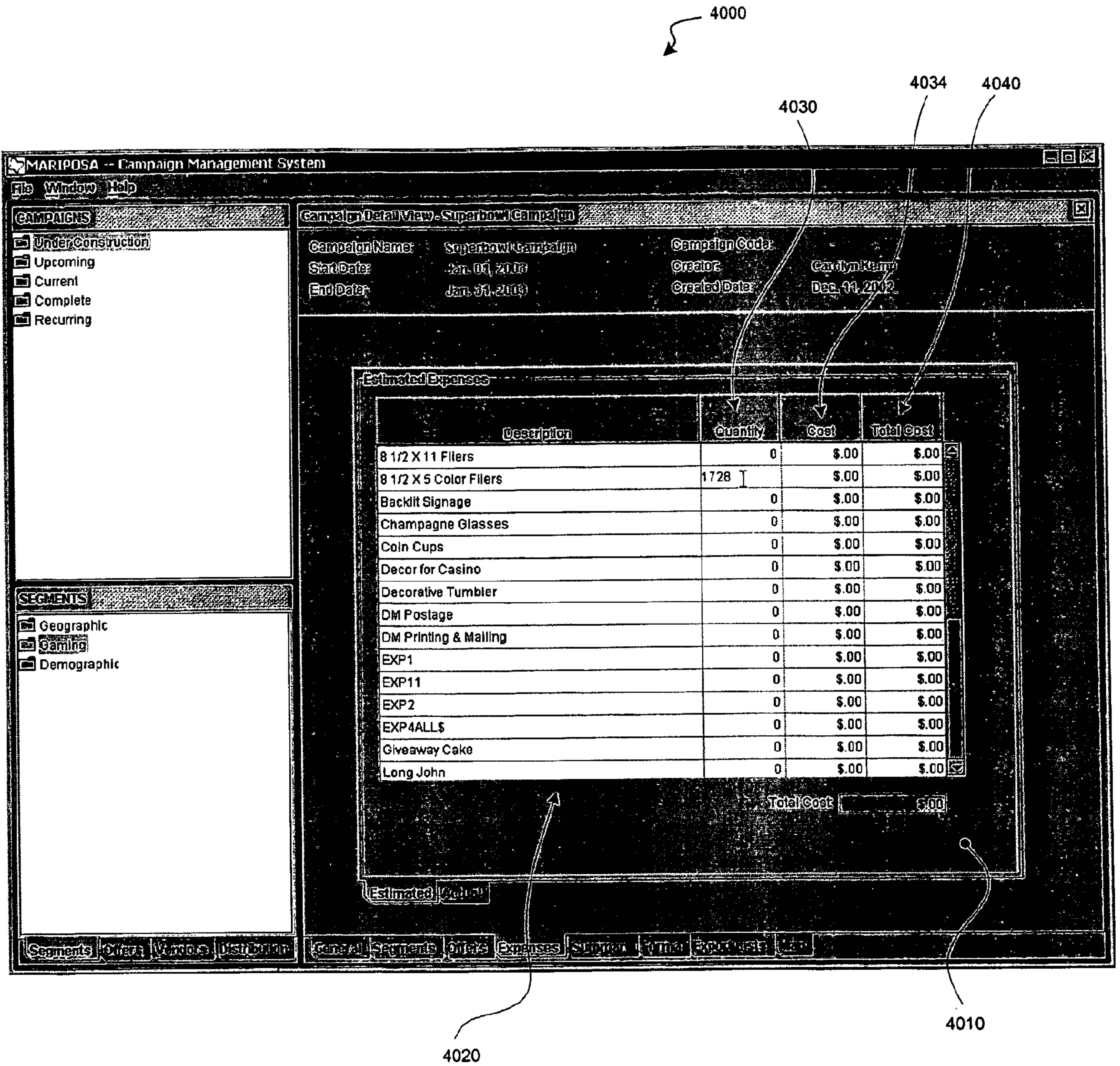


Fig. 40

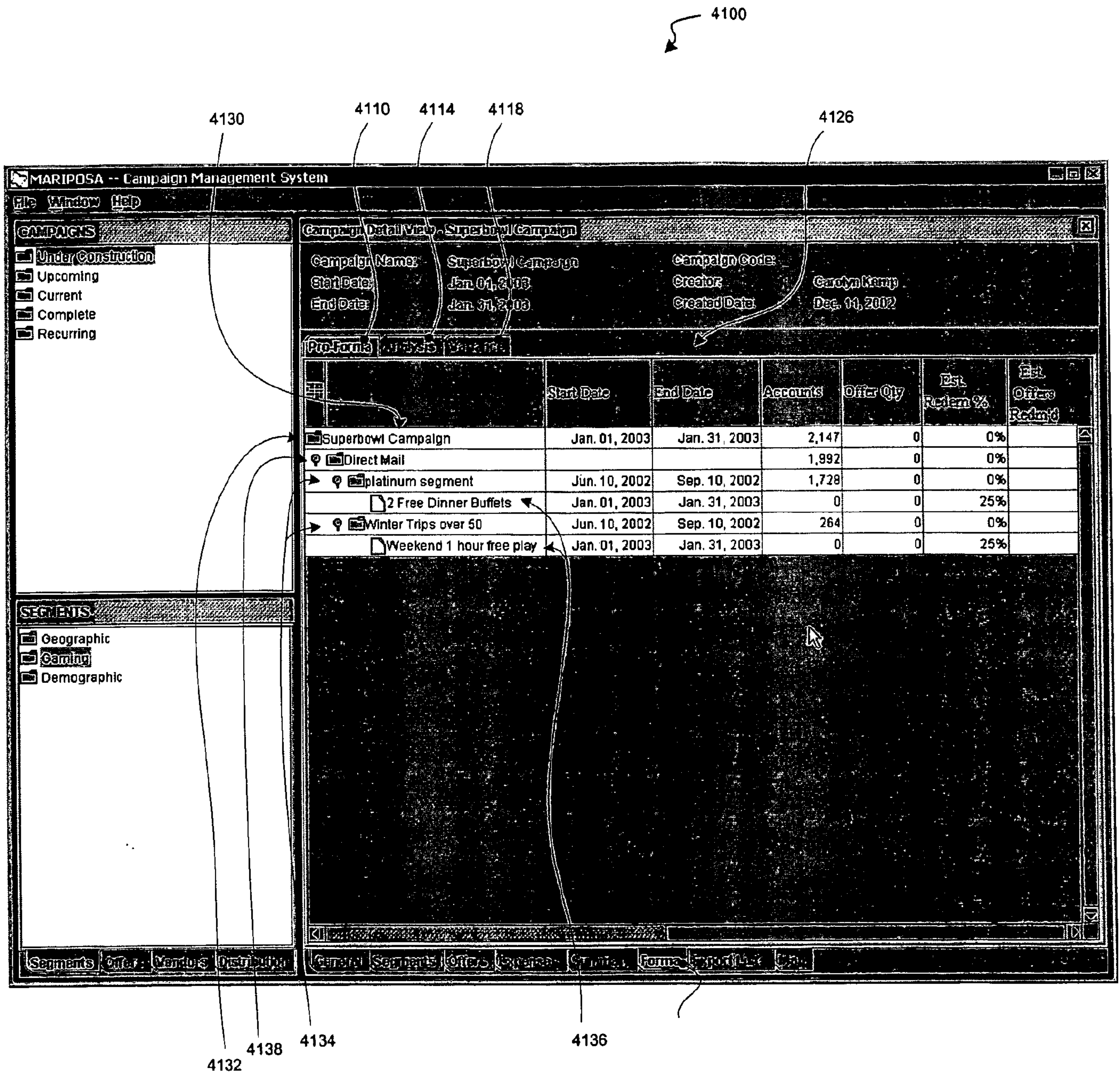


Fig. 41

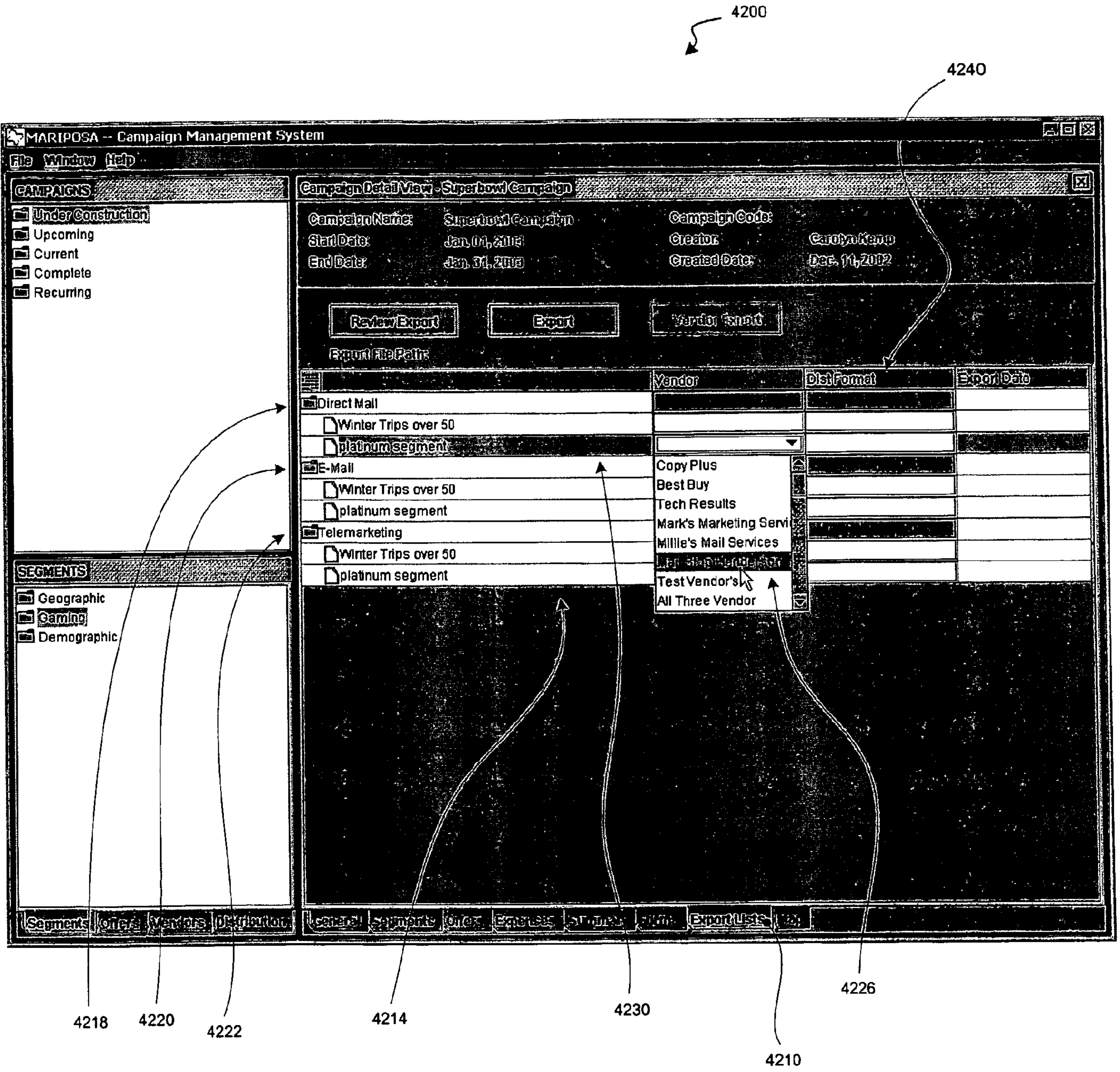


Fig. 42

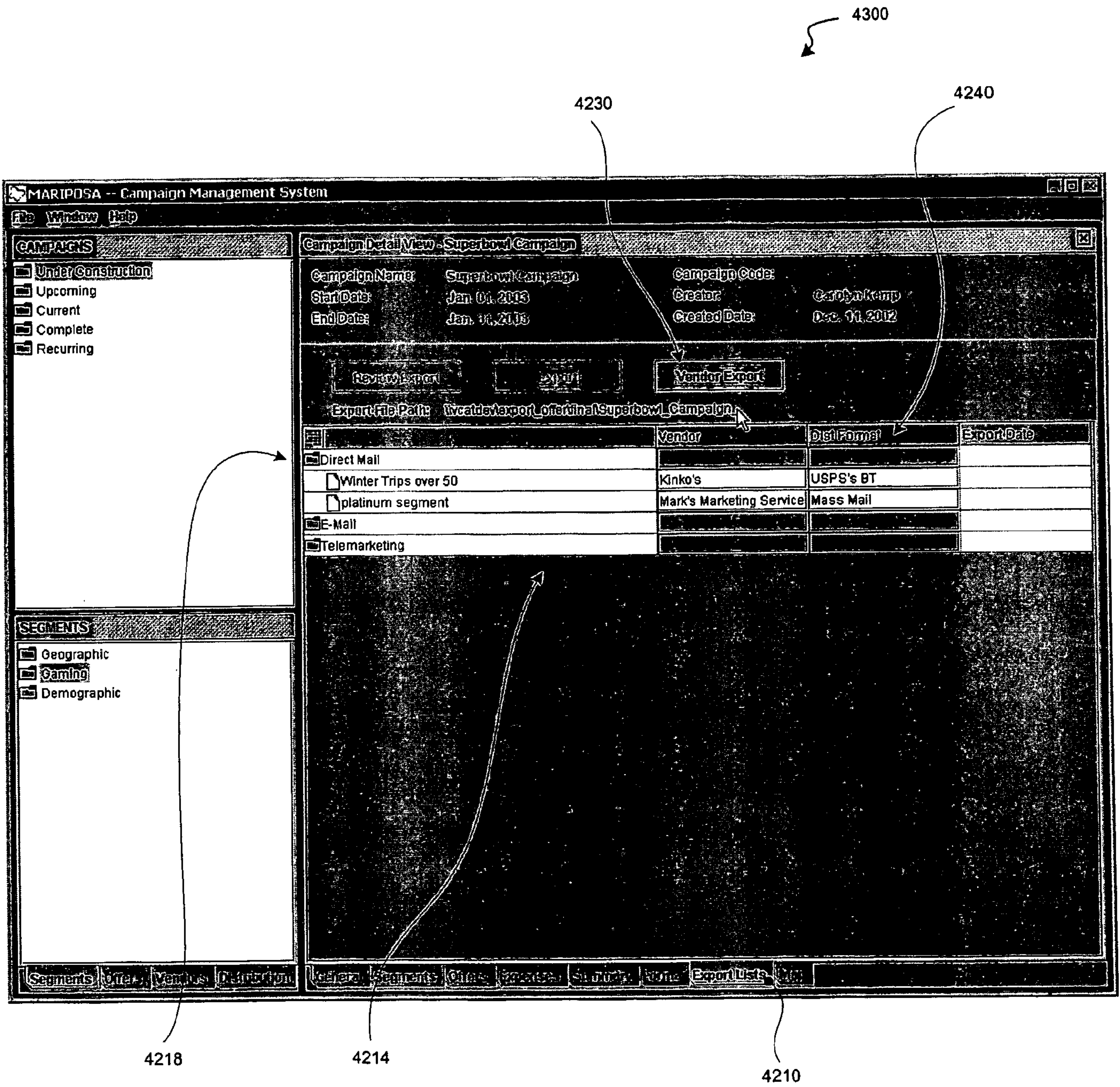


Fig. 43

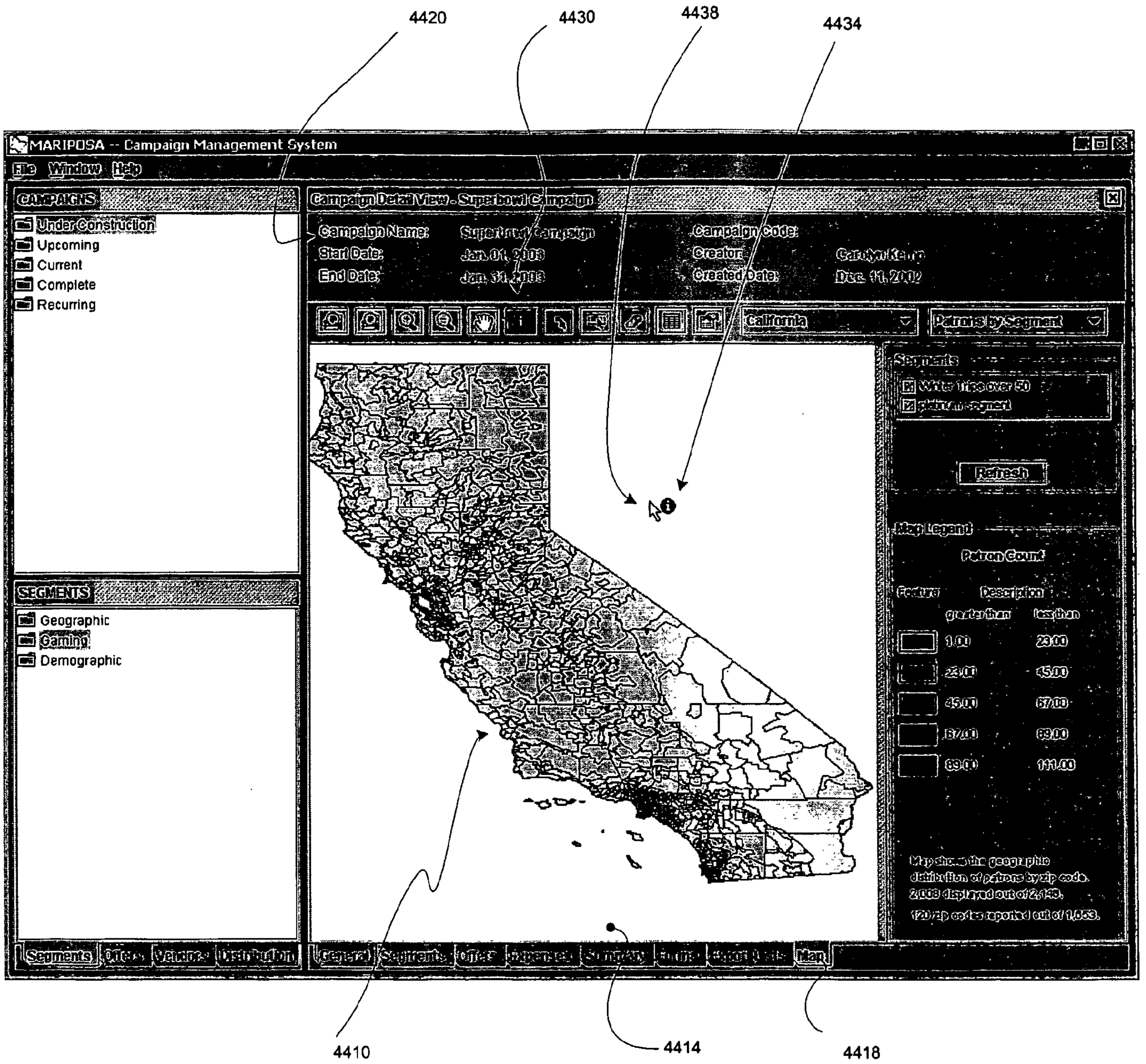
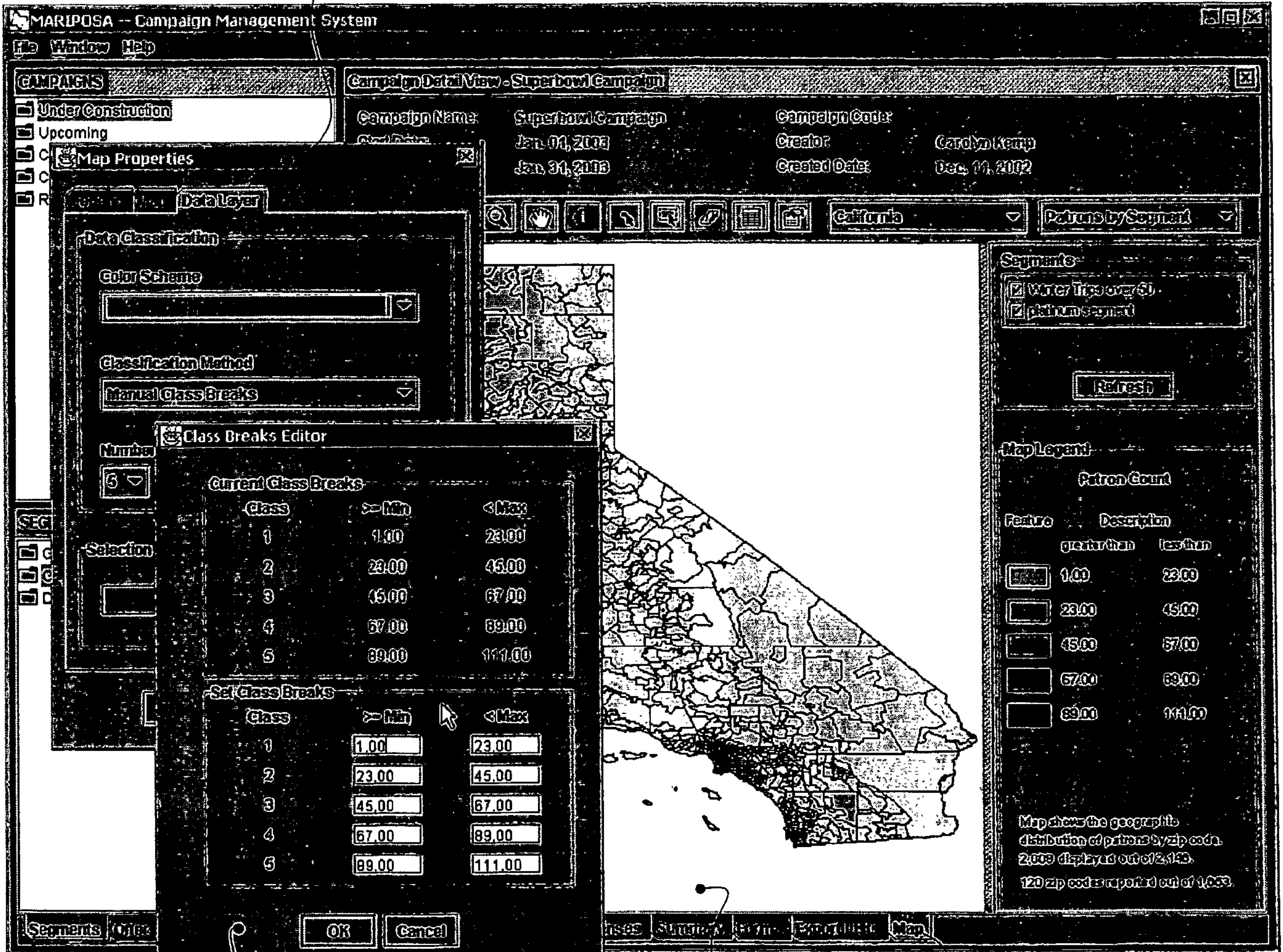


Fig. 44

4500

4510



4514

4414

4418

Fig. 45

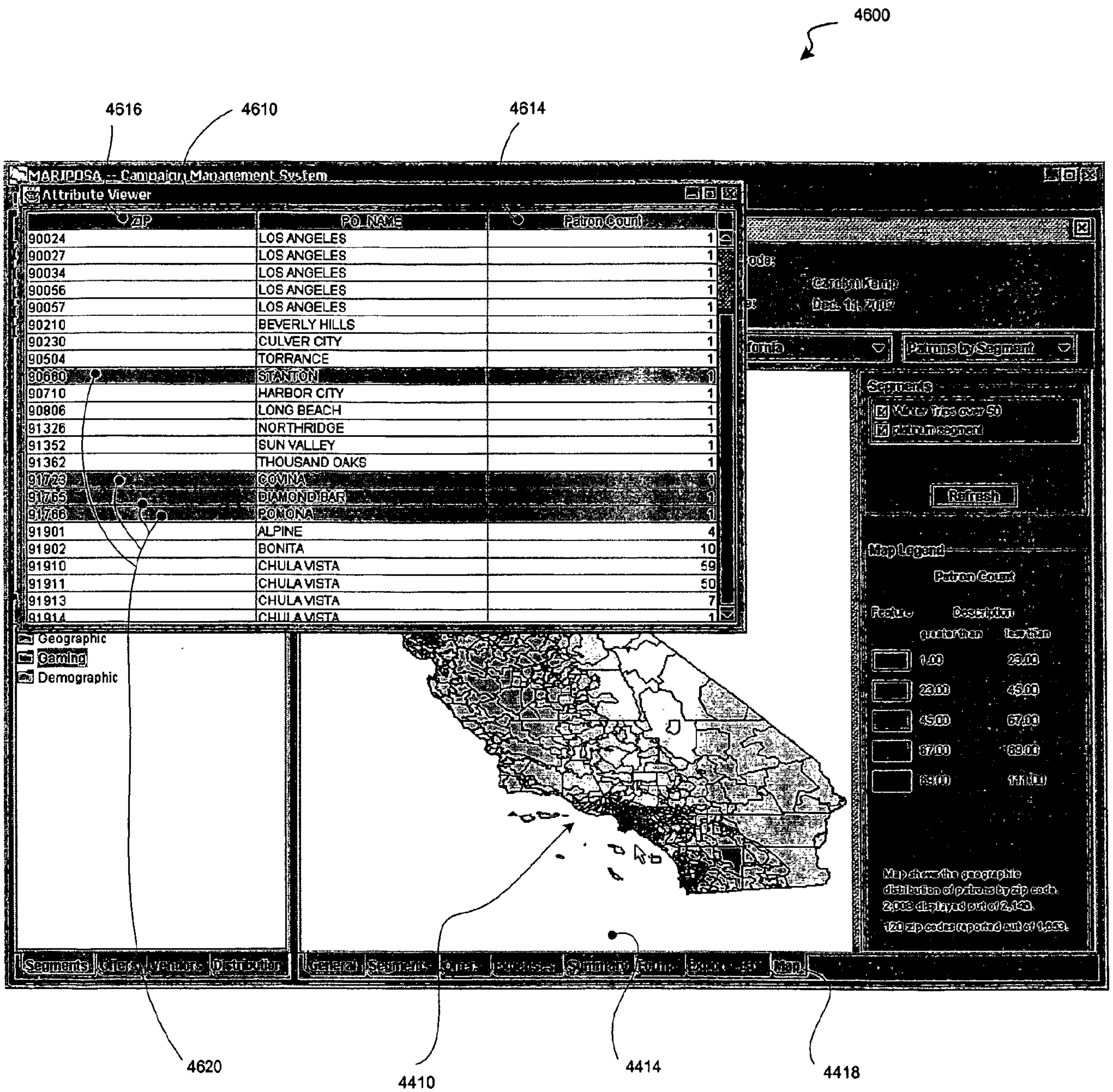


Fig. 46

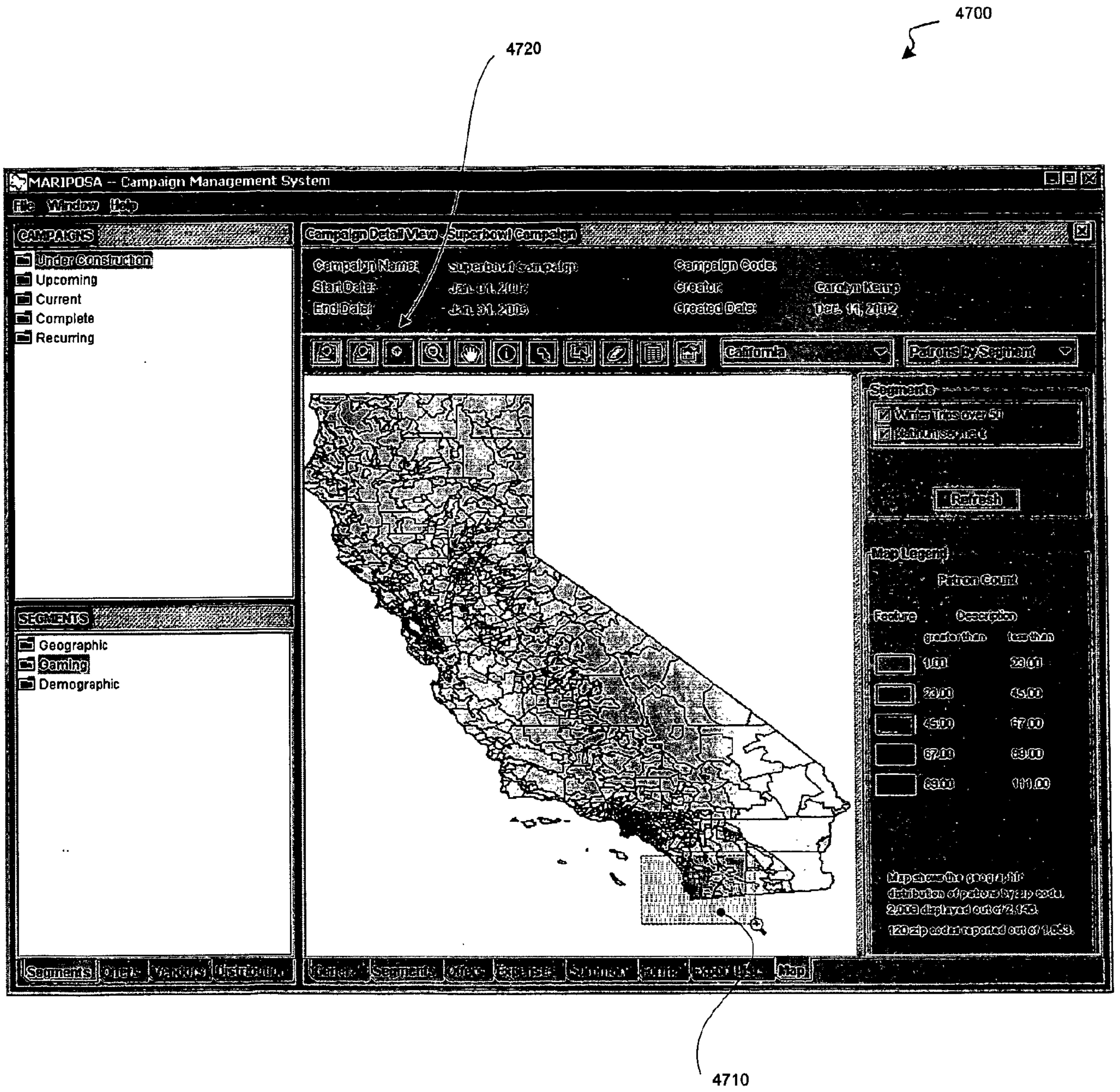
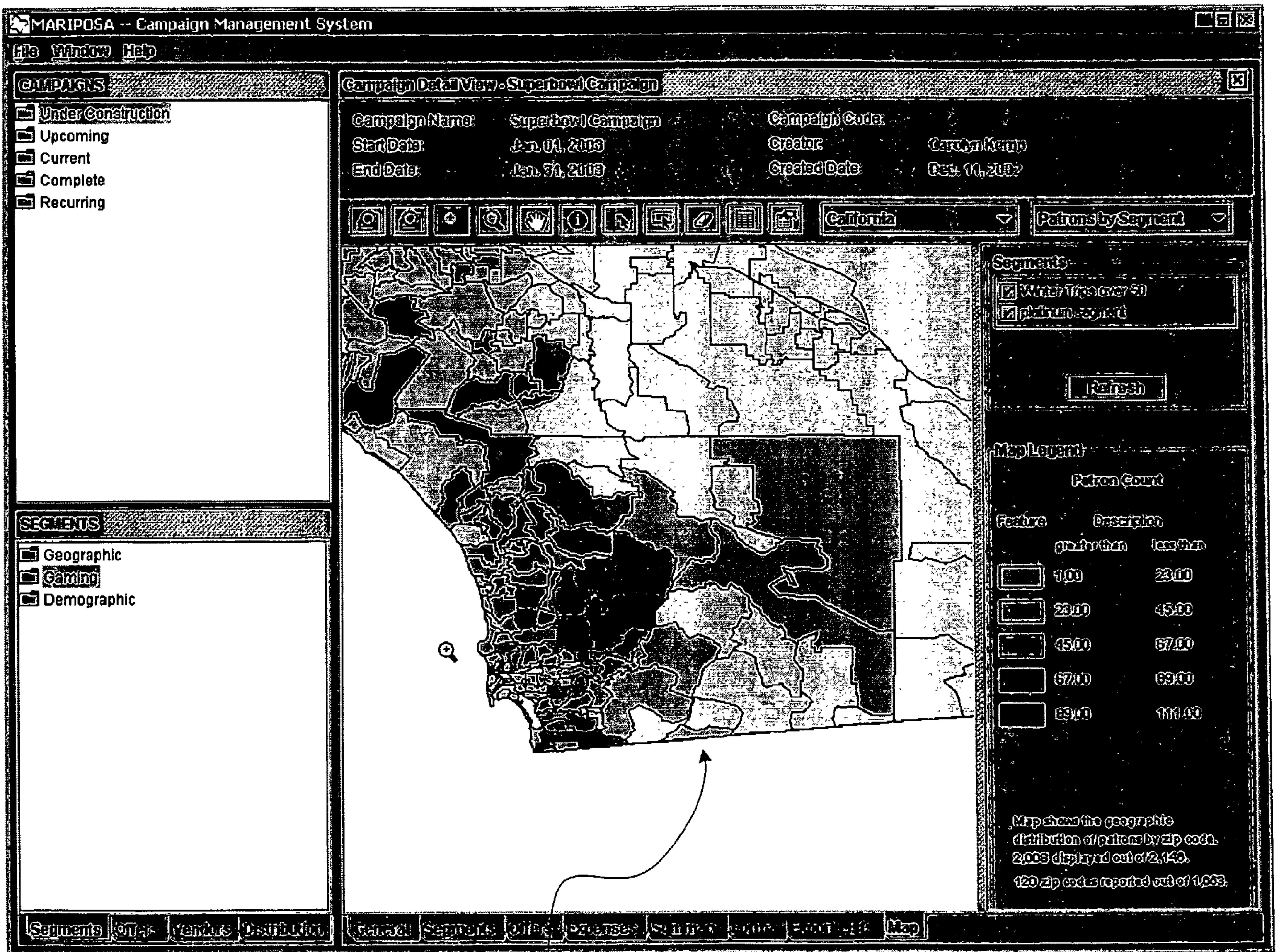


Fig. 47

4800



4810

Fig. 48

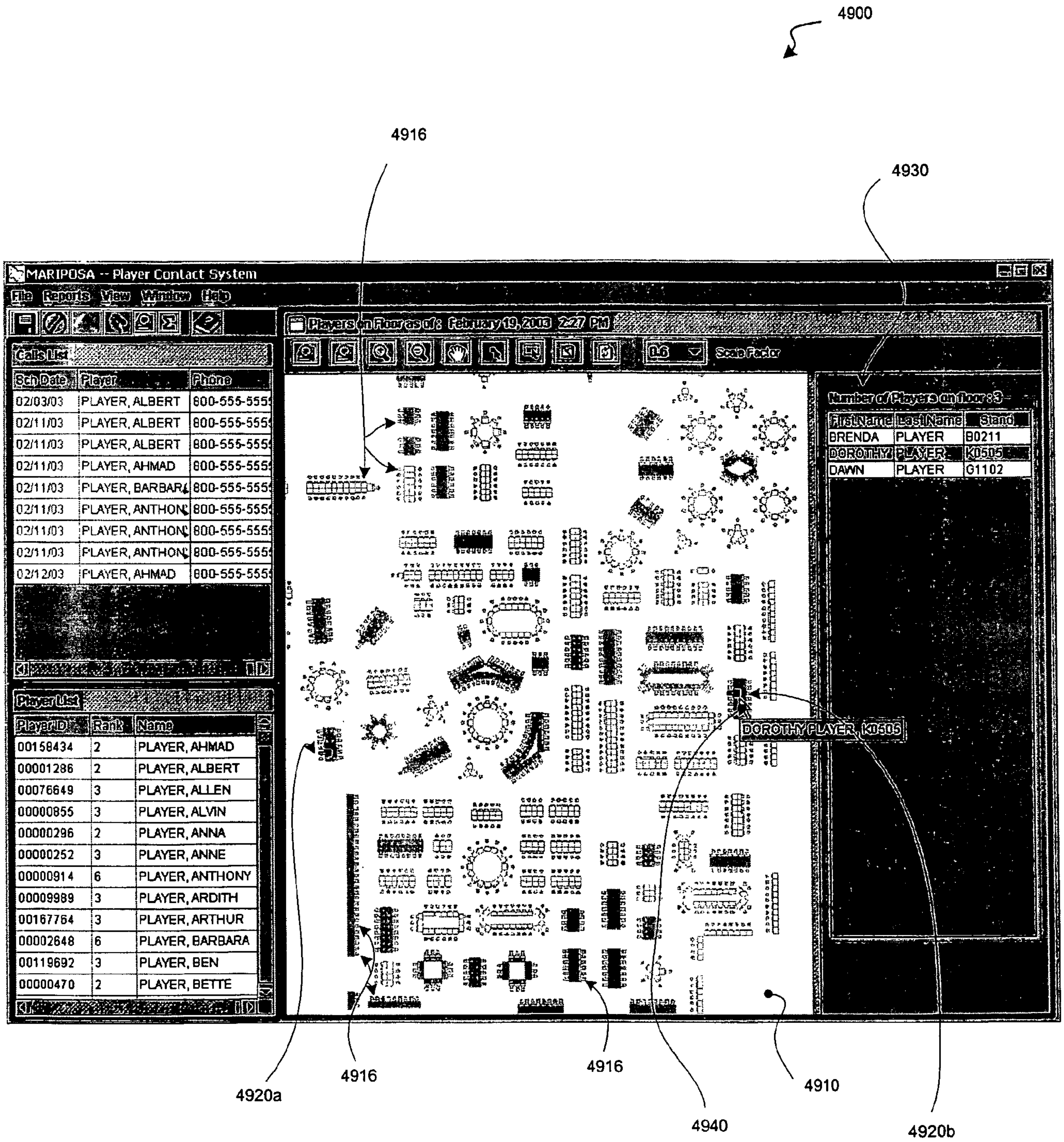


Fig. 49

5000

5024

5018

MARIPOSA - Player Contact System

File Reports View Window Help

Players on Floor as of: February 19, 2003 2:27 PM

Scale Factor

Sch Date	Player	Phone
02/03/03	PLAYER, ALBERT	800-555-555
02/11/03	PLAYER, ALBERT	800-555-555
02/11/03	PLAYER, ALBERT	800-555-555
02/11/03	PLAYER, AHMAD	800-555-555
02/11/03	PLAYER, BARBARA	800-555-555
02/11/03	PLAYER, ANTHONY	800-555-555
02/11/03	PLAYER, ANTHONY	800-555-555
02/11/03	PLAYER, ANTHONY	800-555-555
02/12/03	PLAYER, AHMAD	800-555-555

PlayerID	Rank	Name
00158434	2	PLAYER, AHMAD
00001286	2	PLAYER, ALBERT
00076649	3	PLAYER, ALLEN
00000855	3	PLAYER, ALVIN
00000296	2	PLAYER, ANNA
00000252	3	PLAYER, ANNE
00000914	6	PLAYER, ANTHONY
00009989	3	PLAYER, ARDITH
00167764	3	PLAYER, ARTHUR
00002648	6	PLAYER, BARBARA
00119692	3	PLAYER, BEN
00000470	2	PLAYER, BETTE

Number of Players on floor: 9

First Name	Last Name	Stand
BRENDA	PLAYER	B0211
DOROTHY	PLAYER	K0505
DAWN	PLAYER	G1102

5024

5010

5020

4910

Fig. 50

5100

5114

5110

5120

MARIPOSA -- Player Contact System

File Reports View Window Help

Players on Floor as of: February 10, 2003 2:27 PM

Scale Factor

Sch Date	Player	Phone
02/03/03	PLAYER, ALBERT	800-555-5554
02/11/03	PLAYER, ALBERT	800-555-5554
02/11/03	PLAYER, ALBERT	800-555-5554
02/11/03	PLAYER, AHMAD	800-555-5554
02/11/03	PLAYER, BARBARA	800-555-5554
02/11/03	PLAYER, ANTHONY	800-555-5554
02/11/03	PLAYER, ANTHONY	800-555-5554
02/11/03	PLAYER, ANTHONY	800-555-5554
02/12/03	PLAYER, AHMAD	800-555-5554

PlayerID	Rank	Name
00158434	2	PLAYER, AHMAD
00001286	2	PLAYER, ALBERT
00076649	3	PLAYER, ALLEN
00000856	3	PLAYER, ALVIN
00000296	2	PLAYER, ANNA
00000252	3	PLAYER, ANNE
00000914	6	PLAYER, ANTHONY
00009989	3	PLAYER, ARDITH
00167764	3	PLAYER, ARTHUR
00002648	6	PLAYER, BARBARA
00119692	3	PLAYER, BEN
00000470	2	PLAYER, BETTE

Number of Players on floor: 3

FirstName	LastName	Stand
BRENDA	PLAYER	B0211
DOROTHY	PLAYER	K0505
DAWN	PLAYER	O1102

5010

Fig. 51

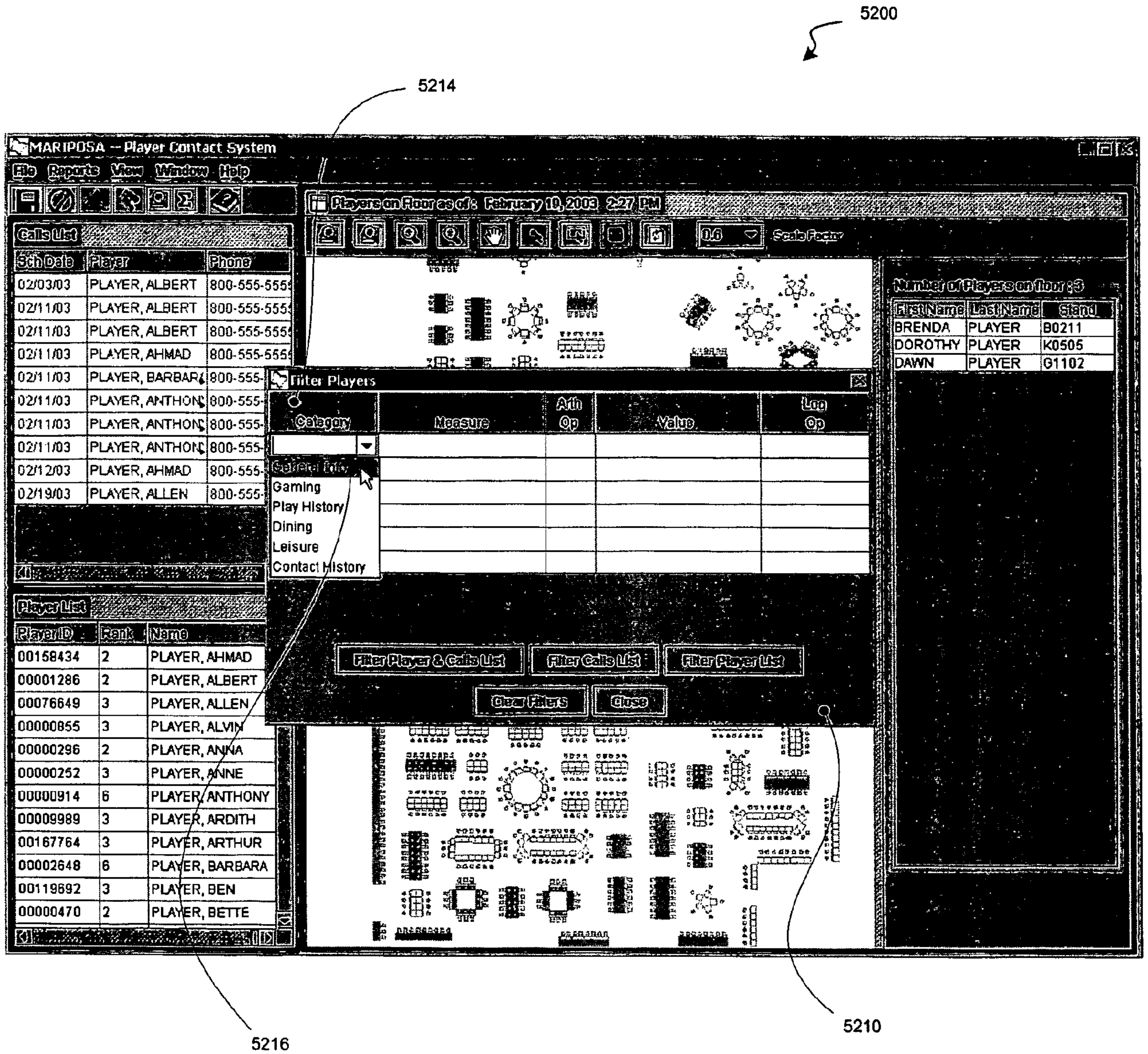


Fig. 52A

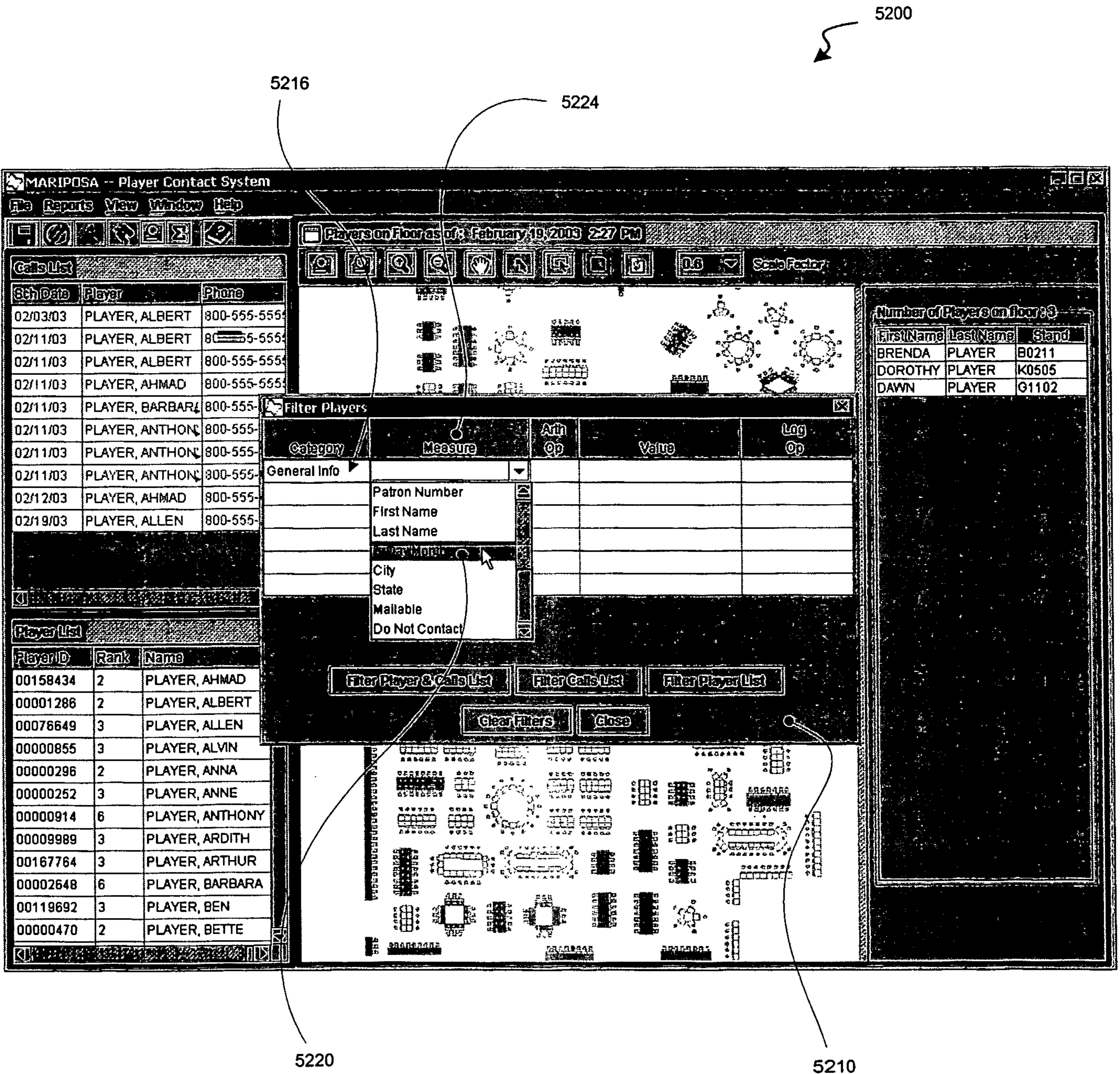


Fig. 52B

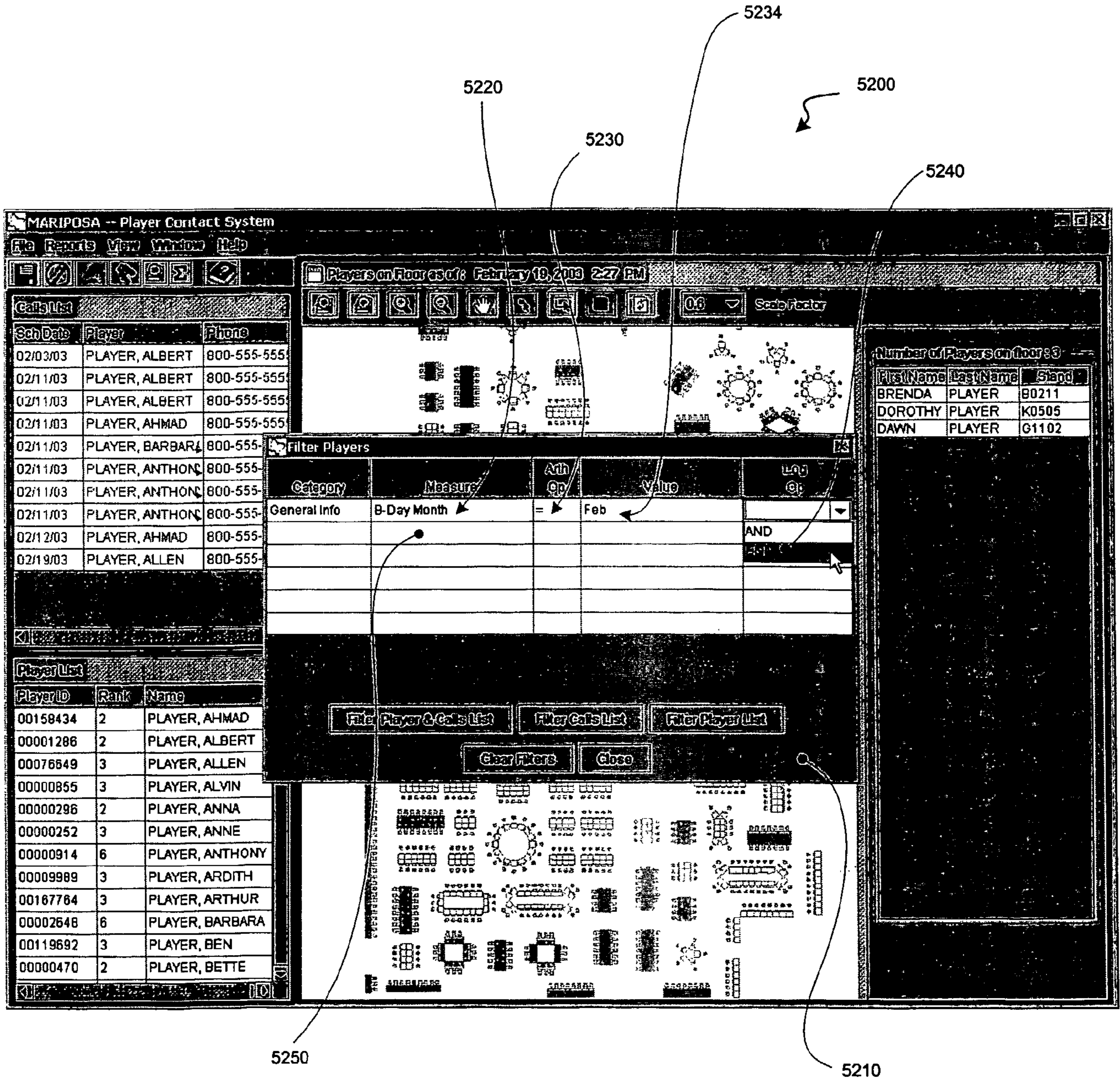


Fig. 52C

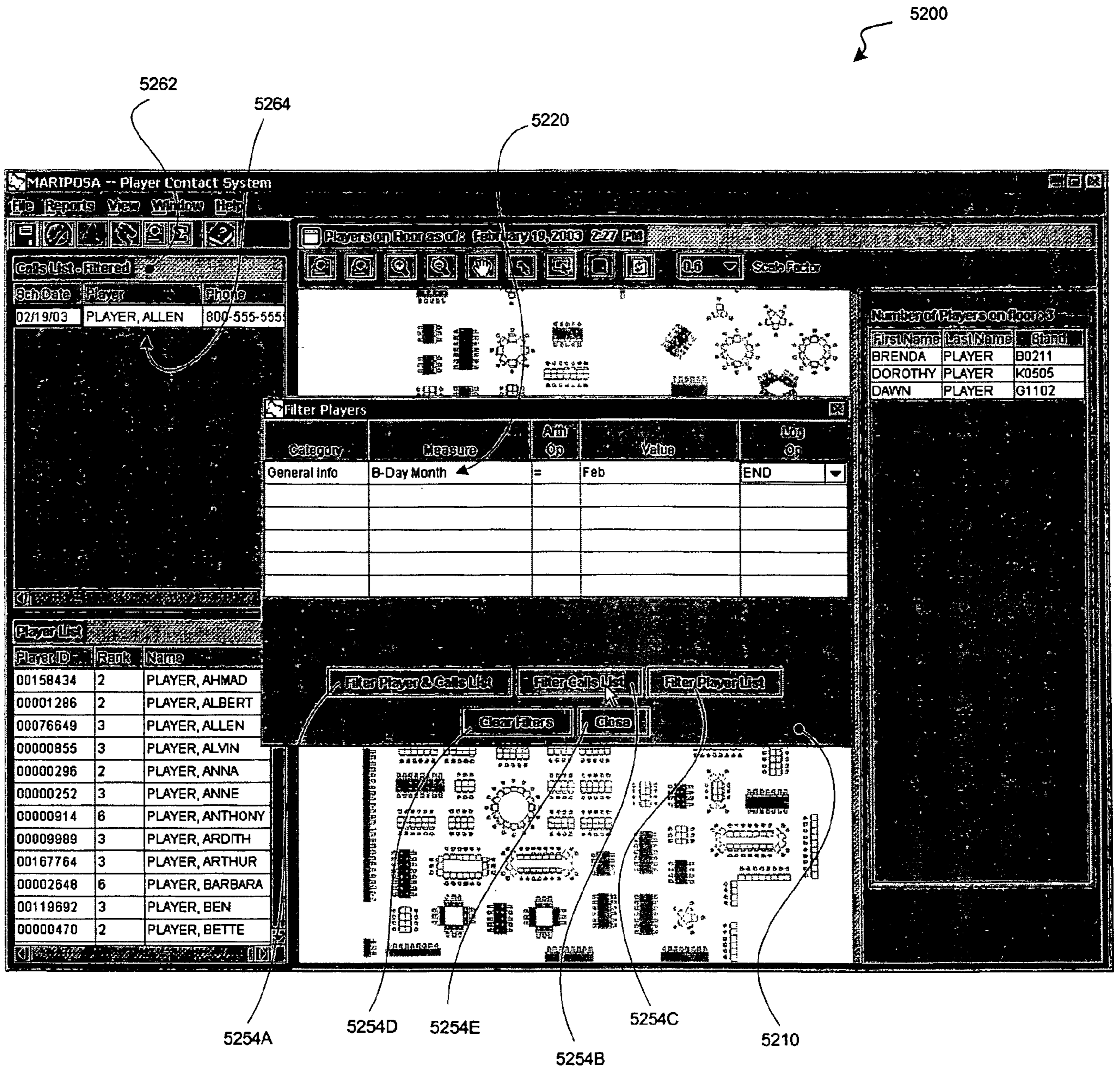


Fig. 52D

5300

5310

MARIPOSA -- Player Contact System

File Reports View Window Help

Player Detail View - PLAYER, ALLEN

Sch Date	Player	Phone
02/03/03	PLAYER, ALBERT	800-555-5554
02/11/03	PLAYER, AHMAD	800-555-5554
02/12/03	PLAYER, AHMAD	800-555-5554
02/11/03	PLAYER, ALBERT	800-555-5554
02/11/03	PLAYER, ANTHON	800-555-5554
02/11/03	PLAYER, ANTHON	800-555-5554
02/11/03	PLAYER, ANTHON	800-555-5554
02/11/03	PLAYER, ALBERT	800-555-5554
02/11/03	PLAYER, BARBARA	800-555-5554

PatronID 76649 Tier DIAMOND Host CAROLYN KEMP
 Name PLAYER, ALLEN Rank 3 Comps Avail
 Nickname Boyd Last Play 09/08/2002 Pts Avail

General

Patron Number	76649	Spouse Number	
Greeting		First Name	
FirstName	ALLEN	Last Name	
LastName	PLAYER	Spouse Birthday	
Birthday	02/01/1985	Anniversary	06/28/2000
Est Date	01/06/2002	Est Date	
Source	SLOTWALKIN	Source	

Address

Street 427 HOLIZST Apt L
 City SPRING VALLEY
 State CA Zip 91977
 Mail Code Mailable Mail To H

Contact Info

DO NOT CONTACT Pref

Home 800-555-5555
 Other
 Mobile
 Email

Relationships

General Info Control Player History Other Assets Home Points History

Status:

5314

Fig. 53

5400



MARIPOSA -- Player Contact System

File Reports View Window Help

Player Detail View - PLAYER, ALLEN

Sch Date	Age	Phone
02/03/03	PLAYER, ALBERT	800-555-5555
02/11/03	PLAYER, AHMAD	800-555-5555
02/12/03	PLAYER, AHMAD	800-555-5555
02/11/03	PLAYER, ALBERT	800-555-5555
02/11/03	PLAYER, ANTHON	800-555-5555
02/11/03	PLAYER, ANTHON	800-555-5555
02/11/03	PLAYER, ANTHON	800-555-5555
02/11/03	PLAYER, ALBERT	800-555-5555
02/11/03	PLAYER, BARBARA	800-555-5555

Patron ID: 76649 Tier: DIAMOND Host: CAROLYN KEMP
 Name: PLAYER, ALLEN Rank: 3 Comps Avail: |
 Nickname: Boyd Last Play: 08/08/2002 Pts Avail: |

General

Patron Number: 76649 Spouse Number: |
 Creating: | First Name: |
 First Name: ALLEN Last Name: |
 Last Name: PLAYER Spouse Birthday: |
 Birthday: 02/01/1995 Annivers: 08/28/2000
 Est Date: 01/08/2002 Est Pat: |
 Source: GLOTWALKIN Source: |

Address

Street: 427 HOLTZST Apt: |
 City: SPRING VALLEY
 State: CA Zip: 91077
 Mail Code: Mailable Mail To: |

Contact Info

DO NOT CONTACT Pref
 Home: 800-555-5555
 Other: |
 Mobile: |
 Email: |

Relationships

Call this Player
 Add Relationship
 Remove Relationship
 View
 Close
 Help

General Info
 Status: |

5410

FIG. 54

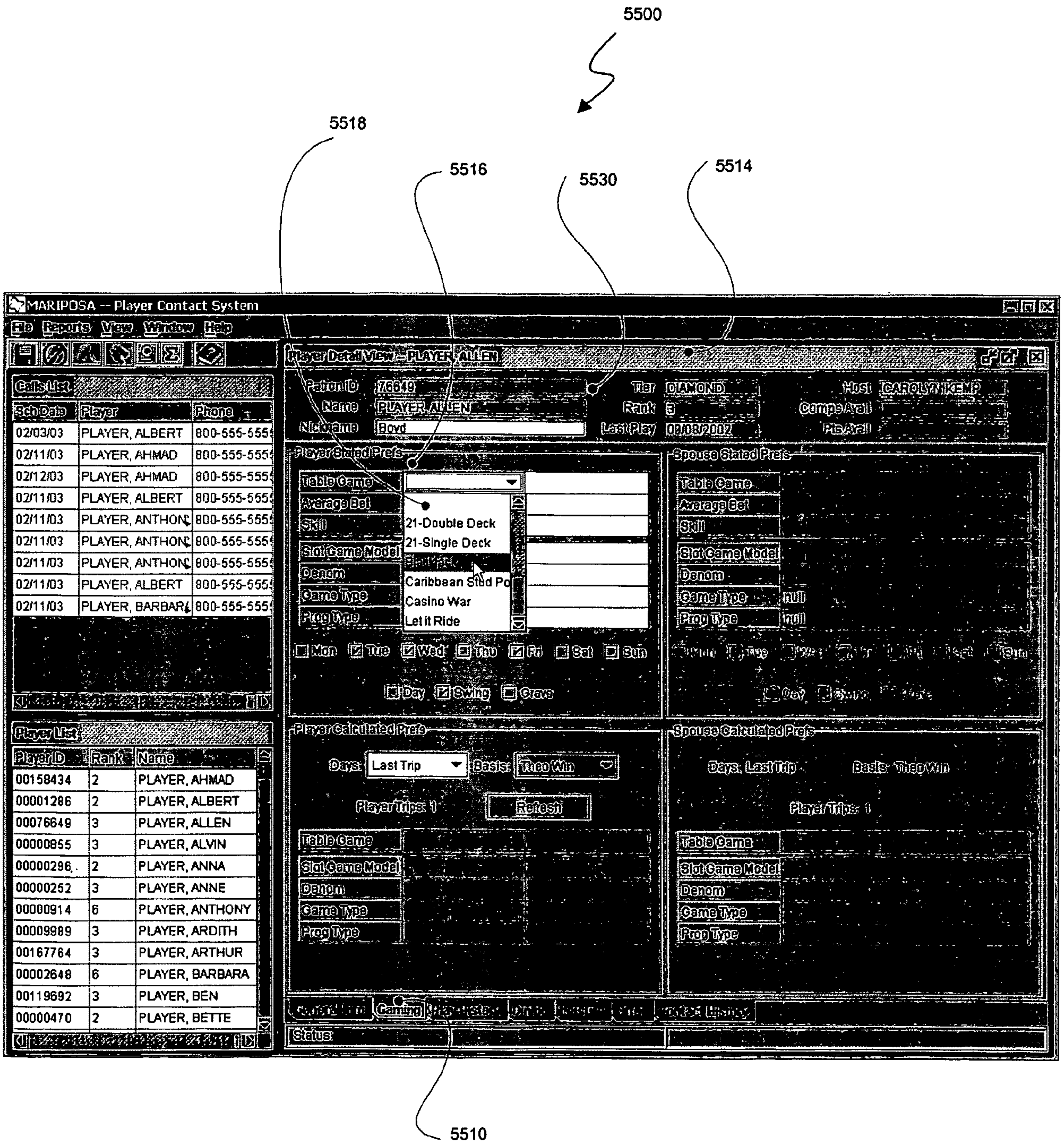


FIG. 55

5600

5516

5514

MARIPOSA -- Player Contact System

File Reports View Window Help

Player Detail View - PLAYER ALLEN

Patron ID: 78649 Tier: DIAMOND Host: CAROLYN KEMP
 Name: PLAYER ALLEN Rank: 3 Comps Avail:
 Nickname: Boyd Last Play: 02/08/2002 Pts Avail:

Player Stated Pref

Table Game	Blackjack	Pal Gow
Average Bet	10.00	25.00
Skill	INT	ADV
Slot Game Model	Austin Powers	Wheel of Fortune
Denom	1.00	0.50
Game Type	9 Line Video	5 Line Video
Prog Type	Non-Progressive	Wide Area Progress

Mon Tue Wed Thu Fri Sat Sun
 Day Swing Drive

Spouse Stated Pref

Table Game		
Average Bet		
Skill		
Slot Game Model		
Denom		
Game Type	Full	
Prog Type	Full	

Mon Tue Wed Thu Fri Sat Sun
 Day Swing Drive

Player Calculated Pref

Days: 60 Basis: True Win

Player Trips: 8

Table Game		
Slot Game Model	Jackpot Celebration	Roundan Up
Denom	0.05	0.05
Game Type	9 Line Video	6 Line Video
Prog Type	Single Progressive	Single Progressive

Spouse Calculated Pref

Days: 60 Basis: True Win

Player Trips: 9

Table Game		
Slot Game Model	Double Double Bonus	Big 7
Denom	1	0.05
Game Type	Poker	Poker
Prog Type	Non-Progressive	Non-Progressive

Gameplay Gaming Reports User Help Settings

Status:

5510

FIG. 56

5700



MARIPOSA -- Player Contact System

Player Data View - PLAYER ALLEN

Patron ID: 76649 Tier: DIAMOND Host: CAROLYN KEMP
 Name: PLAYER ALLEN Rank: 3 Comps Avail:
 Nickname: Boyd Last Play: 02/08/2002 Pts Avail:

Last Play Date: 02/08/2002

	Current	Last	Prior
Tier	DIAMOND		
Effective Date	01/23/2002		

Revenue & Reinvestment	Last Play	7 Days	30 Days	3 Months	6 Months	12 Months	24 Months
Trips	1	8	19	25	51	135	316
Theo per Trip	85.00	0.00	85.00	145.15	177.08	292.88	315.70
Slot Theo per Trip	85.00	0.00	85.00	145.15	177.08	292.88	315.70
Table Theo per Trip	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Theo Win	85.00	85.00	85.00	0.00	0.00	0.00	3,544.00
Slot Theo	85.00	85.00	85.00	0.00	0.00	0.00	3,544.00
Table Theo	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Actual Win	252.00	252.00	0.00	0.00	0.00	4,238.00	4,238.00
Slot Actual	252.00	252.00	0.00	0.00	0.00	4,238.00	4,238.00
Table Actual	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reinvestment	19.98	0.00	0.00	0.00	0.00	0.00	0.00
Gaming Comps Issued	19.98	0.00	0.00	0.00	0.00	0.00	0.00
Points Redeemed	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-Gaming Comps Issued	0.00	0.00	0.00	0.00	0.00	46.31	593.23
Reinvestment %	23.51	0.00	0.00	0.00	0.00	0.00	0.00

Player List

Player ID	Rank	Name
00158434	2	PLAYER, AHMAD
00001286	2	PLAYER, ALBERT
00076649	3	PLAYER, ALLEN
00000855	3	PLAYER, ALVIN
00000296	2	PLAYER, ANNA
00000252	3	PLAYER, ANNE
00000914	6	PLAYER, ANTHONY
00009989	3	PLAYER, ARDITH
00167764	3	PLAYER, ARTHUR
00002648	6	PLAYER, BARBARA
00119692	3	PLAYER, BEN
00000470	2	PLAYER, BETTE

General Info Gaming Play History Data Reports Site Profile Help

Status:

5740

5720

5710

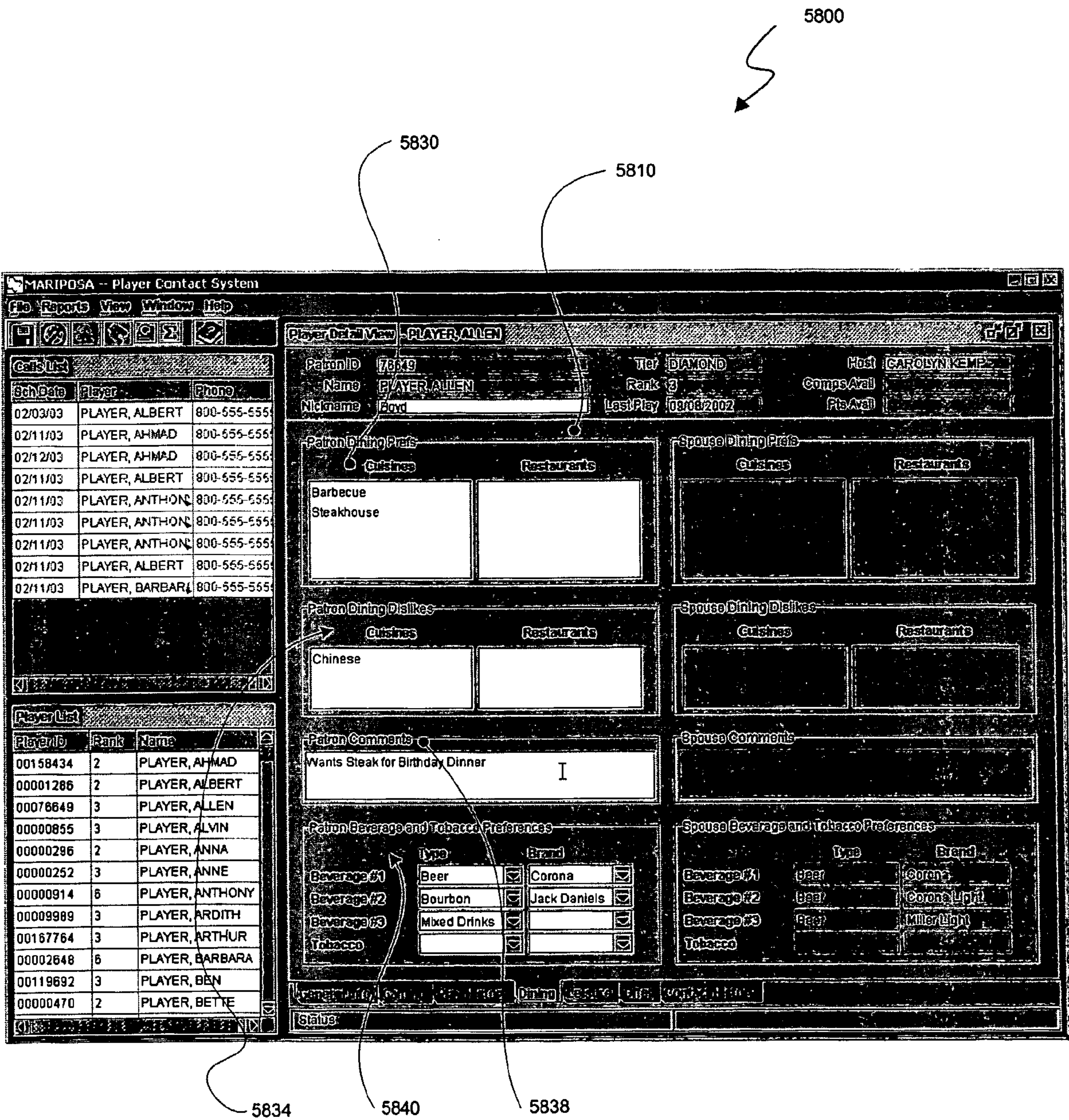


FIG. 58

5900

5910

MARIPOSA -- Player Contact System

File Reports View Window Help

Player Data View - PLAYER ALLEN

Patron ID: 76649 Tier: DIAMOND Host: CAROLYN KEMP
 Name: PLAYER ALLEN Rank: B Comps Avail: []
 Nickname: Boyd Last Play: 02/09/2002 Fis Avail: []

Patron Sports:

Sport	Team
NBA Basketball	Los Angeles - Lakers
NFL Football	Washington - Redskins

Spouse Sports:

Sport	Team

Patron Interests:

Golfing Tournaments [] []

Spouse Interests:

Patron Misc:

Religion: []
 College: University of Maryland
 Graduation Year: 1995
 Club Affiliation: []

Spouse Misc:

Religion: []
 College: []
 Graduation Year: []
 Club Affiliation: []

Comments:

I

Back Home Search Reports Add Edit Update Cancel Help

Status: []

5920

FIG. 59

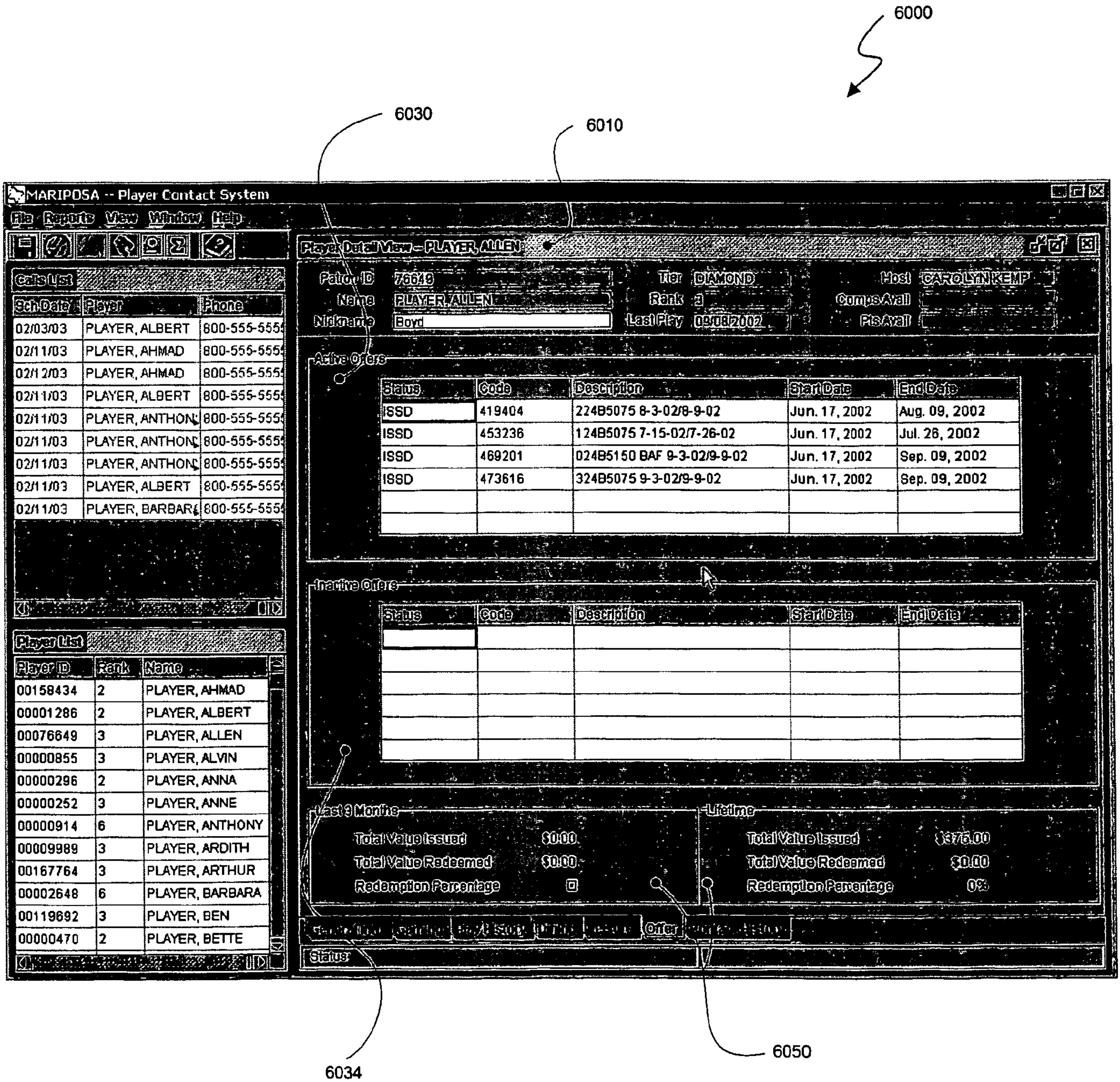


FIG. 60

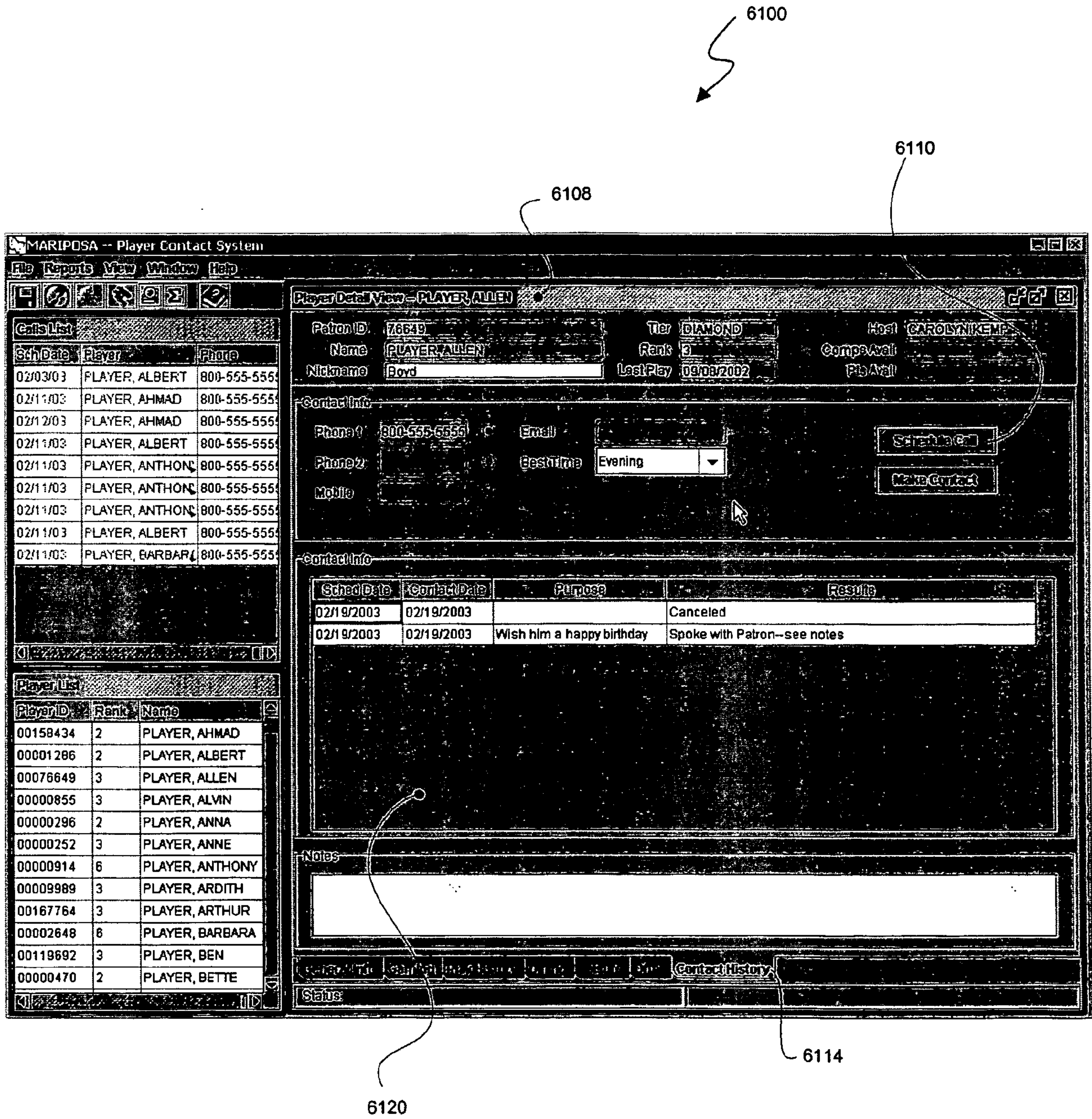
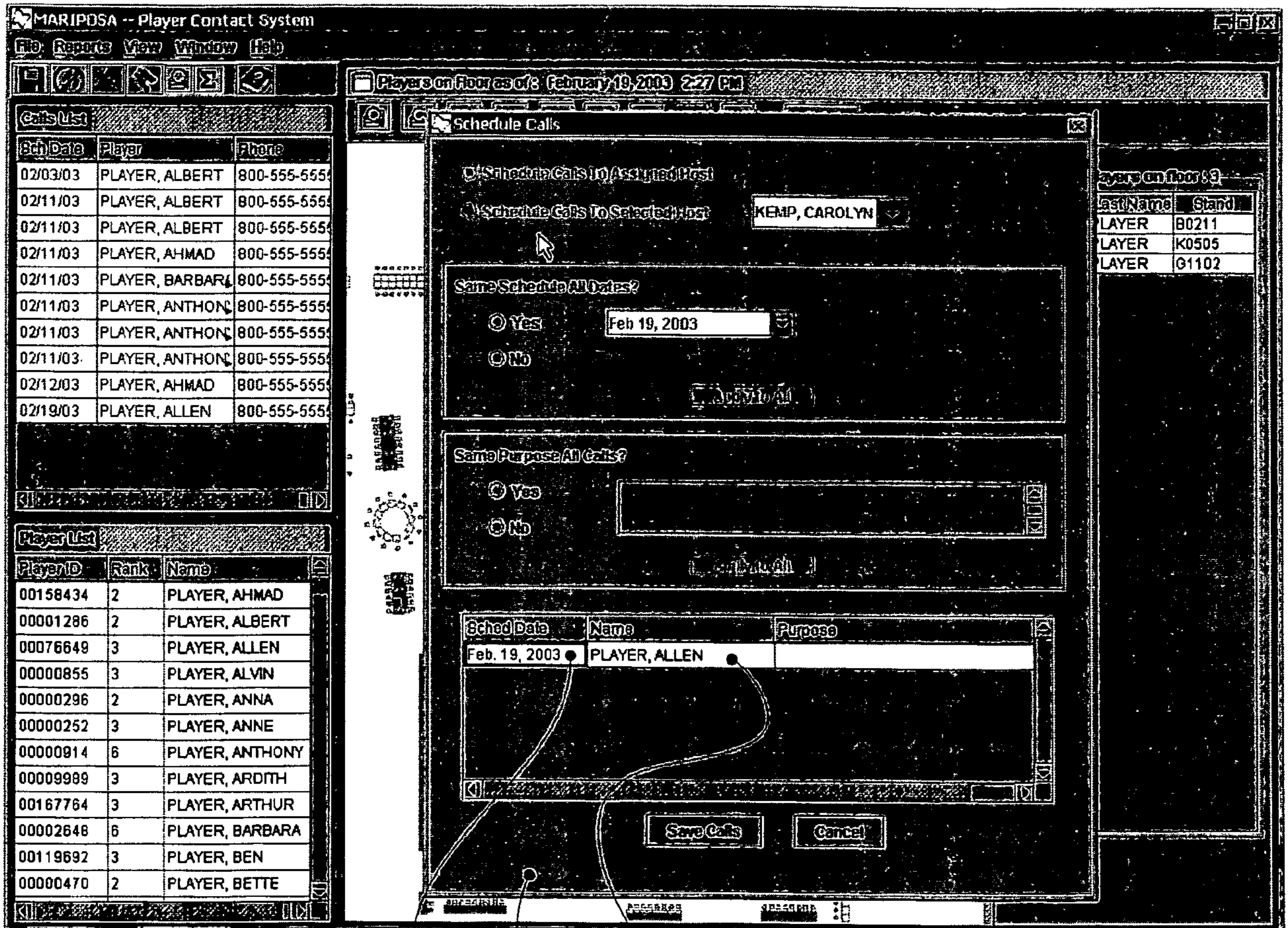


FIG. 61

6200



6218

6210

6220

FIG. 62

6300

6310

MARIPOSA -- Player Contact System

File Reports View Window Help

Players on Floor as of: February 19, 2003 2:27 PM

Calls List

Sch Date	Player	Phone
02/03/03	PLAYER, ALBERT	800-555
02/11/03	PLAYER, ALBERT	800-555
02/11/03	PLAYER, ALBERT	800-555
02/11/03	PLAYER, AHMAD	800-555
02/11/03	PLAYER, BARBARA	800-555
02/11/03	PLAYER, ANTHON	800-555
02/11/03	PLAYER, ANTHON	800-555
02/11/03	PLAYER, ANTHON	800-555
02/12/03	PLAYER, AHMAD	800-555
02/19/03	PLAYER, ALLEN	800-555

Player List

PlayerID	Rank	Name
00158434	2	PLAYER, AHMAD
00001286	2	PLAYER, ALBERT
00076649	3	PLAYER, ALLEN
00000855	3	PLAYER, ALVIN
00000296	2	PLAYER, ANNA
00000252	3	PLAYER, ANNE
00000914	6	PLAYER, ANTHON
00009989	3	PLAYER, ARDITH
00167764	3	PLAYER, ARTHUR
00002648	6	PLAYER, BARBARA
00119692	3	PLAYER, BEN
00000470	2	PLAYER, BETTE

Schedule Calls

Schedule Calls to Assigned Area

Schedule Calls to Selected First **KEMP, CAROLYN**

Same Schedule All Dates?

Yes Feb 19, 2003

No

Same Purpose All Calls?

Yes

No

Sched Date Feb. 19, 2003 **Name** PLAYER, ALLEN **Purpose** Wish him a happy birthday

2003 February

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	1

Number of Players on floor: 3

First Name	Last Name	Stand
BRENDA	PLAYER	B0211
DOROTHY	PLAYER	K0505
DAWN	PLAYER	G1102

6330

6320

Fig. 63

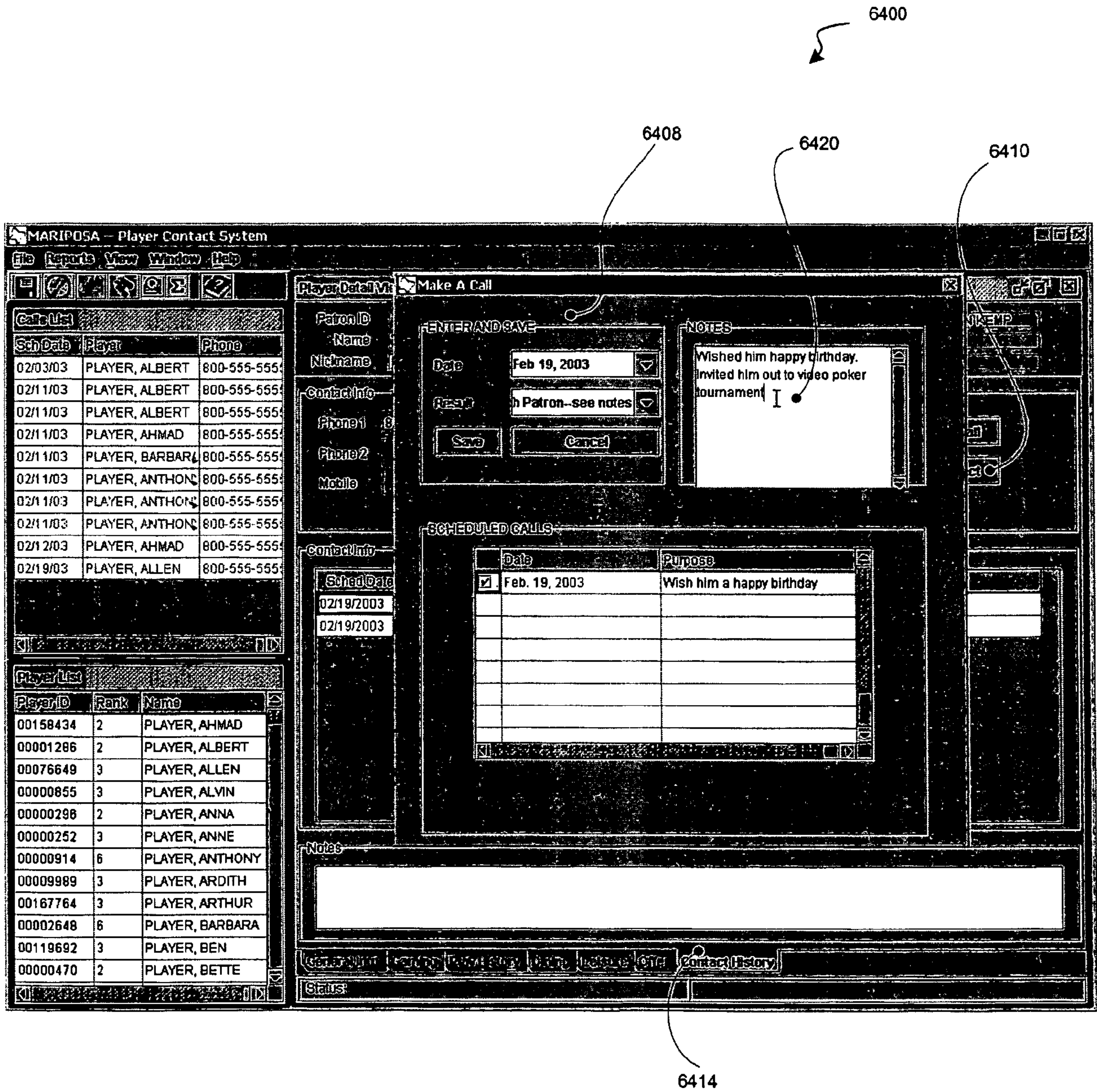


Fig. 64

The screenshot displays a software application window titled "MARIPOSA - Player Contact System". The interface is divided into several sections:

- Top Bar:** Contains menu items: File, Reports, View, Window, Help.
- Player Detail View - PLAYER, ALLEN:**
 - Patron ID: 76649, Tier: DIAMOND, Host: CAROLYN KEMP
 - Name: PLAYER, ALLEN, Rank: 3, Comps Avail: [blank], Pts Avail: [blank]
 - Nickname: Bowd, Last Play: 09/08/2002
 - General:** Includes "Add Friends and Family" button, search options for Player ID and Player Name, and input fields for Last Name and First Name (containing "Anne").
 - Address:** Street: 427 HOLTZG, City: SPRING VALLEY, State: CA, Zip: 91377. Includes checkboxes for "DO NOT CONTACT", Home, Other, Mobile, and Email.
 - Relationships:** A large empty area for listing relationships.
- Goals List:** A table with columns: Sen Date, Player, Phone. It lists several players with dates and phone numbers.
- Player List:** A table with columns: Player ID, Rank, Name. It lists various players including Ahmad, Albert, Alvin, Anna, Anne, Anthony, Ardith, Arthur, Barbara, Ben, and Bette.

6500

6510

6514

Fig. 65

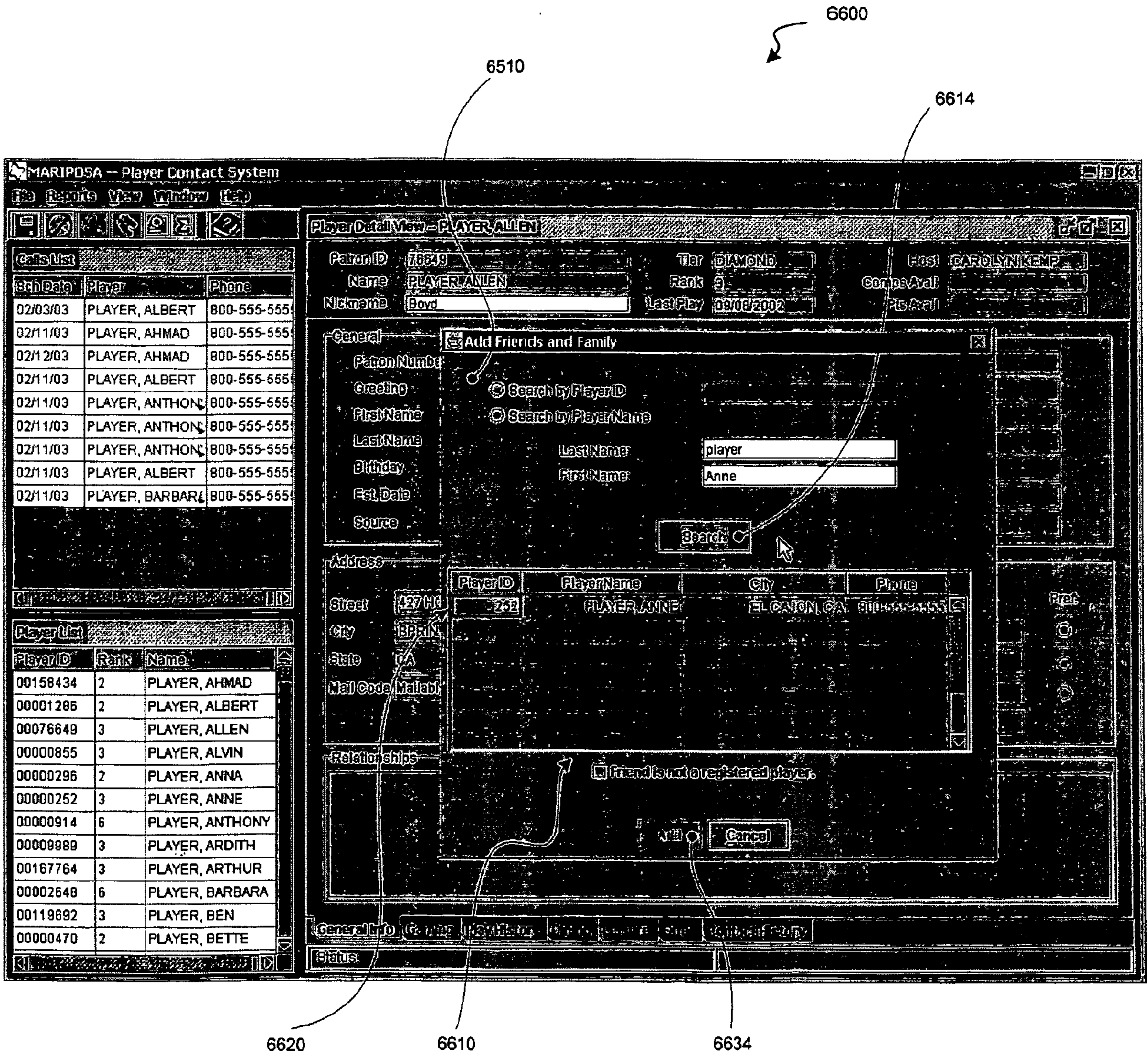
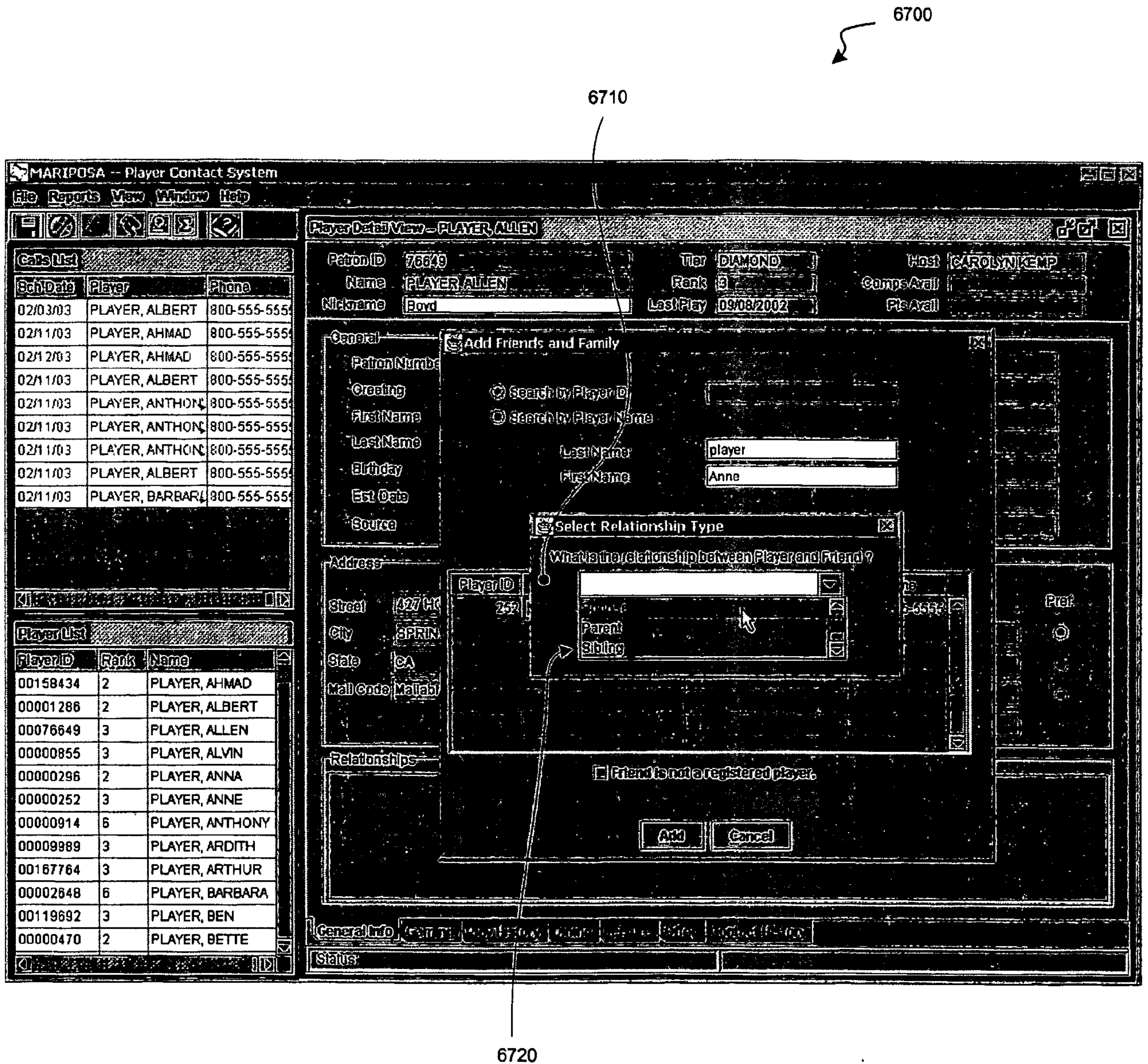


Fig. 66



6710

6700

6720

Fig. 67

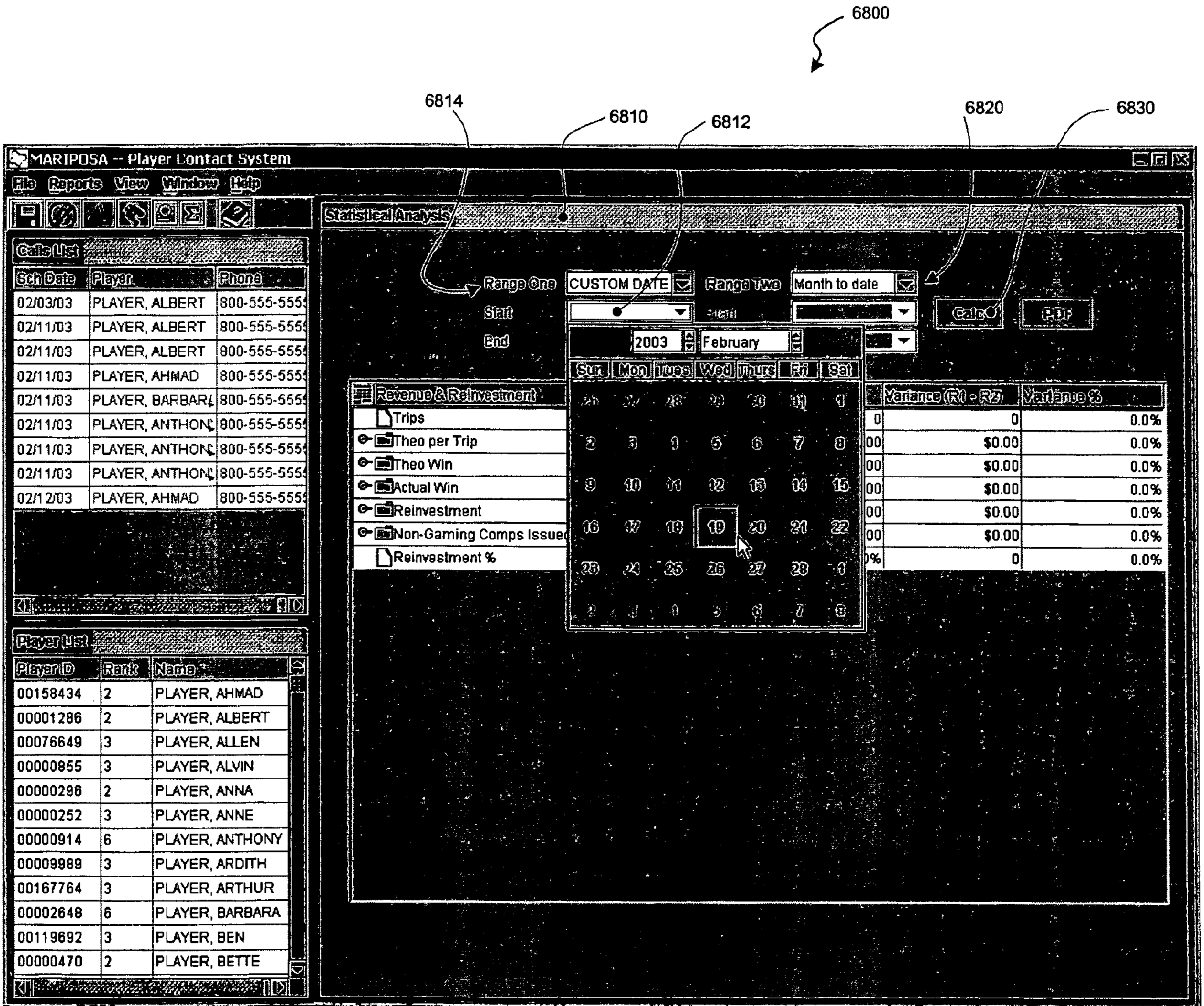


Fig. 68

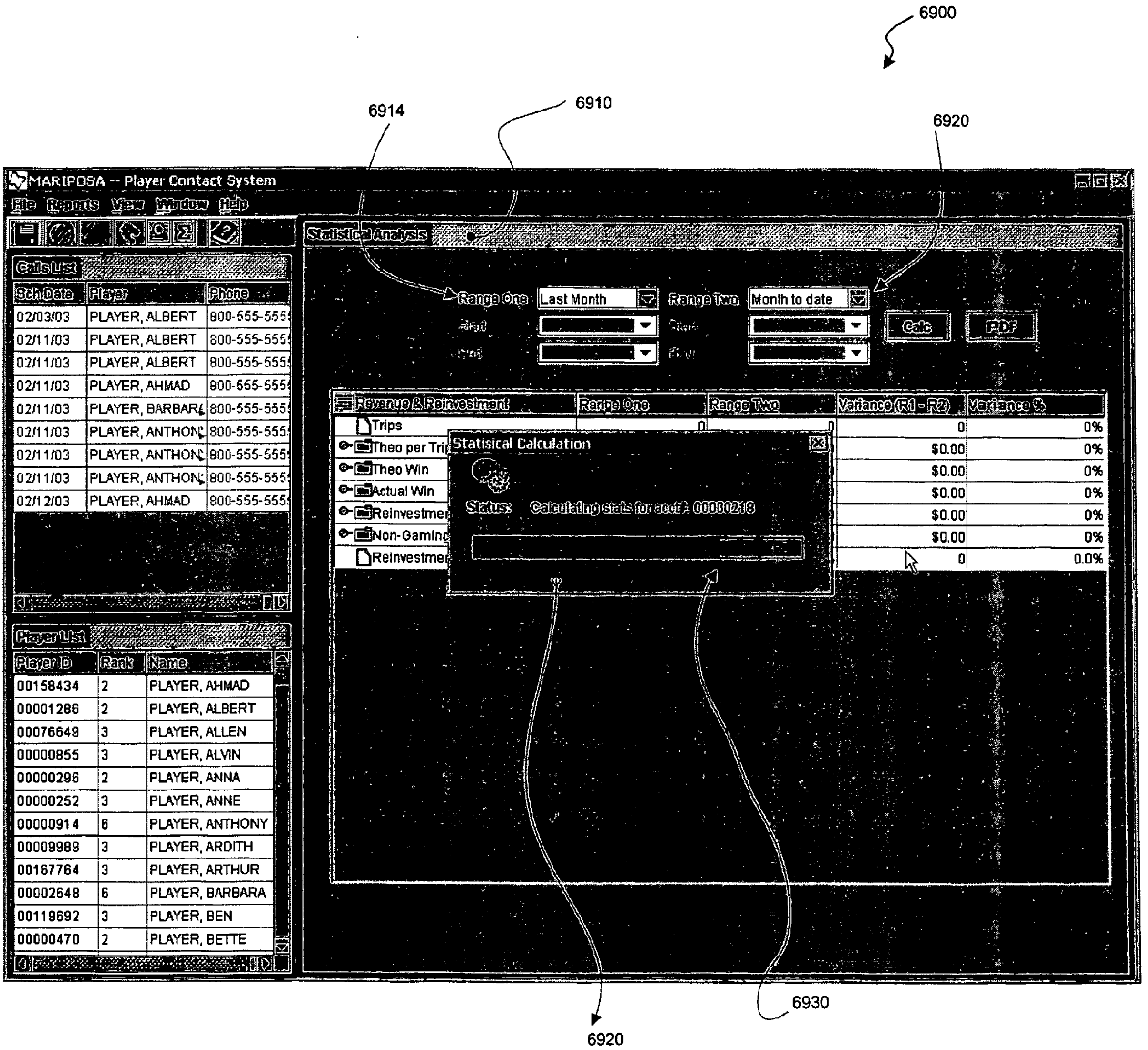


Fig. 69

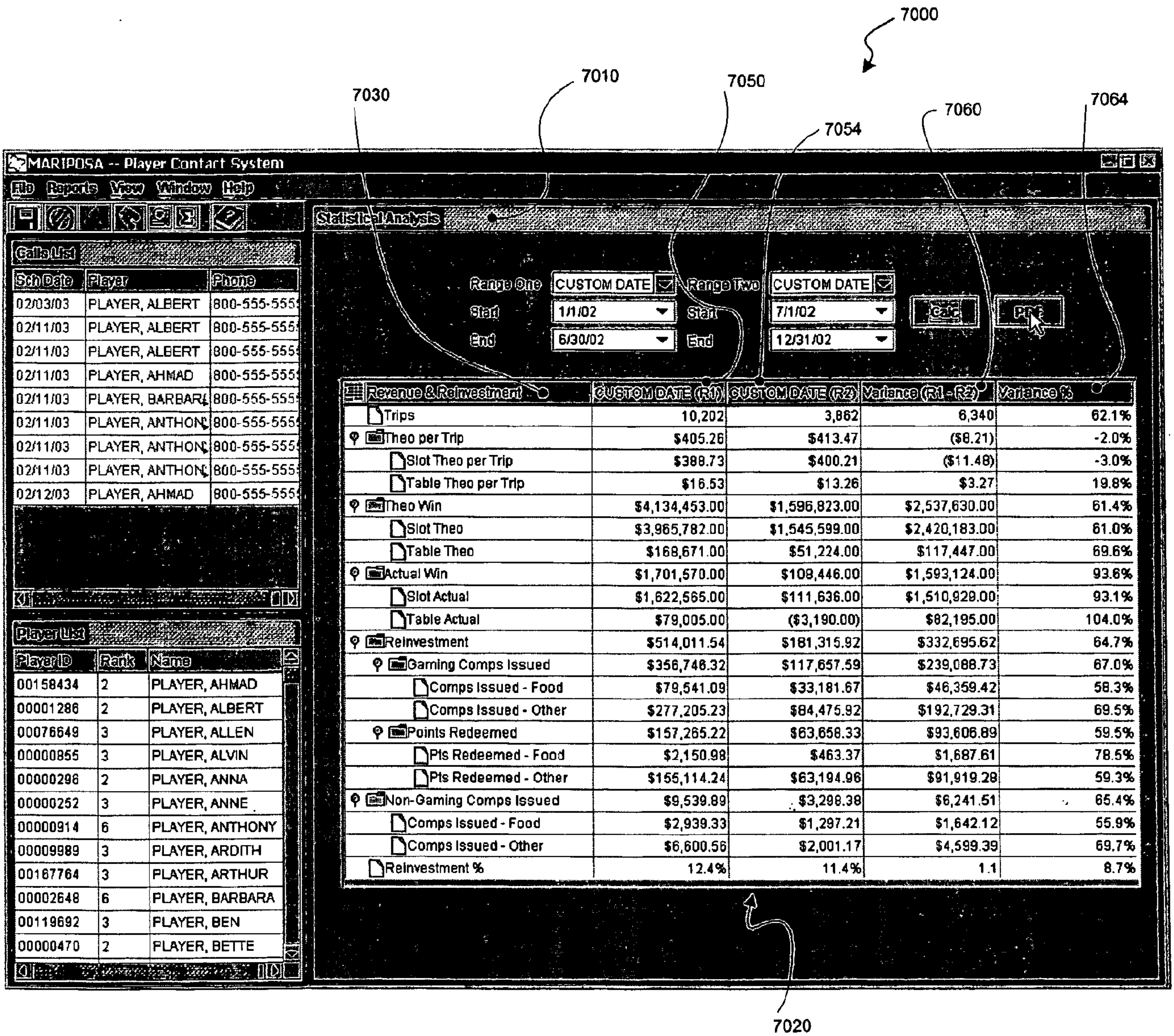


Fig. 70

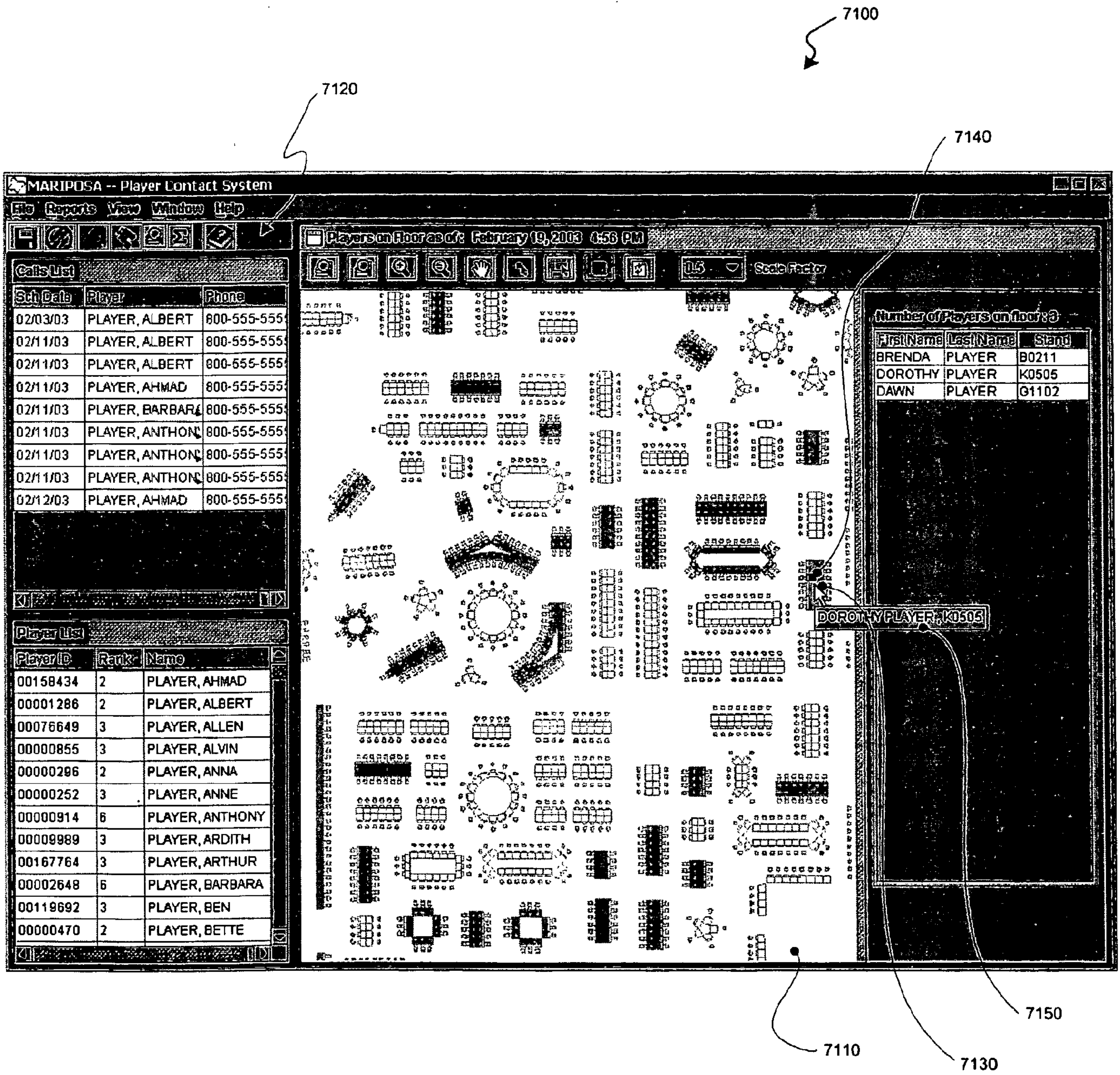


Fig. 71

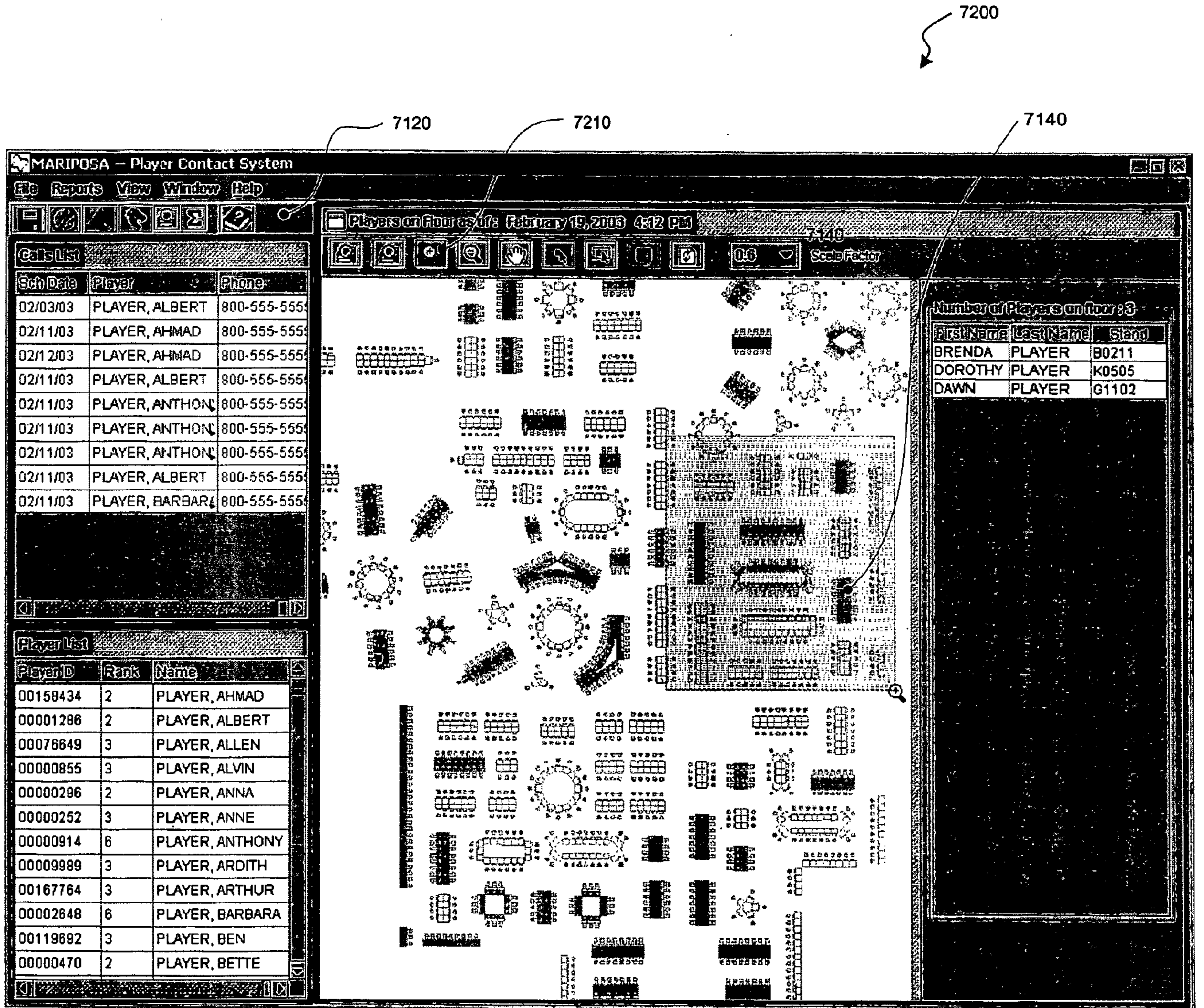


Fig. 72

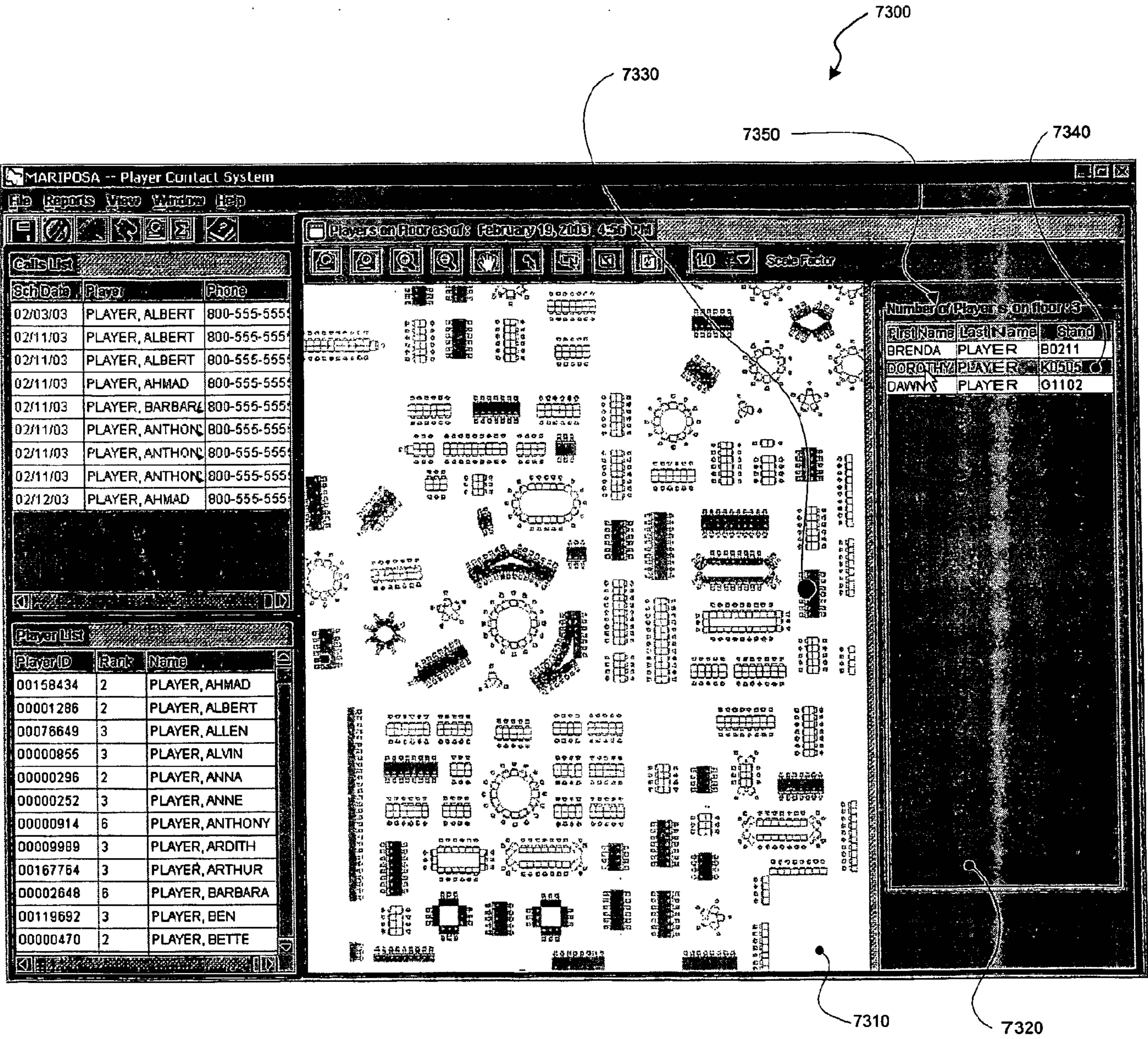


Fig. 73

216

