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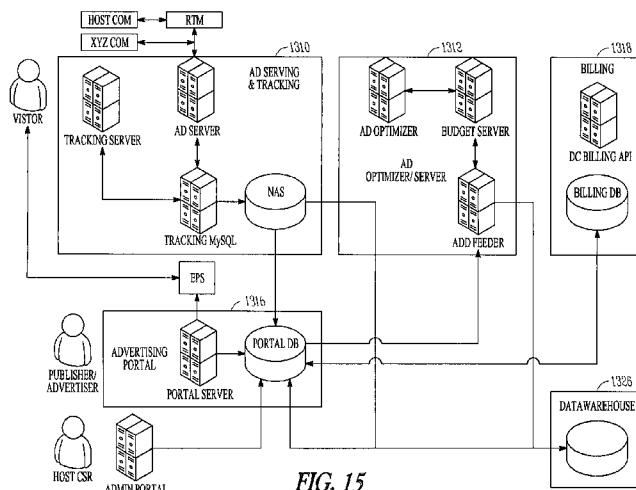
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(54) Title: A METHOD AND SYSTEM FOR KEYWORD BIDDING



(57) Abstract: A computer-implemented method and system for keyword bidding are disclosed. A particular embodiment includes identifying a keyword searched by a buyer on a host site just prior to their purchase transaction; recording a host site category associated with the purchase transaction; correlating the keyword with the host site category; determining a revenue per click value associated with the keyword; obtaining bidding information associated with the keyword; and automatically generating a bid value for the keyword based on the revenue per click value, the bidding information, and the host site category.

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A METHOD AND SYSTEM FOR KEYWORD BIDDING

BACKGROUND

1. Priority Claim

This patent application claims the benefit of the filing date of U.S. Provisional Patent Application No. 61/105,387, filed on October 14, 2008, entitled, "A COMPUTER-IMPLEMENTED METHOD AND SYSTEM FOR KEYWORD BIDDING", and U.S. Patent Application No. 12/347,903, filed on December 31, 2008, entitled "A COMPUTER-IMPLEMENTED METHOD AND SYSTEM FOR KEYWORD BIDDING", and assigned to the same assignee as the present patent application.

2. Technical Field

This disclosure relates to methods and systems supporting keyword advertising associated with Internet search engine usage and keyword query submittal by a user. More particularly, the present disclosure relates to automated bidding for search keywords.

3. Related Art

An increasingly popular way of delivering Internet advertisements is to tie the advertisement to search query results triggered by the entry of particular keywords (e.g. search queries) by a user. In order to target advertising accurately, advertisers or vendors pay to have their advertisements presented in response to certain kinds of queries—that is, their advertisements are presented when particular keyword combinations are supplied by the user of the search engine.

For example, when a user searches for "baseball cards," using a search engine such as Google or other well-known search engines, in addition to the usual query results, the user can also be shown a number of sponsored results. These can be paid advertisements for businesses, generally offering related goods and/or services. In this example, the advertisements may therefore be directed to such things as baseball card vendors, collectibles shops, sports memorabilia, or even sporting goods or event tickets. Of course, the advertisements may be directed to seemingly less related subject matter. While

5 the presentation varies somewhat between search engines, these sponsored results are usually shown a few lines above, or on the right hand margin of the regular results. Although, the sponsored results may also be placed anywhere in conjunction with the regular results.

Keyword advertising is growing as other types of web advertising are
10 generally declining. It is believed there are at least several features that contribute to its success. First, sponsored results are piggybacked on regular results, so they are delivered in connection with a valuable, seemingly objective, service to the user. By contrast, search engines that are built primarily on sponsored results have not been as popular. Second, the precision of the
15 targeting of the advertising means the user is more likely to find the advertisements useful, and consequently can perceive the advertisements as more of a part of the service than as an unwanted intrusion. Unlike banners and pop-up advertisements, which are routinely ignored or dismissed, users appear more likely to click through these sponsored results (e.g., keyword
20 advertisements). Third, the targeting is based entirely on the current query, and not on demographic data developed over longer periods of time. This kind of targeting is timelier and more palatable to users with privacy concerns. Fourth, these advertisements reach users when they are searching, and therefore when they are more open to visiting new web sites.

25 Companies, such as Google of Mountain View, Calif, which offers a search engine and Overture of Pasadena, Calif. (now Yahoo Search), which aggregates advertising for search engines as well as offering its own search engine, use an auction mechanism combined with a pay-per-click (PPC) pricing strategy to sell advertising. This model is appealing in its simplicity. Advertisers
30 bid in auctions for placement of their advertisements in connection with particular keywords or keyword combinations. The amount they bid (e.g., cost-per-click (CPC)) is the amount that they are willing to pay for a click-through on their link. For example, in one PPC pricing strategy, if company A bids \$1.10 for the keyword combination "baseball cards", then its advertisement can be placed
35 above a company bidding \$0.95 for the same keyword combination. Only a selected number of bidders' advertisements can be shown. The simplicity of the model makes it easy for an advertiser to understand why an advertisement is

5 shown, and what bid is necessary to have an advertisement shown. It also means that advertisers are charged only for positive click-through responses.

Both Google and Overture offer tools to help users identify additional keywords based on an initial set of keywords. The Overture model supplies keywords that actually contain the keyword (e.g. for bicycle one can get road 10 bicycle, Colonago bicycle, etc.). Google, on the other hand, performs some kind of topic selection, which they claim is based on billions of searches.

Both Google and Overture offer tools to help users manage their bids. Google uses click-through rate and PPC to estimate an expected rate of return which is then used to dynamically rank the advertisements. Overture uses the 15 PPC pricing strategy to rank advertisements, but monitors the click-through rate for significantly under performing advertisements.

Because Google dynamically ranks the advertisements based on click-through and PPC, advertisers cannot control their exact advertisement position with a fixed PPC. To insure a top position, the advertiser must be caning to pay a 20 different price that is determined by their own click through rate as well as the competitors click-though rates and PPC. Overture uses a fixed price model, which insures fixed position for fixed price.

If a set of keywords that have not been selected by any of the advertisers is issued as a search term, Google can attempt to find the best matching selected 25 set of keywords and display its associated advertisements. For example, let's say a user searches on "engagement ring diamond solitaire." However, there are no advertisers bidding on this search term. The expanded matching feature can then match (based on term, title, and description) selected listings from advertisers that have bid on search terms (e.g. keyword combinations) like "solitaire 30 engagement ring" and "solitaire diamond ring."

A number of third parties provide services to Overture customers to identify and select keywords and track and rank bids. For example, BidRank, Dynamic Keyword Bid Maximizer, Epic Sky, GoToast, PPC BidTracker, PPC Pro, Send Traffic, and Sure Hits. There are a small number of pay-per-bid 35 systems. For example, Kanoodle is a traditional pay-per-bid system like Overture. Other examples, include Sprinks and FindWhat.

The Sprinks brand system, ContentSprinks™, produces listings that rely on context, as opposed to one-to-one matching with a keyword. The user

5 chooses topics, rather than keywords. The Sprinks web site asserts, "Since context is more important than an exact match, you can put your offer for golf balls in front of customers who are researching and buying golf clubs, and your listing can still be approved, even though it's not an exact match." This is a pay-per-bid model, like Overture, and has been used by About.com, iVillage.com
10 and Forbes.com. The Sprinks brand system, KeywordSprinks™, is a traditional pay-per-bid model for keywords and phrases.

FindWhat has a BidOptimizer that shows the bids of the top five positions so that a user can set their bid price for a keyword to be at a specific position. It does not continually adjust bids like host and Overture.

15 In addition, there is a system called Wordtracker for helping users to select keywords. The Wordtracker system at <www.wordtracker.com> provides a set of tools to help users to identify keywords for better placement of advertisements and web pages in search engines, both regular and pay-per-bid. Wordtracker provides related words with occurrence information, misspelled
20 word suggestions based on the number of occurrences of the misspelled words, and tools for keeping track of possible keyword/key phrase candidates. The related words are more than variants. On the web site, an example of related keywords for "golf" includes pga, Ipga, golf courses, tiger woods, golf clubs, sports, jack nicklaus, and titleist, as well as phrases that include the term "golf,"
25 such as golf clubs, golf courses, golf equipment, used golf clubs, golf tips, golf games, and vw.golf. Wordtracker displays the bid prices for a keyword on selected pay-per-bid search engines. It also displays the number of occurrences of search terms by search engine so the keywords can be tuned to each search engine.

30 Wordtracker can be a useful tool, but it does not automate certain aspects of the advertiser's decision-making, bidding, and placement of advertisements. Currently, an advertiser must participate in every auction of relevant keywords. In the example above, a company offering sporting goods may want its advertisements to be placed with a variety of keywords corresponding to
35 common queries related to sports equipment, training, events, etc. These keywords vary in their relevance to the company's business, in their "yield" of productive click-through visits to the company's web site, and their cost to the company (based on competition in the auctions). The multiplicity of keyword

5 combinations and the multiplicity of considerations for each keyword combination create a number of opportunities for automation support mechanisms for advertisement placement decision making.

In the process of bidding in keyword auctions, advertisers may compete in ways that are mutually detrimental. There may be better joint strategies that
10 are less costly, or involve alternative keywords, but the individual bidders do not easily discover these joint strategies. Even when the individual bidders know good joint strategies, the individual bidders may not have a strong incentive to pursue these strategies without some assurance of cooperation.

If the process of selecting and bidding for keyword combinations for an
15 advertiser was automated or more automated, it likely that less guidance would be required from the advertiser and that advertisements would be placed on more effective keywords. It is also likely that such automation would help maximize return on advertising investment (ROAI), increase the number sponsored keywords, and maximize click-through rates for keyword advertisements.

20 Several published U.S. patent applications disclose concepts related to bidding for a position of a keyword advertisement in a search results list. For example, U.S. Patent Application Pub. No. U.S. 2005/0144064 A1 discloses a method of generating a bid for an advertiser for placement of an advertisement in association with a search results list, where the search results list is generated in
25 response to a search query. In one embodiment, the method includes: a) associating the at least one keyword with the bid, wherein the search query is associated with the at least one keyword, and b) determining an amount of the bid, associated with the at least one keyword, for placement of the advertisement in association with the search results list generated in response to the search
30 query associated with the at least one keyword. The bid is determined based at least in part on bids by other advertisers in competition with the first advertiser for placement of other advertisements with an expectation that the determined bid may elicit a desired change in the bids by the other advertisers.

U.S. Patent Application Pub. No. U.S. 2005/0144065 A1 discloses a
35 method of coordinating one or more bids for one or more groups of advertisers for placement of at least one advertisement in association with a search results list. The search results list is generated in response to a search query. The method includes: a) collecting information from at least two advertisers in the

- 5 advertiser group and b) devising a joint strategy for the advertiser group for bidding in the keyword auction. In another embodiment, a method of generating a bid for a first advertiser for placement of a first advertisement in association with a search results list is provided. In another embodiment, an apparatus for generating the bid for the first advertiser is provided. Is still another
10 embodiment, a method of coordinating bids from a first advertiser and a second advertiser for placement of at least one advertisement in association with a first search results list is provided.

U.S. Patent Application Pub. No. U.S. 2005/0071325 A1 discloses a system wherein the number of ads potentially relevant to search query
15 information may be increased by relaxing the notion of search query keyword matching. This may be done, for example, by expanding a set of ad request keywords to include both query keywords (or derivatives of a root thereof) and related keywords. The related keywords may be words with a relatively high co- occurrence with a query keyword in a group of previous search queries (e.g.,
20 search queries in a session). The scores of ads with keyword targeting criteria that matched words related to words in a search query, but not the words from the search query, may be discounted. That is, the scores of ads served pursuant to a relaxed notion of matching may be discounted relative to the scores of ads served pursuant to a stricter notion of matching. This may be done by using a
25 score modification parameter, such as an ad performance multiplier (for cases in which an ad score is a function of ad performance information). The score modification parameter may be updated to reflect observed performance data, such as performance data associated with {word-to-related word} mappings.

U.S. Patent Application Pub. No. U.S. 2005/0137939 A1 discloses a
30 server-based method of automatically generating a plurality of bids for an advertiser for placement of at least one advertisement in association with a search results list. The method includes: a) receiving at least one candidate advertisement, b) creating a list of candidate keywords, c) estimating a click- through rate for each advertisement-keyword pair, d) calculating a return on advertising investment (ROAI) for each advertisement-keyword pair, and e)
35 calculating a bid amount for each advertisement-keyword pair. In another aspect, a server-based method of generating a bid for placement of an advertisement in association with a search results list is provided. In other aspects, a method of

- 5 selecting one or more keywords in conjunction with the bid is provided as well
as a method of determining a return on advertising investment (ROAI)
information for an advertiser in conjunction with the bid is provided.

U.S. Patent Application Pub. No. U.S. 2004/0088241 A1 discloses a "Keyword Automated Bidding System" (KABS) which, among other things,
10 provides an intelligent system for bidders for a ranking in web search results list to determine bids and bidding strategies that maximize return on bid investments and help direct allocation of available funds for bids to keywords that lead to more optimal returns. An example embodiment is designed to generate a scalable solution to the problem of selecting the proper set of keywords to bid
15 and the proper values of such bids for thousands of keywords on third party sites such as Overture and Google.com. The scalable solution is generated according to operator-defined model constraints and utility functions. In one embodiment, KABS maximizes profit by maximizing the Margin Rate to a bidder which is the difference in the aggregate Revenue per Redirect (RPR) from the merchants and
20 the Cost per Click (CPC) that must be paid to the traffic source. The prime constraint on this solution is the total CPC dollar amount that is budgeted over a fixed interval of time (day, week, etc.). A major computational subsystem of KABS performs the estimation of arrival or click-thru rates for each keyword or category of keywords as a function of their display ranks on the source site. It is
25 the form and level of this estimated function that is critical in the selection of the proper display rank from an active bid table a spider retrieves for each keyword. The KABS operator can be required to provide the inputs that direct and constrain the system's operation. Among these is the comprehensive set of keywords of interest from which the proper subset can be computed. Other key
30 inputs include the frequencies of executing the various KABS from re-computing the arrival functions to regeneration of the bid set of keywords along with their corresponding bids and display ranks.

U.S. Patent Application Pub. No. U.S. 2004/0068460 A1 discloses a method and system enabling advertisers to achieve a desired ordinal position of a
35 web page link in a list of search results generated by a bid-for-position search engine on the Internet in response to a keyword search. The method involves surveying other bid-for-position search engines to collect available bid data, determining a network high bid amount for a keyword of interest and the desired

5 position, and adjusting the advertiser's bid on the keyword to be at least as much as the network high bid amount for that keyword and desired position.

U.S. Patent Application Pub. No. U.S. 2003/0088525 A1 discloses a method and apparatus (information processing system) for overcoming deficiencies and inefficiencies in the current paid search engine keyword bidding market, by providing keyword bidders with information they need to better optimize their use of paid search engines. The system accumulates bid amounts for a plurality of target keywords at one or more paid Internet search engines, and presents the bid amounts to a user, enabling the user to evaluate and optimize bids on those keywords. The system also presents bid amounts for a keyword at one or more paid Internet search engines, in a manner highlighting one or more selected bid amounts of interest to a potential bidder. This permits a bidder to identify the bidder's own bid, and/or to identify a differential in bid amounts that indicates an opportunity for bid optimization. The system further monitors keyword bids at one or more paid Internet search engines to identify bid changes of interest to a potential bidder.

U.S. Patent Application Pub. No. U.S. 2003/0055729 A1 discloses a method and system for allocating display space on a web page. In one embodiment, the display space system receives multiple bids each indicating a bid amount and an advertisement. When a request is received to provide a web page that includes the display space, the display space system selects a bid based in part on the bid amount. The display space system then adds the advertisement of the selected bid to the web page. The bid may also include various criteria that specify the web pages on which the advertisement may be placed, the users to whom the advertisement may be presented, and the time when the advertisement may be placed. The bid amount may be based on an established currency or based on advertising points. The display space system may award advertising points for various activities that users perform. The activities for which advertising points may be awarded may include the listing of an item to be auctioned, the bidding on an item being auctioned, the purchasing of an item at an auction, or the purchasing of an item at a fixed price. The display space system tracks the advertising points that have been allocated to each user. When an advertisement is placed on a web page on behalf of the user, the display space system reduces the number of advertising points allocated to that user. The

5 display space system may also provide an auto bidding mechanism that places bids for display space on behalf of the user.

U.S. Patent Application Pub. No. U.S. 2003/0055816 A1 discloses a pay-for-placement search system that makes search term recommendations to advertisers managing their accounts in one or more of two ways. A first
10 technique involves looking for good search terms directly on an advertiser's web site. A second technique involves comparing an advertiser to other, similar advertisers and recommending the search terms the other advertisers have chosen. The first technique is called spidering and the second technique is called collaborative filtering. In the preferred embodiment, the output of the spidering
15 step is used as input to the collaborative filtering step. The final output of search terms from both steps is then interleaved in a natural way.

U.S. Patent Application Pub. No. U.S. 2003/0105677 A1 discloses an automated web ranking system which enables advertisers to dynamically adjust pay-per-click bids to control advertising costs. The system tracks search terms
20 which are used to market an advertiser's product or services in on-line marketing media ("OMM"). The system determines the search term's effectiveness by collecting and analyzing data relating to the number of impressions, the number of clicks, and the number of resulting sales generated by a search term at a given time period. Based on the data collected and parameters which the advertiser
25 provides relating to the advertiser's economic factors, the system calculates a maximum acceptable bid for each search term. The system monitors the web for competitor's bids on an advertiser's search term and places bids which fall below the maximum acceptable bid.

United States Patent Application No. 2005/0223000 discloses a system
30 and method for enabling information providers using a computer network to influence a position for a search listing within a search result list. A database stores accounts for the network information providers. Each account contains contact and billing information. In addition, each account contains at least one search listing having at least three components: a description, a search term
35 comprising one or more keywords, and a bid amount. The network information provider may add, delete, or modify a search listing after logging into his or her account via an authentication process. The network information provider influences a position for a search listing in the provider's account by first

5 selecting a relevant search term and entering that search term and the description
into a search listing. A continuous online competitive bidding process occurs
when the network information provider enters a new bid amount for a search
listing. This bid amount is compared with all other bid amounts for the same
search term. A rank value is generated for all search listings having that search
10 term. The generated rank value determines where the network information
provider's listing can appear on the search results list page that is generated in
response to a query of the search term by a searcher at a client computer on the
computer network. A higher bid by a network information provider can result in
a higher rank value and a more advantageous placement.

15 United States Patent Application No. 2005/0065844 discloses a system
and method for automating the management of an advertising campaign for a
sponsored search application. An advertiser can easily manage their advertising
campaign based on a budget and other information that they are most familiar
with, e.g., the length of time for the campaign, desired number of total clicks
20 during the campaign, the time zone of the campaign, keywords to be bid upon
for the sponsored search application, the advertisement (copy and heading), and
the URL associated with the location of the advertisement copy. With this
relatively basic information provided, an example embodiment can automatically
manage the bidding on both small and relatively large numbers of keywords for
25 an advertising campaign.

United States Patent Application No. 2004/0230574 discloses a method
and system for providing a set of search terms in response to a user input. A first
set of search terms is selected from a master set of search terms based upon a
match between the input and the search terms or based upon a predefined
30 association between the input and the search terms. A second set of search terms
is selected from the first set of search terms in response to a value score that is
established for each of the search terms. The value score is selected based at
least in part upon the amount of revenue that each search term generates for the
system's operator.

35 United States Patent Application No. 2004/0199496 discloses a
presentation system accepts presentations or references to presentations from
prospective presenters. Some or all of the presentations or references are stored
in a database and referenced by keywords such that presentations to be presented

- 5 in response to particular searches can be identified. A presentation manager handles accepting bids and settling terms between prospective presenters. The results of such processes might be stored in a presentation details database. A presentation server handles retrieving presentations from the presentation details database for presentation to users along with requests such as search results.
- 10 Both the presentation manager and the presentation server can operate on a keywords-basis, wherein presentation terms specify keywords to be associated with particular presentations and the presentation server serves particular presentations based on keywords in a search query for which the presentations are to be returned. The association of keywords can be done using
- 15 canonicalization so that, under certain conditions, different keywords are treated as the same keyword. Canonicalizations might include plural/singular forms, gender forms, stem word forms, suffix forms, prefix forms, typographical error forms, word order, pattern ignoring, acronyms, stop word elimination, etc. Conditions might include aspects of the search query state, such as the user's
- 20 demographics, the page from which the search query was initiated, etc.

United States Patent No. 6,826,572 describes a system for advertisers to efficiently manage their search listings in placement database search system includes grouping means for managing multiple categories for the search listings and query means for searching search listings. The system further includes

25 quick-fill means for modifying an attribute in a plurality of search listings by specifying the modification at a single location. The system provides a method and system for a pay for placement database search system. The method and system include grouping and querying, one or more search listings associated with an advertiser, and providing the advertisers an ability to simultaneously

30 modify a plurality of search listings. The advertisers also possess means to search the categories and gather statistical data for an entire category.

United States Patent No. 6,704,727 describes a method and system for providing a set of search terms in response to a user input. A first set of search terms is selected from a master set of search terms based upon a match between

35 the input and the search terms or based upon a predefined association between the input and the search terms. A second set of search terms is selected from the first set of search terms in response to a value score that is established for each

5 of the search terms. The value score is selected based at least in part upon the amount of revenue that each search term generates for the system's operator.

United States Patent No. 6,876,997 discloses a method of generating a search result list and also provides related searches for use by a searcher. Search listings which generate a match with a search request submitted by the searcher
10 are identified in a pay for placement database which includes a plurality of search listings. Related search listings contained in a related search database generated from the pay for placement database are identified as relevant to the search request. A search result list is returned to the searcher including the identified search listings and one or more of the identified search listings.

15 Thus, a computer-implemented method and system for keyword bidding are needed.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments illustrated by way of example and not limitation in the
20 figures of the accompanying drawings, in which:

Figure 1 is a block diagram of a network system on which an embodiment may operate.

Figures 2a and 2b are a block diagram of a computer system on which an embodiment may operate.

25 Figure 3 illustrates the structure and components of the Keyword Testing Complex of one embodiment.

Figure 4 illustrates the structure and flow of the keyword scrubbing module of one embodiment.

30 Figure 5 illustrates an example of the metrics processed by the keyword aggregator of one embodiment.

Figure 6 illustrates an example of the parameters generated as a result of the process described below for a sample Yahoo bidding strategy.

Figure 7 illustrates an example of the parameters generated as a result of the process described below for a sample Google bidding strategy.

35 Figures 8-12 are sample screen snapshots of a user interface for an example embodiment for controlling parameters used in the automatic bid control system.

5 Figure 13-15 illustrate an advertising platform of an example embodiment.

Figure 16 illustrates a user account structure and hierarchy of a particular embodiment.

10 Figure 17-19 illustrate revenue allocations for ads displayed on web pages in a particular embodiment.

Figure 20 illustrates basic advertising components of a particular embodiment.

Figure 21 illustrates operations for setting up advertising models and model level controls in a particular embodiment.

15 Figure 22 illustrates an ad call processing flow in a particular embodiment.

Figure 23 illustrates a process for identifying ad units in random for a particular embodiment.

20 Figure 24 illustrates an example of the ad rotation process flow used for ad call processing in a particular embodiment.

Figure 25 illustrates a physical model for ad score and coefficient storage in a real time system for a particular embodiment.

Figure 26 illustrates a keyword scoring process based on contexts for a particular embodiment.

25 Figure 27 illustrates an example of the Scoring and Ranking used for ad call processing in a particular embodiment.

Figure 28 illustrates an example of the ad serving and impression tracking processing in a particular embodiment.

30 Figure 29 illustrates an example of the click and click tracking processing in a particular embodiment.

Figure 30 illustrates an example of the real-time impression and click filtering processing in a particular embodiment.

Figure 31 illustrates an example of the optimizer in a particular embodiment.

35

DETAILED DESCRIPTION

A computer-implemented method and system for keyword bidding are disclosed. In the following description, numerous specific details are set forth.

5 However, it is understood that embodiments may be practiced without these specific details. In other instances, well-known processes, structures and techniques have not been shown in detail in order not to obscure the clarity of this description.

An example embodiment of a computer-implemented method and system
10 may manage keyword bidding prices. Initially, a host may develop and maintain a portfolio of keywords for which users can bid. In a manner described in detail in the above-referenced related patent applications, a host can search and select desired keywords for the portfolio and cluster the keywords into logical groups based on a variety of dimensional metrics. A data mining process is used to
15 implement keyword affinity scoring. Clustering combines keywords into logical groups or clusters that share a similar behavior with respect to a considered dimension (or creative). A creative can be a template advertisement or message into which a keyword can be inserted. Sources for clustering techniques include:
20 (1) "ex ante" information about a keyword (linguistic similarity, number of words in the keyword phrase, supply-side categorization etc.); (2) performance metrics (costs, clicks, return on investment (ROI), NS saturation, competitors, use of item level metrics, etc.); (3) internal sources (e.g., host search query history, host catalogues, host listings parsings, host affiliate query, catalog, and listing information, international search strings, paid search queries, etc.); and
25 (4) external sources (e.g. Googspy, Yahoo buzz, etc.).

The computer-implemented method and system may also determine and use a correlation between different search queries in a single session. The correlation uses information based on the proximity of the different search queries and the subject matter searched in each query. For example, if a user
30 submits a first search query (e.g. "John") and then subsequently in the same session submits a second search query (e.g. "John Smith"), a correlation can be drawn between those two keywords. This correlation can be used to form reasonable inferences related to the user behavior; because two related search queries appeared in sequence.

35 The performance metrics for a particular keyword or keyword cluster include a calculation of the value of a new user based on keywords. The effective use of advertising or messaging as related to keyword search queries enables the host to attract new users as a result of keyword based advertising.

5 The effectiveness of a particular keyword or keyword cluster to attract new users
is a key performance metric. One measure of this effectiveness is a Revenue per
Click (RPC) scoring. If a particular keyword or keyword cluster and a related
advertisement or message causes a user to click a link or icon, a certain value for
that click through action can be calculated using and RPC scoring. RPC scoring
10 is based on a predicted value for a given keyword. The keyword scoring concept
includes calculating the value of a new user brought in by a specific keyword or
keyword cluster. In an example embodiment, as described below, additional data
can be used to actually project a value forward in time. For example, a particular
click-through might be worth \$10 a click yesterday. However, there may be
15 strong evidence the click-through is going to be worth \$12 a click tomorrow,
because of certain consumer variables that were observed (e.g., the volume of
related listings may have skyrocketed, conversion rates may be skyrocketing,
and ASPs are staying flat). Conversion is the act of a user clicking, responding,
or otherwise taking action related to an advertisement or message. These
20 consumer variables suggest that the keyword is going to be worth more
tomorrow and into the future. In the example computer-implemented method and
system, this forward looking analysis is done with the use of data mining and
statistical analysis.

25 Revenue per Click Prediction Model

Revenue Per Click (RPC) prediction is one building block for keyword
scoring and value prediction. For this reason, it is desirable that the model be as
accurate as possible. At its core, the example RPC prediction process described
herein is a statistical approach to ascribing the likely future revenue for a given
30 click for a given keyword. There can be a large number of potential inputs to
this RPC prediction, including: past revenue and past click volumes, COFA
(Category of First Activity) for users who have converted on a given word, or
the Bid Density by Category for a keyword historically. In the end, a large
number of x-variables can be used as inputs to the model while only a few inputs
35 may actually be part of the calculation. However, because the relative weighting
of the various variables (and even the variables themselves) is likely to change
over time, the example computer-implemented method and system provide an
extensible and flexible approach towards the RPC calculations.

5 To best use the example RPC model, the input data to the RPC model
may be updated on a periodic basis, thus incorporating the newest information.
This periodic update can be implemented by interfacing the RPC model with the
Keyword Selection Module and the Keyword Datamart (KWDM) described in
related patent applications referenced above. The efficiency of the RPC model
10 can also be improved if the RPC model receives warning alerts as soon as
possible if there is a problem with the periodic retrieval of RPC model input
data.

One theme of the RPC modeling is global scalability, which includes
international country-specific models using the same methodology as has been
15 implemented for the RPC model in the US. This implies that the RPC model
may be based on readily available data sources in every country. Country-
specific RPC models are implemented for individual countries and for individual
search engines to improve the regional accuracy of the RPC modeling.

20 Data Sourcing

As part of the periodic (e.g. daily) input data gathering process, the RPC
Predictive Model may pull in keyword/user/category data from various internal
and external sources that have been identified as potential predictors of a host's
keywords' RPC and number of clicks. Various sources for this keyword data
25 originate as described in the above referenced related patent application.
Specifically, the keyword data can originate through the Keyword Testing
Complex.

The Keyword Testing Complex is a shorthand name for the sourcing,
selecting, adding, reporting, and deleting keywords cycle. The principal aim of
30 this functionality, as described in detail below, is to facilitate the adding of good
keywords and deleting of bad ones, provide control and reporting so users can
easily run tests to determine the heuristics that matter in keyword selection and
retention, and enable the automation of as much of the keyword testing,
selection, and retention cycle as possible.

35 Referring to Figure 3, a diagram illustrates the main components of the
keyword test complex, according to an example embodiment. The keyword test
complex 310 includes a keyword datamart, 320, a keyword selection module
330, and a keyword pruning module 340. The keyword data mart, 320 includes

5 a sourcing module 322, a pre-aggregation scrubber 324, an aggregator 326, and keyword storage 328. The components of one embodiment of keyword datamart 320 are described in detail below.

Sourcing Module

10 The Keyword Sourcing Module 322 regularly pulls in keyword data from various internal and external sources that have been identified as potential sources of potentially revenue-generating keywords. Because each data source may have different dimensions and attributes, a generic and extensible data model is required. It is unlikely that many configurations settings or controls
15 may be required to support keyword sourcing. A user of the technology described herein, denoted as a host, can use the Keyword Sourcing Module 322 to collect an initial unfiltered set of keywords from various sources. The following are some examples of important keyword sources that can be used. It can be apparent to those of ordinary skill in the art that other sources of
20 keywords can similarly be used. Also note that there may likely be additional keyword sources that are important to various companies, organizations, countries or regions.

- o Internal - Host individually
 - o Host search query strings
 - o Host searches
 - o Host listing parsings
 - o Host catalogue listings
 - o Add a combination module as a list expansion tool (for instance have a list of action keywords (buy, cheap etc.), then match it to a give category, or combine keywords from different sources
- o Internal - Host combined with 3rd parties
 - o Affiliate query strings
 - o Natural search query strings
 - o International keywords
 - o Paid Search query strings
- o External: (Well known sources of keywords, e.g.)

- 5 o Googspy
 o Yahoo buzz
 o Ad Hoc
 o Generic User Upload utility for ad hoc keyword list additions
10 o "Keyword blender" which takes existing keyword strings and recombines the words into new keyword strings.
 o Duplicate keywords may be allowed on Google if they have different Match Types as is currently available through the well-known Google interface.

15

As related to RPC modeling, keyword data can be sourced using the Keyword Testing Complex and the Sourcing Module 322. In addition, other keyword data sources include the following.

20 Metrics (By Date/By Keyword):

Cost
Revenue
Retention Bidders
Retention Bids
25 Acquisition Bidders
Acquisition Bids
ACRU's
Clicks
Average Position

30 Keyword Categorization: (Bid Categorization for Top n categories)

Category Percentage Weighting
Site ID
Meta Category
Level 2
35 Level 3
Level 4
Level 5
Level 6

5 Search Categorization for Top n categories

 Category Percentage Weighting

 Site ID

 Meta Category

 Level 2

10 Level 3

 Level 4

 Level 5

 Level 6

Prior Month by Category

15 ASP

 Conversion Rate

 Success Item Count

 Revenue

Category Data

20 External Category Clustering

User Level:

 Sets - Retained Bidders, Acquired Users

 User

 Value

25 RFM

 Zip

 CoFA - (Category of First Activity)

 Mosaic

 Demographic

30

Keyword Data Aggregation Module (Aggregator)

Keywords in the KWDM 320 may contain various levels of dimension data. For example: 1) global dimensions (e.g. linguistic dimensions), 2) traffic dimensions (internal and external data), 3) clustering dimensions, and 4) source specific metrics. These dimensions are described in more detail below. Because many of these dimensions change from day to day, the aggregator 326 defines a time period of measurement for each metric. It may not be necessary to repopulate all of these metrics every day for every keyword. A weekly, monthly

5 or quarterly refresh may be sufficient in some cases. A mechanism to track the source (and number of occurrences per source) by keyword is also a desired feature. As examples of dimensions (non-exhaustive):

a. Global Dimensions

- 10 • component words
• number of words
• "fingerprint": the keyword's words sorted alphabetically, so that "ipod mini" and "mini ipod" would map to the same fingerprint - this may be used to generate simple linguistic matches
- 15 • Part of Speech (noun, verb, adjective, etc)
• Similar to part of speech - action words (e.g. buy, sell, etc.) - allows for keyword combinations
• linguistic affinity matching (e.g. a score for keyword pairs which indicates their "likeness" based on the words they share)
- 20 • Predicted Revenue per Click (RPC) (from "best available" RPC model)
• number of host search results
• number of searches on yahoo in a time period
• Purged/Tested status flag

25

b. Traffic Dimensions

- 30 o Trafficked on Search Engine xyz
o Sourced from Site abc
o By Search Engine
 - Current Cost per Click (CPC) (bid) (if trafficked)
 - Avg. CPC (last 30 days)
 - Avg. Position (last 30 days)
 - Cost
 - Revenue
- 35 ▪ Clicks
▪ Impressions
▪ Bids

- 5 ■ Confirmed Registered Users (CRU)
■ Acquired Confirmed Registered Users (ACRU)
- o Host Search Volume
- c. Clustering Dimensions
- 10 o Category Affinity (potentially multiple approaches)
o Value for Confirmed Registered User (VCRU) by keyword
o Revenue per Click (RPC) Predictive Model Score
■ Predicted RPC
■ Predicted Clicks
- 15 o Creative/Landing Page Cluster
o Metrics as required to support clustering
■ User Metrics
■ Category Metrics
- d. Source-Specific Dimensions (extensible)
- 20 o Affiliate queries
■ Affiliate ID
- o International
■ Country
■ Revenue
■ Clicks
- 25 o Natural search
■ Revenue
■ Cost
- 30 o Host searches
■ number of queries in prior unit of time
■ number of bids resulting from word
■ number of listings resulting from word
■ Revenue resulting from word
- 35 o Query String map
■ Map of query strings which have been seen associated with keyword strings in paid search data

5 Referring to Figure 5, an example of the metrics processed by aggregator
326 is illustrated. Because many of these statistics change from day to day, the
aggregator 326 documents from what period of time the statistic is taken. It may
not be necessary to repopulate all of these statistics every day. A monthly or
quarterly refresh may be sufficient. For statistics involving the actual cost and
10 revenue for the trafficked word for the host, the aggregator 326 incorporates new
data with the old data. If a keyword comes in more than once from the same
source, the aggregator 326 can increment the number in the appropriate source
column. If the keyword is seen from a new source, the aggregator 326
increments the relevant source column.

15

Keyword Selection Module (Selector)

The Keyword Selection Module 330 is shown in Figure 3. In one embodiment, there are two ways to select keywords to be added: manually and automatically.

20

Manual method

- 25 o The user can run ad hoc queries on any of the fields to retrieve any set of keywords. Standard logic is supported (e.g. and, or's, joins, etc.).
- o The user can sort according to any of the fields in the aggregator 326.
- o The user can export the query result
- o The user can create a list with the query results
- 30 o The user can save query parameters

Automatic method

- 35 o The user can specify which metrics have been deemed to be useful predictors for valuable keywords (via heuristic testing or based on external models), and the keyword testing complex 310 then uses these criteria to automatically select keywords to be

- 5 trafficked. This query can be generated by a configurable set of criteria that can be pre-set and executed at regular intervals.
- o Any other metric tracked by the aggregator 326 can be available as an input into the automatic keyword selector 330.
- 10 The computer-implemented method and system for keyword bidding disclosed herein provide a set of data-driven controls that allow users to manage keyword bidding prices at the keyword level and at a large scale. The computer-implemented method and system include a rules engine to manage the spend associated with purchasing and managing a keyword portfolio. The data-driven controls include controls to manage spend and high-volume. A few of the features of an example embodiment include the following:
- The ability to update cost per click (CPC)/bid amounts for keywords across the entire keyword portfolio in an automated fashion at any time.
 - o A host can update its bids on the entire keyword portfolio, while factoring in different user behavior at different times in the day (e.g. day-parting and the ability to raise bids right before lunch when online activity is the highest and lower the bids after midnight when activity is the lowest).
 - The ability to automatically control keyword bids to target a specific position and percentage factor above or below the current bid, based on what a host is willing to pay for a group of keywords.
 - Flexible architecture that supports multiple search partners. Example embodiments can support simultaneous bidding on different search partners (e.g. Google and Yahoo!) that have completely different keyword concepts and attributes and can easily scale to add new search partners (e.g. MSN).

Bid Optimization

CPC Bid Optimization of example embodiments described herein is an element to trafficking keywords and ensuring a host is maximizing its return on investment (ROI) on each keyword purchase. Because different search engines have different interfaces, policies, and rules associated with keywords and paid search opportunities, an automated bid optimization system may have to take

5 these search engine-specific differences into account. Below are example
considerations for search engine-specific bidding methodologies (e.g. Google
and Yahoo!). Based on each search engine's current bidding methodology,
specific business rules and a customized RPC Predictive Model has been created
as part of the computer-implemented method and system described herein that
10 can enable more efficient CPC bid optimization.

Example Yahoo! Search Marketing Bidding Strategy

Sample Components:

- 15 1. Input A: Scalable RPC per Keyword
 2. Input B: Yahoo! Search Marketing Listing Attributes (e.g.
 keyword, title, URL, listingID, match type, etc.)
 3. Input C: Competitor Bid Landscape
 4. Bidding Logic
20 5. Output: New CPC_{max} per Keyword to update through API

Input A :

- 25 • The Scalable RPC per Keyword score can be produced using the
 RPC Predictive Model described in the above-referenced patent
 applications.

Input B :

- 30 • A listing ID can be associated with every keyword in the host
 portfolio. Through an application programming interface (API),
 all attributes for each specific keyword in the portfolio can be
 made accessible to external systems. In an example embodiment,
 the specific API call is <GetListings>, where the following
35 sample attributes can be returned. It can be apparent to those of
 ordinary skill in the art that a different set of attributes may
 similarly be returned:

- 5 ■ Listing ID - unique ID per keyword
- URL - landing page
- Category ID - Yahoo! specific category
- Bid Type - default can be "auto"
- Search Term - keyword
- 10 ■ Minimum Bid
- Title
- Description
- Market - Country
- Content Bid - CPC of Content Match
- 15 ■ Content Online
- Content Opt In - Content Match on/off
- Advanced Opt In - Broad Match on/off
- Advanced Click Index
- Click Index
- 20 ■ Online - keyword on/off status
- Bid - CPC

Input C:

- 25 • Through the API, a unique bidding landscape can be returned for every keyword in the portfolio. In an example embodiment, the specific API call is <GetMarketState> which returns the following sample parameters:
- 30 ■ Listing Rank - position
- Bid - CPC
- Site Host - Advertiser's website

Bidding Logic of an Example Embodiment

- 35 Based on a current scaled TPC (target per click) value, use the Competitor Bid Landscape to determine a Bid value, Deviation = $\text{abs}[\text{TPC} - \text{CPC}_{(p_0 \pm I, 2)}] (\$)$, and the position $\pm 1, \pm 2$ relative to our current position. The TPC is a desired bid value the advertiser is willing to pay. Clearly, the advertiser seeks

5 to optimize the TPC so the lowest value is paid while retaining an acceptable level of user click-throughs. The current position corresponds to a location on a search results page relative to the position of other advertiser's (competitors) on the same page in relation to the same keyword. Typically, a search engine can position a highest bidder's advertisement at the top (or in the position most 10 likely to attract user click-throughs) of the search results page. The next highest bidder's advertisement is positioned just below the highest bidder's advertisement. This ranking continues until there is no space left on the search results page or the number of advertisements exceeds a search engine's maximum. In this manner, the search engine's advertisement placement 15 corresponds to keyword bid values and the corresponding number of expected user click-throughs. As is well known, a search engine is paid the bid value by the advertiser for each user click-through.

For example, take the keyword example "maple wood". The bid landscape tells us that we are currently paying \$0.27 for position 3. "Position - 20 1" places us in position 2 (a better position than position 3 in terms of the number of expected user click-throughs) with a maximum bid of \$0.27 and the deviation of ~\$0.03 from our scaled TPC of ~\$0.25. "Position -2" places us in position 1 (a better position than position 2 in terms of the number of expected user click-throughs) with a maximum bid of \$0.28 and the deviation of ~\$0.04 25 from our scaled TPC.

Using the bidding logic shown above, these metrics are determined for the two positions above and below the current position. From there, the minimum deviation is selected from the four surrounding positions. Once the optimal gap is determined, a new maximum CPC is determined based on the 30 following:

If the Minimum Deviation lands the keyword between position 1 and 2,
[new CPC_{max} = scaled TPC]

If the Minimum Deviation lands the keyword between positions > 2,
[new CPC_{max} = CPC_{hl} - \$0.01] or the default minimum of \$0.10.

35 In all cases, the [CPC_{actual} = CPQ_{ow} + \$0.01] and [CPC_{ceiling} = TPC*(1+X)], where X = scalable margin. Figure 6 illustrates an example of the parameters generated as a result of the process described above for a sample Yahoo bidding strategy.

5

Output:

Using the process described above, parameters are generated for a sample
10 Yahoo bidding strategy. These parameters can be used to create the XML syntax
to make the appropriate CPC changes through the API.

Example Google Bidding Strategy

Sample Components:

15

1. Input A : Scalable RPC per Keyword
2. Input B : Previous Day's Bid per Keyword
3. Input C: Previous Day's Keyword Report
4. Bidding Logic
5. Output: New CPC_{max} per Keyword to update through API

20

Input A :

25

- The Scalable RPC per Keyword score can be produced using the RPC Predictive Model described in the above-referenced patent applications.

30

Input B :

- This input is used to determine if the host should continue paying its current CPC based on a specific position threshold. For example, with position thresholds of 1.5 vs. 1.0, a threshold of 1.5 can require the host to increase bids on more keywords than if our position threshold was set to 1.0.

35

Input C :

- 5 • Through the API, the host can generate an automated report that returns the previous day's data for each keyword. Based on the time that the API call is made, the report can return [Current Time - 12:00AM] hours of data. For example, the report may return the following parameters:
- 10 ▪ Campaign
 ▪ Ad Group
 ▪ Keyword
 ▪ Keyword Matching
 ▪ Keyword Status
 ▪ Keyword Minimum CPC
 ▪ Current Maximum CPC
 ▪ Destination URL
 ▪ Impressions
20 ▪ Clicks
 ▪ CTR
 ▪ Average CPC
 ▪ Cost
 ▪ Average Position
- 25

Bidding Logic of an Example Embodiment

Based on a current scaled TPC (target per click) value, use the previous day's CPC_{max} and previous day's keyword-level data to calculate:

- 30 A. $[\$ \text{ Deviation}] = [\text{TPC} - CPC_{avg}]$
 B. $[% \text{ Deviation}] = [\$ \text{ Deviation}] / \text{TPC}$
 C. Calculated $CPC_{max} = (1 + \% \text{ Deviation}) \times [\text{previous day's } CPC_{max}]$
 D. $CPC_{\text{ceiling}} = \text{TPC} * (1+X)$, where X = scalable margin

35

The new CPC_{max} may be calculated based on the following logic:

- If(A = n/a), $CPC_{max} = D$

5

- Otherwise, If (previous day's CPC_{avg}) > 1.5, $CPC_{max} = \min(C, D)$
- Else If (previous day's CPC_{avg}) ≤ 1.5, $CPC_{max} = \min(D, previous day's CPC_{max})$

10

New CPC_{max} may be bounded by the following rules:

- Final $CPC_{max} = \min[\max(new CPC_{max}, Y), D]$
- Where $Y = CPC_{m_{ln}}$ per keyword based on Google's QBB Implementation

15

For example, take the keyword example "longaberger pottery" and the corresponding sample parameters below.

20

- A = 0.52
- B = 78.7%
- C = 1.38
- D = 0.85

25

Based on the bidding logic above, since (A ≠ n/a) and [(previous day's CPC_{avg}) ≤ 1.5] is true, then:

$$CPC_{max} = \min(D, previous day's CPC_{max}) = \min(0.85, 0.77) = 0.77$$

Figure 7 illustrates an example of the parameters generated as a result of the process described above for a sample Google bidding strategy.

30

Output:

35

Using the process described above, parameters are generated for a sample Google bidding strategy. These parameters, including the new CPC_{max} , can be used to execute the corresponding bid changes through Google's API.

5

Other Bidding Strategies

Variations of the bidding processes described above can be used to support other search engines. Further, a generic version of the bidding optimizer described herein can output or export a flat file for manual loading on other platforms. In addition, variations of the bidding processes described above can include time of day / hour optimization and demographic targeting.

Automatic Bid Control Management

Figures 8-12 are sample screen snapshots of a user interface for an example embodiment for controlling parameters used in the automatic bid control system. In the automatic bid control (ABC) system of an example embodiment, the process of controlling various bid parameters across a variety of search engines can be automated. Various thresholds, scaling factors, time periods, increment factors, and the like can be preset so the bid optimization process can be efficiently executed automatically and remain within preset bounds.

Match Type Automation

The Match Type Automation functionality provided in the computer-implemented method and system described herein enables a host to automate the decision-making process as to which keywords to buy on the different Match Types offered by the conventional search engines (e.g. Advanced/Standard match types on Overture, and Broad/Phrase/Exact match types on Google).

In particular, the functionality of the present computer-implemented method and system automates the decision-making related to:

- o Specifying which new user queries to buy on Exact/Standard Match.
- o Deciding when to change the match type from Advanced(Broad) to Standard(Exact Match), for the original keyword that led to the new user queries in (a).
- o Recommending the initial CPC (bid) to submit.

5 In addition, the functionality of the present computer-implemented method and system also provides additional functionality. When submitting keywords to buy on a search engine, the user can specify the desired Match Type. The user can check the Match Type status of any keyword, list of keywords, or keyword cluster at any time. The user can also manually change
10 the Match Type status of any keyword, list of keywords, or keyword cluster at any time. When an embodiment is about to switch some existing keywords from an Advanced match type to a Standard match type, the embodiment generates a report specifying the list of keywords that have been recommended to be switched over to Standard Match. The embodiment advises the user of the
15 recommended changes prior to trafficking the changes. An example embodiment also allows the user to switch from Advanced to Standard match type automatically on a periodic basis (e.g. monthly). Alternatively, the match type switching can be configured to occur only after being accepted by the user, in the event the user wishes to review the recommended list of words first. This would enable the ability to override recommendations.
20

Some conventional keyword processing systems store even the slightest differences in user queries as distinct queries/records. For example, two phrases may have the same keywords, but one may have an additional space in the keyword string. Conventional systems create distinct records for these keyword
25 variations even though these variations would be considered the same keyword in some conventional search engines (e.g. Overture's Match Driver Logic), thus triggering the display of the same advertisements. Thus, it is beneficial to be able to mimic the Match Driver Logic of a particular search engine to the extent possible. The following pre-processing actions can be implemented to increase
30 the likelihood that the keyword processing can mimic the operation of the Match Driver Logic of a particular search engine.

- Singular/Plural: Treat all versions of user queries to be the same if they are singular/plural versions. In one embodiment, one can compare all the user queries with each other and convert all keyword variations to a common form (e.g. the singular form). Then for every record, compare the keyword with the user query: if the user query is a singular or plural version of the keyword, then set the user query to be the keyword. If it is not feasible
35

- 5 (computationally expensive) to check all user queries against each other first, then the following actions can be implemented.
- 10 o For each record, compare the keyword with the user query: if the user query is a singular or plural version of the keyword, then set the user query to be the keyword. Here are some of forms of singular/plurals that illustrate the user query conversion:
- 15 ▪ (ES) - beach vs. beachES
▪ (S) - train vs trainS
▪ (IES) - baby vs. babies
▪ When moving a keyword to exact match, both versions (singular AND plural) can be provided.
- 20 • Lower/Upper Case: Conventional systems store the same phrase separately if it was entered in lower case vs. upper case. An example embodiment converts all user queries to a common case (e.g. lower case).
- 25 • Word Re-ordering[^] In one embodiment, all user queries are compared together before comparing them against keywords. In another embodiment, the user queries are checked to determine if they are simply a reordering of words of the keyword. If so, set the user query to be the keyword. For example, the user query, 'Paid Search Alley Rocks' would be made the same as 'Rocks Alley Search Paid'.
- 30 • Filler words: The Match Type Automation functionality provided in the computer-implemented method and system described herein suppresses words such as 'and' '&' '+' 'the' 'a', space, and some special characters, etc.
- 35 • Multiple spaces between words: If multiple spaces appear between words, the spaces are compressed to one space.
• Quotation Marks around/within queries: Quotes (single or double quotes) can be removed from a user query.
• Misspellings: In one embodiment, misspellings in a user query can be corrected.

5 Match Type Processing

The following actions can be used in various embodiments to process user queries and related keywords for various conventional search engines.

- 1) Retrieve all keywords from a search engine that had more than a threshold number of clicks (e.g. >=100 clicks) in a previous time period (e.g. 2 months).
- 10 2) Extract all user queries for each of the keywords in step 1 in a previous time period (e.g. two months).
 - a. Also retrieve metrics such as the number of clicks and the number of bids for that keyword & user query combination/record.
 - b. Delete any record that has a blank user query stored.
- 15 3) In the user query, replace any %XY characters (encoded Hex characters) with a blank.
- 4) As described above, mimic the Match Driver processing by performing the following actions in the following order. These steps may not be necessary for support of Google:
 - a. Convert the keyword & user query to lower case.
 - b. Replace '+' and '&' in the user query with blanks.
 - c. Replace ' a ', ' the ' ' and ' in user query with blanks. (Note the padded pre & post spaces in these strings ensures these strings are not replaced if they are part of a word; they are only replaced if they appear between words).
 - d. Delete any occurrences of single or double quotes in the user query.
 - e. Compress multiple spaces between words to be one space.
 - f. If the user query is a singular or plural version of a keyword, set the user query to be the keyword.
- 20 5) Group all records by keyword and user query. Get aggregate metrics at this level.
- 25 6) For each keyword, calculate and store the following fields:
 - a. Count of number of associated user queries.
 - b. Sum of clicks across all user queries.
 - c. Sum of Bids across all user queries.
- 30
- 35

- 5 d. Note that the sum of clicks or bids across all user queries for a given keyword, is not always the same as the number of clicks or bids for the keyword.

10 7) Based on the sum of clicks or bids across all user queries for a given keyword and given that the keyword level Costs & Revenue is known, assign costs & revenue (and thus profit) to each user query. Use the ratio of clicks/bids at the user query level, relative to the Total clicks/bids across all user queries for that keyword (as calculated in step 6 above) to allocate the appropriate amount of keyword Costs/Revenue to the user query in question.

15 8) Choose all user queries that were profitable and had a quantity of clicks greater than a configurable threshold of click activity (e.g. ≥ 50 clicks) thereby ensuring a minimum threshold of 'popularity' for the user query. Buy these profitable user queries on Standard Match.

20 9) Set the initial recommended CPC for these Exact Match buys (e.g. $75\% * \text{user query_cost} / \text{user query_clicks}$). Establish a floor bid value (e.g. \$0.10) and a ceiling bid value (e.g. \$0.75). In the event a profitable user query record is associated with more than one keyword, specify the initial CPC using the metrics of the most profitable record.

25 10) When buying these profitable user queries on Standard Match, check to make sure the user query is not the same as the keyword. In other words, leave the original keyword on Advanced so user queries can continue to be flagged, unless specified by the following checks. This step may not be necessary for support of Google as one can have the same keyword phrase on Broad & Exact match types simultaneously. If the number of clicks associated with the record where the user query equals the keyword is greater than a configurable percentage (e.g. 90%) of total clicks across all the user queries for that keyword, then buy that user query (and thus the original keyword) on Standard Match. If the original keyword is itself the most frequent user search query by far and generating almost all the clicks anyway,

5 then it makes sense to buy the query on Standard Match, thus
getting preferred status.

An Alternative Example Embodiment

A particular example embodiment includes an advertising platform,
10 allowing sellers on a host site to buy and create advertisements for their items for
sale and their stores selling items.

Figure 13-15 illustrate an advertising platform of an example
embodiment. The example advertising platform includes the following
functional components:

15 Advertiser Portal (1316) - End user facing application. The Advertiser
Portal can allow registered users to manage their Paid Search portfolio across
various publishers. The portal user interface (UI) can support various
functionality, including:

- Campaign creation and editing
- Adgroup creation and editing
- Keyword assignment
- Landing page assignment and modification
- Creative creation, assignment and modification
- Account management
- 25 • Reporting

As shown in Figure 13, the Advertiser Portal (1316) includes
functionality for:

- i. User Registration
- ii. Account Dashboard
- 30 iii. Create/Revise Campaigns, Ad Groups, Keywords, Bids
- iv. Create and edit Ads
- v. Manage Account
- vi. View Invoices
- 35 vii. Make Payment

Administrative Application (1320) - Customer Support and Program
Administration

- viii. Customer Support
- ix. Advertiser Directory
- 40 x. Manage Advertiser Accounts

5

xi. Billing Credits and Corrections

- Billing (1318) - Send invoices, collect payments, and journal to SAP
- xii. Collect Money
 - xiii. Generate Invoices
 - 10 xiv. Maintain payment history
 - xv. Journals
- Ad Serving and Tracking (1310) - Show ads on publisher sites
- 15 xvi. Host Ad Server: Receive Request to Display ads; Request Ads from Ad optimizer; Format Ads to display; Encode click links for tracking.
 - xvii. Tracking Server; Record clicks and associated cost per click; Record impressions; Track events via Mediaplex
- 20 Ad Search (1312) - Find the right ads to show
- xviii. Budget Server: Manage Daily and overall budget caps
 - xix. Ad Optimizer: Find Ads; Confirm Budget is available; and Rank/Optimize Ads
 - xx. Ad Feeder: Get Ads from Advertiser Portal and put them in search
- 25 Event Tracking Logic (ETL) Infrastructure (1314) - Track and aggregate all the data that drives the platform
- xxi. Collect tracking events and post to Advertiser Portal
 - xxii. Near real time click fraud
 - 30 xxiii. Aggregate Event data for reporting
 - xxiv. Move data to Data Warehouse for offline processing
 - xxv. Create data summaries for Advertiser Portal
 - xxvi. Perform offline Analysis to continually optimize ads
- 35 Third Party Applications (1322) - Automated creation of distributed commerce campaigns for 3rd party merchants.

5 Figure 16 illustrates a user account structure and hierarchy of a particular embodiment. The Ad Portal 1316 can provide an advertiser user interface (UI) and utilize an account and campaign structure that is shown in Figure 16. From the Advertiser UI, users can have the ability to set the status for the various levels of their Account. Users can activate and pause (inactivate) the following:

- 10 • Campaign
• Ad Group
• Keyword
• Creative

15 In addition, to support system and administrative functionality, administrative (admin) users and the system can have the ability to set statuses for the following:

- 20 • Account
• Campaign
• Ad Group
• Keyword
• Creative

25 In addition:
• Statuses set by admin users can only be modified by admin users.
• Statuses set by the system can be only modified by the system or by admin users.
• Statuses set by users can be modified by users, the system or by admin users.
30 • Statuses set at higher levels in the hierarchy cannot propagate down to lower-levels. For example, if a Campaign is switched to an inactive status, it is possible for Ad Groups to remain in an Active Status. Therefore, restrictions set at higher levels in the hierarchy should take precedence over statuses set at lower levels.

35 The Advertiser Portal 1316 can ultimately support a wide-variety of ad formats, including rich media, and can be designed to support this type of scaling.

40

Account Overview (Main Page)

The Account Overview is the page that can be displayed to the user when they first log-in. The page can contain a snapshot of their account, including the following:

5

- » System-generated UI Alerts
- Account Status
- Account Performance (key metrics)
 - Number of impressions
 - Number of clicks
 - Average CTR
 - Average CPC
 - Average CPM
 - Budget Spent (Cost)

10

15 Users can be allowed to toggle start and end date fields to control the range of the Account Performance metrics.

Campaign Management

20

Account Dashboard (Campaign Summary)

From this page, users can see a list of the Campaigns that have already been set up along with various metadata and metrics. The following data can be displayed:

30

- Campaign Status
- Campaign Name
- Number of impressions
- Number of clicks
- Average CTR
- Average CPC
- Average CPM
- Average Position
- Max daily budget
- Budget Spent (Cost)

35

There can also be an 'Edit Campaign' link for each saved Campaign.

Clicking on a Campaign Name can forward the user to its Campaign Dashboard.

40

The users can have the option to delete campaign(s) from the Account Dashboard. Deleting a campaign can remove the campaigns and all ad groups within that campaign from the dashboard view and the system permanently. User can be prompted for delete confirmation "Are you sure you want to delete?" before the deletion takes place. Aggregated reporting data can be available as a summary of all deleted objects on all Dashboards. Pausing a campaign suspends activity on all Ad Groups contained within that campaign. Users can still modify campaign attributes while it is in a paused state. The Campaign list can be

5 filtered by 'All' (default) or 'Active Only'. Users can also specify a date range for the metric calculation. The list can be sortable by all fields. The page can have multi-select checkbox functionality to allow users to make status changes to multiple campaigns at once - including activation, pausing and deletion.

Users must confirm all status changes (pop-up alert) before they are applied.

10

Campaign Dashboard (Ad Group Summary)-

From this page, users can see detailed data for a saved campaign, including:

15

- Campaign Name
- Campaign Description
- Campaign Status
- Campaign Type
- 20 • Targeted Country
- Start date
- End date
- Max daily budget
- Total Spend (Cost)

25

The Campaign Dashboard can also display a list of Ad Groups saved for that account along with detailed data for each, including:

30

- Ad Group Name
 - o This can be the Category name for category-targeted campaigns.
- Ad Group Status
- Default Max CPC (Bid)
 - o For category-targeted Ad Groups, this can be the Current Max CPC (Bid)
- 35 • Number of impressions
- Number of clicks
- Average CTR
- Average CPC
- 40 • Average CPM
- Average Position

45

An 'Edit' link can also be displayed for each Ad Group that can forward the user to the 'Edit Ad Group' flow. Clicking on the Ad Group Name forwards the user to the Ad Group Dashboard. Users can have the option to delete ad group or category from the Campaign Dashboard. Deleting an ad group can

5 remove the ad group and all keywords within that ad group from the dashboard view and the system permanently. User can be prompted for delete confirmation "Are you sure you want to delete?" before the deletion takes place. Reporting data can be available as a summary of all deleted ad groups on Campaign Dashboards.

10

Create Campaign

On the 'Create Campaign' page, users can have the ability to create one new campaign at a time. Users can be prompted for the following information:

- 15 • Campaign Name
 o Must be unique within account
- Campaign Description
- Campaign Type
 o Keyword or Category
- 20 • Targeted Country
 o Germany or US (single-select only)
- Targeted Language
 o German or English (single-select only)
- Start date
 o Default: current date
- 25 • End date
 o Optional
- Max daily budget

30 The daily budget (along with all other monetary parameters) can utilize the currency set at the account-level. The optimization engine infrastructure can be designed to allow multiple targeted countries per campaign. Clicking on the "Continue" button can forward the user to following:

- 35 • 'Create Ad Group' flow if the campaign is keyword-targeted
- 'Target Categories' flow if the campaign is category-targeted

Edit Campaign

From the Campaign dashboard, users can have the ability to click an 'Edit' link for each saved campaign. From this page, users can be allowed to edit the settings for individual Campaigns, including:

- 45 • Campaign Name
- Campaign Description
- Start date

- 5 • End date
• Targeted Country
• Targeted Language
• Max daily budget
10 o Budget changes can be reflected the next day. Therefore, if users
 wish to stop campaign activity immediately, they must use the
 Campaign status feature.

15 Users cannot be allowed to edit the campaign-type setting (from keyword
 to category, or visa-versa). Users can have the ability to change the Country that
 is targeted.

Ad Group Management

20 Ad Group Dashboard

From this page, users can see detailed data for a saved Ad Group,
including:

- 25 • Ad Group Name
• Ad Group Description
• Ad Group Status
• Creative preview (including Landing Page)

30 From this page, users can also manage the status for creatives (active or
inactive) and delete creatives. Users can also view keyword-level data for
keyword-targeted Ad Groups, including:

- 35 • Keyword
• Matchtype
• Keyword Status
• Number of impressions
• Number of clicks
• Average CTR
• Average CPC
40 • Average CPM
• Average Position

45 Users can also click a Bulk Edit link. After clicking the link, the
following data in the keyword reporting table can be displayed as an editable text
input box:

- Max CPC
- Landing Page

5

The data above cannot be displayed for Category-targeted Ad Groups.

Instead, the following data can be displayed:

- Category name
- 10 • Tree Level
- Category status
- Current bid (Max CPC)
- Number of impressions
- Number of clicks
- 15 • Average CTR
- Average CPC
- Average CPM
- Average Position

20

Create Ad Group

From the Create Ad Group flow, users can have the ability to create new Ad Groups for a campaign. The creation process can differ for keyword-targeted and category-targeted campaigns.

25

New Ad Group for Keyword-targeted Campaigns

Users can have the ability to create one new Ad Group at a time for keyword-targeted Campaigns. During the Ad Group creation process, users can have to enter basic Ad Group information, enter keywords to associate with the 30 Ad Group and finally create the advertisements (creatives) to associate with the Ad Group. During the first step of the Ad Group creation flow, users can be prompted for the following basic information:

- Ad Group name
 - Ad Group description (optional)
- 35 Users can also enter a list of keywords into a free-form text box - one keyword per line - and enter a default Max CPC value for the set of keywords. Keyword tagging (board and exact) can be supported in the Ad Portal to indicate matchtype (exact match keywords can be contained within double quotes). All 40 keywords can be normalized as follows (with no notification to the user):
 - Converted to lowercase
 - Duplicate whitespace removed
 - Leading and trailing whitespace removed

5 Only the following characters are allowed in keyword strings in a particular embodiment:

Allowed special characters: . ' / - <space>

Allowed German characters: ä é ð ü ß

Allowed alphanumeric characters: a through z, 0 through 9.

10 Inclusion of any special characters not on the lists above can trigger an error message. If a user enters a duplicate with the same matchtype in the list of keywords when creating or editing an ad group, the duplicate can be dropped and no error message can be displayed.

15 After clicking the 'Continue' button, users can be forwarded to the next step where they can have the ability to create advertisements (Creatives), which includes Ad text, an Ad image (optionally) and a destination URL (Landing Page) for the Creative. Upon choosing a Creative-type, users can be presented with a form to enter their Creative details. For each creative, users can enter the following fields:

- 20 • Title (required)
- Description (line 1) (required)
- Description (line 2) (optional)
- Display URL (required)
 - o Should not include the "http://" or "https://" portion of the URL
- 25 • Destination URL (required)
 - o Should include the "http://" or "https://" portion of the URL

Field	Minimum Size (chars)	Maximum Size (chars)
Title	1	55
Line 1	1	37
Line 2	0 (optional)	37
Display URL	unlimited	unlimited

30 In addition, we should verify that the specified Destination URL is a valid link, and the domain of the Display URL matches the domain of the Destination URL. They can also have the option to upload an Ad Image for the creative. Uploaded images can be automatically resized and formatted in-line with publisher ad image requirements before being stored in the server. The link to the image on the server can be stored in the Ad Portal database. Users can have the ability to optionally insert a {keyword} replacement tag within their creative text that can be substituted with the keyword string (not the search

5 string) before being served. However, a *{keyword}* replacement tag may not be supported for category campaigns.

Users can specify their keyword insertion criteria by inserting the following into their creative text (headline, line 1, line 2 and/or display URL) and Landing Page field at the Creative level: {param1:param2}

- 10 • param1 can be used to indicate that this is a keyword substitution tag and may have one of the following values (to indicate capitalization rules):
 - Keyword - Capitalize only the first letter of the keyword string
 - keyword - Do not capitalize any part of the keyword string
 - KeyWord - Capitalize the first letter of each word of the keyword string
 - KEYWORD - Capitalize the entire keyword string
- 15 If any other format is specified an error should be displayed to the user.
- param2 is the backup string and is used if the keyword cannot be inserted into the creative text. Currently the only event that triggers this condition is if inserting the keyword string into the creative causes that part of the creative to exceed the length limit. In the future it could be triggered by other conditions (trademark rules, etc.)
- 20 • A backup string is required, but the user can elect to have a blank substituted as the backup by entering {keyword:} Backup strings can consist of multiple words, for example {keyword:Nokia Cell Phones}
- 25 • Backup strings are interpreted explicitly (capitalization rules are not applied).
- The creative (not the keyword) special character restrictions also apply to backup strings.
- Leading and trailing spaces in the param2 field should be automatically trimmed by the Ad Portal without notification to the user (and before testing field length rules).

30 Creative field length restrictions should be applied by the Ad Portal by comparing the summed character count of the backup string plus the non-tag portion of the creative text against the limit. For example, the creative line, "Looking for {keywordxool stuff}" should be considered to have 22 characters. If the length restriction is exceeded, a message should be displayed to the user. In a particular embodiment, only the following special characters are allowed in creative strings:

35 40 Allowed special characters: # \$ & _ - " [j ' + . , / : % ? ! ® ™ <space>
 Allowed German characters: ä Å é ð Ö ü Ù ß € « »
 Allowed alphanumeric characters: A through Z, a through z, 0 through 9

45 Inclusion of any characters not on the lists above should trigger an error message. For both creative- and keyword- level landing pages, the domain of the display (friendly) URL must match the domain of the destination URL. This rule can be enforced by the Ad Portal. In addition, if the Destination URL is for a

5 host item listings page, a call to a host API can be made to ensure that the item has been approved. After the user has entered data for a creative, they can have the option to either 'Continue' (if they do not need to add any more Creatives) or 'Save and Create New'. If they click the latter, the saved preview for the Creative can be displayed at the bottom of the page (along with any other saved 10 creatives), and the user can have the ability to repeat the process to add another Creative. In a particular embodiment, we can allow five creatives per Ad Group (with the ability to increase this limit to 10). After the user has entered their last Creative, they can click the 'Continue' button to proceed to the keyword-level data setup page.

15 After clicking the 'Continue' button, users can be forwarded to the next step where they can have the ability to optionally alter the CPC value and landing page for each of the keyword-matchtypes they entered earlier. Keyword-level landing pages are optional - if a user has not chosen a keyword-level landing page for a particular keyword, the creative-level landing page can be 20 used instead. Keyword-level Max CPC values are optional - if a user has not chosen a keyword-level Max CPC for a particular creative, the Ad Group-level Default Max CPC can be used instead. At this point the user has completed entering all of the necessary information for their new Ad Group. During this 25 last step, users can have the ability to review the details of their Ad Group to make any necessary changes before they click the 'Create' button to complete the process. By clicking "Create", user can be prompt with "create another ad group?" option. If user chooses "yes", user can be directed to create a new ad group within the same campaign; selecting "no" can direct users to campaign dashboard.

30

Ad Groups for Category-targeted Campaigns

The Ad Group creation process for category-targeted campaigns can be designed to facilitate multi-category targeting. From a single flow, users can have the ability to associate multiple categories with a single set of Creatives. 35 Users can have to go through the creation flow for each distinct Creative Set that they wish to create. The application can create one new Ad Group per category.

During the first step of the Ad Groups creation process, users can be prompted to select the categories for targeting. Users can have the ability to

5 navigate through the Ad Portal category tree structure and add categories to the targeted list. Tree level can be shown wherever category name is displayed. In addition, users can have the ability to specify a default CPC that can be applied to all Category Ad Groups (they can modify this on a per-category basis later).
10 After clicking the 'Continue' button, users can be forwarded to the next page in the flow - CPC selection. On this page, users can select a Max CPC value for each of the categories selected in the first step. The next step in the process can be the Creative Set and Landing Page selection. The UI for this page can be the same as the corresponding page in the keyword-targeted Ad Group flow.

At this point the user has completed entering all of the necessary
15 information for their new category-targeted Ad Groups. During this last step, users can have the ability to review the details of their Ad Groups to make any necessary changes before they click the 'Create' button to complete the process. The application can create one Ad Group per selected category. Users cannot have the ability to assign keywords to category-targeted Ad Groups. Instead, the
20 application can maintain a keyword list for each category. This list can be hidden from the user completely. The application can manage optimization and external partner bidding at the keyword-level (with the Ad Group-level Max CPC bid used for all keywords), but all category-targeted reporting (both UI and downloadable reports) can be summarized at the Ad Group (category) level.

25

Ad Portal Category Hierarchy

The Ad Portal can leverage the host product/service category structure, with the following assumptions:

- 30
- A distinct category structure can be maintained for each country, and can be displayed conditionally based on the country selected at the Campaign-level
 - New categories can be added at any time, but categories cannot be edited or removed.

35

5 Optimization for Category-targeted Ad Groups

We can assume the following:

- 10 1) Category-targeted ads can be in play with keyword-targeted ads when a search query is available during real-time optimization.
- 2) Only category-targeted ads can be displayed when users are browsing host listings (no search query is available).

It is assumed that the real-time optimizer can only optimize for a keyword (search query string), not category, therefore:

- 15 • In order to support the first requirement (search use case), the Ad Portal can maintain a mapping of Ad Portal Category to Keyword list. If user bids on a category, the offline optimization engine can treat it as if they bid on that entire keyword list utilizing the Max CPC set at the category (Ad Group) level and the Broad matchtype. This concept of keyword-targeting for category-targeted Ad Groups can be hidden from the user and no reference can be made to it in the user interface.
- 20 • In order to support the second requirement (browse use case), the Ad Portal can maintain a mapping of a category token keyword to each Ad Portal category.
- 25 o A hash function applied to the Ad Portal category ID and the targeted country code can be utilized to generate each category token keyword. During real-time, the hash function can also be utilized by the Ad Server to translate the host category ID and site ID (translated into the country code) passed by the publisher into a keyword string (when no search string is available).
- 30 o This keyword can be treated as an Exact match keyword.

The Ad Portal can distinguish between the two category-keyword mappings above so that they may be interpreted differently by the Offline Optimization job.

5 *Edit Ad Group*

For both keyword-targeted and category-targeted campaigns, users can only have the ability to edit one Ad Group at a time. When selecting the 'Edit Ad Group Settings' link from the Ad Group dashboard, users can be forwarded to a page where they can modify the following Ad Group settings:

10

- Default CPC
- Creatives
- Keyword list (keyword-targeted Ad Groups only)

15

Users cannot have the ability to edit the category setting in category-targeted Ad Groups. Edit Creative can be treated as delete existing creative and adding a new one. Performance data for the edited creative can be lost. Edit Landing Page is considered an update (but not delete/add) and performance data can be maintained.

20

Edit Keyword

25

From the Ad Group dashboard, users can have the ability to click on individual keywords to modify their properties. From the Edit Keyword page, users can modify the following:

30

- Status
- Max CPC
- Landing Page
- Matchtype

Minimum and Maximum Bid

35

There can be minimum bid and maximum bid set at the portfolio level for both keyword and category Max CPC (cost per click) and can be stored in US dollars in the database. In addition, there can be minimum bid sets for individual keyword Max CPC and can be stored in US dollars in the database. During Ad Group creation, there may not be a validation on the UI (user interface) for the keyword Max CPC entered by user against portfolio-level minimum/maximum bid and keyword-level minimum bid. Once the Ad Group is saved, Max CPC for each keyword (if no Max CPC is defined for the keyword, use Ad Group's default Max CPC) can be checked against portfolio-level minimum/maximum

40

5 bid and keyword-level minimum bid. If the Max CPC is higher than the maximum bid (portfolio), an error message can be shown: *The Max CPCfor the following [keyword/ad group] has exceeded the maximum allowable amount of [amount in local currency]: [keyword/ad group]*

If the Max CPC is lower than either of the minimum bid (portfolio,
 10 keyword-level), the status of corresponding keyword can be changed to "inactive" with reason code "below minimum bid". There should be UI message "Please increase your Max CPC for this keyword" next to the corresponding keyword in Ad Group dashboard. When the Max CPC of the ad group is updated, the same validation should be triggered for all keywords without a
 15 defined Max CPC. If the updated Max CPC is higher than the maximum bid, an error message can be shown:

The Max CPCfor the following [keyword/ad group] has exceeded the maximum allowable amount of [amount in local currency]: [keyword/ad group]

If the updated Max CPC is higher/equal to the minimum bid (but below
 20 the maximum bid), the status of the corresponding keyword(s) can be changed from "inactive" to "inactive (user paused)". **Only keyword with the "inactive" status with reason code "below minimum bid" is eligible to be changed to "inactive (user paused)". In addition, the same validation should be applied to each keyword when Max CPC of that keyword is updated. If the updated Max
 25 CPC is higher than the maximum bid, an error message can be shown: *The Max CPCfor the following [keyword(s)] has exceeded the maximum allowable amount of [amount in local currency]: [keyword1, keyword 2, keyword S]*

If the updated Max CPC is changed to NULL or higher/equal to the minimum bid (but below the maximum bid), the status of the corresponding
 30 keyword can be changed from "inactive" to "inactive (user paused)". Only keyword with the "inactive" status with reason code "below minimum bid" is eligible to be changed to "inactive (user paused)".

If a user's Max CPC at the category level exceeds the max bid, show an error message to the user that says the following: The Max CPC for the
 35 following [category] has exceeded the maximum allowable amount: [category name]

If a user's Max CPC at the category level is below the min bid restriction, do not show an error to the user and just set the status of that category to inactive

5 with a reason of "below minimum bid". The user's Max CPC at the category level should be checked against both the portfolio min/max requirement AND the category-level min requirement (if set). It must satisfy the restrictions at both levels. This check should be made both during creation and if the Max CPC is edited. If a category has a status of Inactive (Below Min Bid) and the Max CPC
10 is edited and is no longer below the minimum bid restriction, the status should be changed to Inactive (User Paused) so that the user can decide when to activate it. The minimum bid and maximum bid can be applied for all keyword matchtypes. Keyword Ad Group's status will not be affected in respect to the minimum bid and maximum bid value. During each validation, the minimum
15 and maximum bids stored in US dollars can be converted real time using the latest conversion rate in the database to the currency of the user's account.

Account Info Page

20 From the Account Information page, users can have the ability to view and modify personal information and billing information.

Personal Information

25 Changes made to user Ad Portal account settings cannot propagate to the user Publisher Portal settings. The following fields can be displayed and can be modified (with the exception of the Country field):

- 30 • Email address
- Primary phone number
- Company/Individual name
- Address line 1
- Address line 2 (not required)
- City
- 35 • Country (non-editable)
- State
- Zip/Postal Code
- Business type
- Primary business model
- 40 • Business description
- host Seller Account User ID
- host Seller Account Password

5 Billing Information

Billing information can be set separately for users' Publisher and Advertiser Portal accounts.

10

UI Reporting

Reporting data can be available in the following UI pages:

15

- Account Dashboard (Campaign-level data)
- Campaign Dashboard (Ad Group-level data)
- Ad Group Dashboard (Keyword-level data)

20

Users can have the ability to export reporting data from each dashboard view. Exported report can be the complete data set (not just the current page) without pagination. Existing Publisher file format for UI reporting can be used, i.e. excel or tab delimited text files. For both the UI view and export, users can have the ability to specify a date range for the report where range restriction can be the same as the UI view. Historical data can be available for the previous 6 months. All monetary data elements can be displayed with the currency set for the Account.

25

Figure 17-19 illustrate revenue allocations for ads displayed on web pages in a particular embodiment.

30

Figure 20 illustrates basic advertising components of a particular embodiment.

35

- AdUnit
 - Combination of advertiser , Keyword (KW) and match Type
- AdUnitGroup
 - A set of AdUnits defined in NorAd (Optimization Management Console).
 - An AdUnit can be active in ONLY one AdUnitGroup
- Model
 - A set of predefined parameters (coefficients) for a set of variables

- 5 An AdUnitGroup can have multiple models but can the traffic can be split among these (rotation basis)
- Assumptions
 - An AdUnit can belong to only one AdUnitGroup
 - An AdUnitGroup can have one or more models associated with it.
- 10 Total rotation percentage is always 100
- Figure 21 illustrates operations for setting up advertising models and model level controls in a particular embodiment.
- 15 ▪ Pick up a set of AdUnits and create an AdUnitGroup
- Create one or more models and set up values for coefficients for each one
 - Assign rotation percentage (total must be equal to 100 for an AdUnitGroup)
- 20 Figure 22 illustrates an ad call processing flow in a particular embodiment. In Figure 22, the Keyword Cleansing component (2210) includes the following:
- Keyword Cleansing (2210): User entered search string can be edited for:
 - Special characters or symbols
 - Before the search string goes to optimizer, a very basic cleansing can be done - such as removal of &, extra spaces, convert all to lower case
 - Articles (a, an, the) - Later phases
 - Propositions - Later phases
 - Many other noise words - Later phases
 - An Ad Validator and RealTime cleansing component can follow the same approach for cleansing the special characters and symbols
- 30 35 In Figure 22, the Randomizer Process component (2220) includes the following:
- Global Level Randomness: Global parameter to pick up ads randomly.

- 5
 - For e.g. 2% of the overall traffic can always have one "sub-optimally" ranked ad
 - Randomizing Approach: Random function that gives 98 % to 2 % spilt
 - What can Ad container have:
 - In a container, it can be a combination of score based and 1 random ad
 - Only one position (last one) can have suboptimal ad
- 10
- 15
- 20

In Figure 22, the Rotation Approach component (2230) includes the following:

- 15
 - An AdUnitGroup can have multiple models associated with it
 - There would be pre-defined rotations among those models
 - # of models across AdUnitGroups (for a given input context) can be asymmetric
 - Rotation Approach: Round robin based on time
 - e.g: If the traffic is a 60/40 split between 2 models, first 3 min can be given model 1 then 2 min can be model 2 and so on.
- 20

In Figure 22, the Context or Category Translation component (2240) includes the following:

- 25
 - Input query string (context) can be
 - a KW (user entered) or
 - an host Category (browsing pages)
 - In case it's an host category, there can be some "translation" from category to KW
 - Options # 1
 - Use category name = KW
 - When the ad call type is category, we can do exact match on the "category" KW
 - Option # 2
 - Maintain a set of KWs for each category
- 30
- 35

In Figure 22, the Keyword matching component (2250) includes the following:

- 5 ■ Exact Match
- Query String = KW
- Phrase match
- This is basically exact match with all possible "ordered" and "consecutive" sub-sets.
- 10 • "blue ipod nano" SHOULD match "ipod" "blue", "nano", "blue ipod", "ipod nano" , "blue ipod nano"
- "blue ipod nano" should NOT match "ipod blue" (wrong order), "nano blue" (wrong order), "nano ipod" (wrong order) and so on
- 15 • "blue ipod nano" should NOT match "blue nano" (not consecutive) and so on
- "blue ipod nano" should NOT match "blue ipod nano case" (extra word) , "new blue ipod nano" (extra word) and so on
- Filter Ads based on models considered for current rotation cycle
- 20 ■ Grouping
- Pick one ad for each advertiser based on score
 - Treat all the Phrases matches the same for an advertiser
 - Pick "exact" over "phrase" for a advertiser

25 In Figure 22, the Keyword match proximity component (2250) includes the following:

- Preference can be given to exact match over phrase match
 - Preference can be given to all word phrase match over single word match in case of multi-words query string
- 30 ■ The preference can be reflected by multiplying the add with "some factor" at run time based on how keywords are matched against query string

In Figure 22, the Keyword relevancy component (2250) includes the following:

- Query string "blue ipod " SHOULD phrase match "ipod", "blue"
- Some words in the query strong is "HEAD" word. That defines the "intent"

- 5 □ Over time we can be able to know which word is the "intent"
 □ Feedback that knowledge into keyword matching logic
 □ Calculate the score/yield accordingly

10 Figure 23 illustrates a process for identifying ad units in random for a particular embodiment.

Figure 24 illustrates an example of the ad rotation process flow used for ad call processing in a particular embodiment.

15 Figure 25 illustrates a physical model for ad score and coefficient storage in a real time system for a particular embodiment.

Figure 26 illustrates a keyword scoring process based on contexts for a particular embodiment.

Figure 27 illustrates an example of the Scoring and Ranking (2260) used for ad call processing in a particular embodiment.

20 Figure 28 illustrates an example of the ad serving and impression tracking processing in a particular embodiment. Ad serving and impression tracking processing can utilize the page processing (RTM) platform, the ad server, and ad tracking platform to serve ads and track impressions. The ad request and response process in a particular embodiment is as follows:

- 25
1. The placement ID on the search and browse pages will be passed to RTM as the page is rendered.
 2. RTM logic determines whether or not to display an ad.
 3. If an ad should be displayed, then an ad request can be made to the ad server.
 4. The ad server can determine which ad to return, write tracking information to the Tracking File System, and return the XML in the response to RTM ad request.
 5. RTM will transform the XML into HTML, write to the query processor, and return the ad to the browser.
- 30
- 35

40 Figure 29 illustrates an example of the click and click tracking processing in a particular embodiment. Click and click tracking processing can utilize the page processing (RTM) platform, the click tracking processor, and Mediaplex platform to track clicks. The click tracking and response process in a particular embodiment is as follows:

- 5 1. When a user clicks on an ad, they will first be redirected to RTM.
2. RTM will write to the query processor and can then redirect to the
click tracking processor.
3. The click tracking processor can apply click filtering rules.
4. The click filtering rules can determine if the click is not legitimate. In
10 this case, the tracking information can be written to the Tracking File
System and can redirect users to the final landing page, but the
budget will not be impacted and the event will not be sent to
Mediaplex
15 5. If the click is legitimate, then click tracking processor can send
information about the event to Mediaplex, write tracking information
to the Tracking File System, impacts to the budget will be recorded
and then redirect users to the final landing page.

Figure 30 illustrates an example of the real-time impression and click
20 filtering processing in a particular embodiment. Real-time impression and click
filtering processing can utilize the click tracking processor and Mediaplex
platform for impression and click filtering. The real-time impression and click
filtering processing in a particular embodiment is as follows. In real-time, the
click processor can check against the following rules:

- 25 b. The GUID of the RTM request must be newer than N seconds
 (Initially the "N" will be set to 15 seconds.)
c. The User-Agent must be one of the white listed agents. For
example, the following user agents can be supported.
30 i. Internet Explorer
 ii. Firefox
 iii. Safari
 iv. Opera

This check may only be done for click tracking. If the user agent
35 is not one of the supported user agents, the click may be
considered to be an invalid click and the budget should not be
deducted.

- 40 d. The impression command checks if the impression was generated
within last N milliseconds, otherwise the impression is considered
as a fraud (too slow impression. Replay?). The generated content
includes an impression URL and several Click URLs. All of those
URLs have some part encoded using eSAMS rotating keys stored

- 5 in the database. The encoded part contains timestamp and
globally unique impression ID. The click URLs may be
encrypted using eSAMS.
- 10 e. The click command checks if the command was NOT generated
within the last M milliseconds (initially M will be set to 24
hours). The impression timestamp can be sent as a part of the
Click URL. When the click is received by the Ad server, the
timestamp can be extracted from the URL and compared against
the system time. If the (click time - impression time) is greater
than "m" milliseconds, the click will be considered invalid and
the budget will not be deducted. "M" can be configurable using
the host site parameters table. With the initial configuration any
clicks that occur exceeds 24 hours are considered to be invalid.
- 15 f. Traffic Limiter - A host traffic limiter can provide the ability to
filter IP addresses that are hitting a particular page too frequently.
The following rule can be created. If an IP address hits the click
processor pool "x" times in "y" seconds, then block this IP
address for "z" seconds.
- 20 i. X can initially be set to XX
ii. Y can initially be set to YY
25 iii. Z can initially be set to ZZ; this can range from a
minimum of 10 seconds to a maximum of 24 hours.
- 30 This rule can be applied to the Ad Click Commands only. It will
not be applied to the RtmClk commands. This rule will not be
applied to the AD Serving commands.
- 35 g. It is understood that click processing may want to use this rule to
identify recurring offending IPs so that they can be permanently
blocked if necessary
- ALL click events, even those marked as fraudulent, can be sent to
Mediaplex. Impression events may not be sent to Mediaplex. Any impression or
click event that is flagged as filtered must not do any of the following:
- h. Impact budgets

- 5 i. Be reported to advertisers
j. Impact click-through rate calculations

Because click processing may apply real-time and off-line click and impression filtering, it may be necessary to reconcile against the list of correlated
10 events that are returned in the Mediaplex data feed.

Figure 31 illustrates an example of the optimizer in a particular embodiment. The Optimization Management Console can be a web-based tool that allows administrative users to control the way Ad Units are scored by both the offline and real-time optimization systems of a particular embodiment.
15 Referring to Figure 31, an Ad Unit is a container that represents the most granular level of ad detail for which we can set optimization controls. These controls can include:

- 20 • Account (Advertiser)
• Keyword
• Matchtype
• Creative
• Max CPC (bid)

An Ad Unit is created for each distinct combination of the fields above.
25 The real-time optimizer can optimize at the Ad Unit-level. Note that the system can allow scalability of the Ad Unit dimensions. It is understood that the system can optimize on additional dimensions. An Ad Unit can automatically be assigned to an Ad Unit Group by a scheduled batch job based on defined rules. The Optimization Management Console can allow administrative users to
30 control scoring at the Group-level by manipulating Group settings and Scoring Model assignment.

From the Console UI, users can have the ability to set the following parameters for each Ad Unit Group:

- 35 • Overall Scaling factor
• Match (in context) score scaling factor
• Offline (intra-day) score scaling factor
• Offline (daily) score scaling factor
• Match tokens scaling factors
• Max score
40 • Min score

A Scoring Model is a set of defined parameters (coefficients) that are applied to a set of variables. Users can create Scoring Models outside of the Ad

5 Unit Group creation and assignment flows. Users can set the following basic criteria for a Scoring Model:

- Folder Name (or choose from existing folder)
- Model Name
- Model Description

10 Users can then assign coefficients to the various scoring parameters.

Parameters can be one of the following types:

- Daily parameter - Calculated offline on a nightly basis.
- Intra-day parameter - Calculated on a recurring basis at regular intervals throughout the day

15 From the Console UI, users can have the ability to assign Scoring Models to an Ad Unit Group. Users can assign multiple models to a single Ad Unit Group (up to a max limit), and a single model can be applied to multiple Ad Unit Groups. An Ad Unit Group is not considered active (and cannot be processed by the Offline Optimizer), unless it has at least one model assigned to it. After users
20 have selected the models to associate to the Ad Group, they can enter their rotation distribution settings. Users can set a rotation percentage for each model. The rotation percentages can be defaulted to $1.00/\# \text{ of models}$ and must add up to a total of 1.00 (100%).

25 Optimization

From the Console UI, users can have the ability to assign Scoring Models to an Ad Unit Group. Users can assign multiple models to a single Ad Unit Group (up to a max limit), and a single model can be applied to multiple Ad Unit Groups. An Ad Unit Group is not considered active (and cannot be processed by
30 the Offline Optimizer), unless it has at least one model assigned to it. After users have selected the models to associate to the Ad Group, they can enter their rotation distribution settings. Users can set a rotation percentage for each model. The rotation percentages can be defaulted to $1.00/\# \text{ of models}$ and must add up to a total of 1.00 (100%).

35 In a particular embodiment, the Optimizer can include an offline optimizer and a real-time optimizer. The offline optimizer can generate rule sets for use by real-time optimizer. The Offline Optimizer is a batch job that calculates the Offline score for every active Ad Unit. An Ad Unit is a container

5 that represents the most granular level of ad detail for which we can optimize.

This can include:

- Account (Advertiser)
- Keyword
- Matchtype
- 10 • Creative
- Max CPC (bid)

An offline score may not be factored into the real-time optimization model, but the infrastructure can be designed to support real-time optimization 15 based on both CPC (cost per click) and an offline score. For category-targeted Ad Groups, users may not have the ability set or manage keyword-level data in the Ad Portal UI and keyword-level data may not be present in the Ad Portal campaign tables. Instead, a mapping can be maintained between each Ad Portal category and a keyword list. The optimizer can use this mapping to generate 20 keyword-level Ad Units for category-targeted Ad Groups, while assuming the following:

- Landing Page and Max CPC data set at the category (Ad Group) level can be used for all category Ad Units.
- 25 • The Phrase matchtype should be used for all search-targeted keywords. The Exact matchtype can be used for the browse listings token keyword (one per Ad Portal category).
 - o The category keyword-type (search-targeted or browse token) can be available.

30 At the conclusion of the Offline Optimizer run, the Ad Unit identifying information (including Max CPC) and additional data necessary for ad serving can be pushed into memory for access by the Real-time Optimizer. The Offline Optimizer can send over a static Model ID along with the data above for access 35 by the Real-time Optimizer. Doing this can minimize the infrastructure and code changes that would be necessary once the system is enhanced to support multiple models.

Real-Time Optimizer

During real-time operation, the RTM can make an ad request call to the 40 Ad Server (see above). The following data passed in from RTM can be relevant for ad optimization by the Ad Server:

- User search query (if available)

- 5 • Host Site ID
• Host Category ID
• Number of ads
• Advertiser-type restriction (Host only, non-Host only, no restriction)
- 10 The Ad Server can do the following before making a call to the Real-time Optimizer:
- The Host Site ID can be used to determine the targeted Country
 - o US-targeted ads should be served to the Host US sites.
 - o Germany-targeted ads, for example, should be served to the Host DE sites.
 - The user search query and category ID can be used to determine the keyword:
 - o User search query can be normalized
 - The user query can be converted into lowercase.
 - German characters:
 - o ä should be substituted for Ä
 - o ð should be substituted for Ö
 - o ü should be substituted for U
 - o é and ß do not have multiple cases and therefore do not require substitution
 - All characters not allowed in keyword strings can be substituted with " " (whitespace). This includes any character not in the following lists:
 - Allowed special characters: . ' / - <space>
 - Allowed German characters: ä é ð ü ß
 - Allowed alphanumeric characters: a through z, 0 through 9
 - Duplicate, leading and trailing spaces can be removed (after special character whitespace substitution is applied)
 - o If the search query is not null, the normalized query can be interpreted as the keyword
 - o If the search query is null, a hash can be applied to the combination of the category ID and country code to determine the keyword string
 - o If both the search string and category ID fields are null, no ads can be returned.

45 The Ad Server can make a call to the Real-time Optimizer, passing in the following data:

- Keyword
- Number of ads
- Country
- Advertiser-type restriction

50

5 Based on the parameters above, the Real-time optimizer can determine which ads should be served. To do this, the optimizer can calculate a final score per qualifying Ad Unit per model, and serve the top n ranked ads (where n is the number of ads requested by RTM). In order for an Ad Unit to qualify, it must satisfy the following criteria:

- 10 • For exact match Ad Units, the Ad Unit keyword string must exactly match the keyword passed in from RTM.
- For phrase match Ad Units, the entire keyword string must appear as whole (with no breaks in between) in the search string passed by RTM.
 - o For example, for the search string "cheap brand new blue ipod nano"
 - Keywords "blue ipod", "ipod nano", "new blue ipod", and "cheap brand new blue ipod" are all eligible.
 - Keywords "cheap ipod", "blue ipod nanos", "cheap brand new blue ipod nano plus" and "blue nano" are not eligible.
- 20 • For all ads, the corresponding Ad Group should not have met or exceeded its daily allotted budget. This can be determined by making a real-time call to the budget server.
- If an Advertiser-type restriction is specified, the ad must have the following characteristics:
 - o If only Host ads must be served, the landing page domain must equal *.host.*
 - o If only non- Host ads must be served, the landing page domain must not equal *.host*
- 30 • The ad must be targeted to the Country that is passed in from RTM. RTM can translate the localized site into the Country.

If users have inserted a *{keyword}* replacement tag within their creative text, it can be substituted with the keyword string (not the search string) before being served. For qualifying Ad Units, a final score can be determined per Ad Unit per model by using the following parameters:

- Max CPC
- Offline Score
- Match Score

40 The Match Score is a static multiplier that can applied based on the degree to which a keyword matches the search string passed in by RTM. For exact match keywords, a constant multiplier can be applied to all keywords (this may be 1.0). For phrase match keywords, the degree of the keyword match can be determined by the following formula:

45

$$\text{Degree of Match} = (\# \text{ of words/tokens in keyword string}) / (\# \text{ of words/tokens in search string})$$

5

For each "degree of match" range, we can maintain a match score multiplier that can be applied for phrase match keywords that fall in that range. It can be assumed that the ranges can cover 0-100% without any gaps or overlaps. The factors that determine the Match Score may not be configurable through any user interface, but it should be designed in a way that allows modifications on an infrequent basis.

For a segment of served ads, a degree of randomness (Perturbation Factor) can be applied to the final score for eligible Ad Units before the final ranking is determined. The Perturbation Factor is a dynamic multiplier that can conditionally apply a degree of randomness for a segment of served ads. We can making the following assumptions:

- Perturbation can be applied for a specified static percentage of Ad Server calls
- Perturbation can be applied for a specified static segment of ads within an Ad Server call (i.e., the last ad returned for a placement)
- A distinct perturbation multiplier can be applied to each ad eligible for perturbation
 - o In order to be eligible for perturbation, an ad must be preliminarily ranked at or below the position(s) that are being targeted for perturbation (i.e., if perturbation is being applied to the last ad for a placement containing 3 ads, all ads ranked 3 or below can be eligible). The ad that would have normally been displayed is still in play for perturbation.
 - o The Perturbation Factor can be randomly generated for each eligible ad and can be confined to a defined static range (i.e., random factor between 0.70 and 1.20).

The Real-time Optimizer applies all of the multipliers above to the Max CPC for each Ad Unit to determine the Effective CPC (eCPC) for each. The Optimizer can return the top n ranked ads by eCPC (where n is the number of ads requested by RTM) to the Ad Server, which can then pass the data back to RTM (see *above*). The Optimizer may not return more than one ad from the same Account (Advertiser) for a single RTM call. In addition, no more than one ad per account (advertiser) should be served per RTM call.

For example, in reference to the table below, if RTM requests 5 ads for the search string "nintendo wii remote", Optimizer may determine that ads 1-5 below should be served:

Rank	Keyword	Matchtype	Max CPC	Match Multiplier	Perturbation Multiplier	Effective CPC
1	Nintendo Wii Remote	Exact	\$0.60	1.00	1.00	\$0.60
2	Wii Remote	Phrase	\$0.80	0.70	1.00	\$0.56
3	Nintendo Wii Remote	Exact	\$0.50	1.00	1.00	\$0.50
4	Wii Games	Phrase	\$0.60	0.55	1.00	\$0.33
5	Nintendo Wii Remote	Exact	\$0.30	1.00	0.92	\$0.28
6	Nintendo Wii Remote	Exact	\$0.10	1.00	1.12	\$0.11

5

In order to determine the Actual CPC (the amount actually charged for a click) for each served ad, we can use the Vickrey Auction model. The Actual CPC for each served ad can be the minimum between:

- the Effective CPC for the Ad Unit ranked one below plus one cent, or
- the Max CPC of the Ad Unit

An additional multiplier may be applied globally on top of the value above to determine the final Actual CPC value. In this case, the assumption is that the multiplier can be less than 1.00 to ensure that the final Actual CPC value is not greater than the Max CPC value. In the example table above, if the Actual CPC multiplier is 1.00, the top ranked Ad Unit would have an Actual CPC value of \$0.57. Ad Unit #5 would have an Actual CPC of \$0.12.

A particular embodiment includes other features enabled by the design structures described above. These features can include: 1) Keyword Bidding by Category, and 2) Category Moniker.

In a particular embodiment of the Keyword Bidding by Category functionality, the association of keywords and category can build an affinity between keywords and categories. This affinity can be used to create an ad format with bidding on keyword & category level. 'Category' functionality can extend to other grouping functions, linked with host content including a host category hierarchy. In a particular embodiment of the Keyword Bidding by Category functionality, an example method can include the following operations:

- Identify keywords searched by buyers on a host site just prior to their purchases. In this method, we make sure to account for the ratio of

5 unique buyers to purchases to eliminate any noise in the data. There are tranches of these ratios to account for low and high number of purchases.

- The host site category of the purchase is noted.
- Normalize the keywords. All keywords with length greater than 80 are excluded. Any keyword with characters other than the allowed characters is excluded. Allow special characters: . ' / - <space>. Allow German characters: ä é ð ü ß. Allow the alphanumeric characters: a through z, 0 through 9.
- A keyword is mapped to only one host site category node with the site.
- Take the sum of bid counts for each category node level and total of bid counts for that keyword across categories in the same site.
- Calculate the percentage (%) of bid counts at each category node level and those categories are excluded which have less than 60% of bids on the keyword in that site. In a particular embodiment, there is a cap of a maximum of 5000 keywords per category

20

In a particular embodiment of the Category Moniker functionality, an example method can include the following operations:

- Create a special keyword (a category moniker) to denote or identify the set of keywords associated with the corresponding category.
- Enable a bidder to bid on the entire set of keywords associated with a category by allowing the bidder to bid on the category moniker.

30 Referring now to Figure 1, a diagram illustrates the network environment in which an example embodiment may operate. In this conventional network architecture, a server computer system 100 is coupled to a wide-area network 110. Wide-area network 110 includes the Internet, or other proprietary networks, which are well known to those of ordinary skill in the art. Wide-area network 110 may include conventional network backbones, long-haul telephone lines, Internet service providers, various levels of network routers, and other conventional means for routing data between computers. Using conventional network protocols, server 100 may communicate through wide-area network 110 to a plurality of client computer systems 120, 130, 140 connected through wide-area network 110 in various ways. For example, client 140 is connected directly

5 to wide-area network 110 through direct or dial-up telephone or other network transmission line. Alternatively, clients 130 may be connected through wide-area network 110 using a modem pool 114. A conventional modem pool 114 allows a plurality of client systems to connect with a smaller set of modems in modem pool 114 for connection through wide-area network 110. In another
10 alternative network topology, wide-area network 110 is connected to a gateway computer 112. Gateway computer 112 is used to route data to clients 120 through a local area network (LAN) 116. In this manner, clients 120 can communicate with each other through local area network 116 or with server 100 through gateway 112 and wide-area network 110.

15 Using one of a variety of network connection means, server computer 100 can communicate with client computers 150 using conventional means. In a particular implementation of this network configuration, a server computer 100 may operate as a web server if the Internet's World-Wide Web (WWW) is used for wide area network 110. Using the HTTP protocol and the HTML coding
20 language across wide-area network 110, web server 100 may communicate across the World-Wide Web with clients 150. In this configuration, clients 150 use a client application program known as a web browser such as the Internet ExplorerTM published by Microsoft Corporation of Redmond, Washington, the user interface of America On-LineTM, or the web browser or HTML renderer of
25 any other supplier. Using such conventional browsers and the World-Wide Web, clients 150 may access image, graphical, and textual data provided by web server 100 or they may run Web application software. Conventional means exist by which clients 150 may supply information to web server 100 through the World Wide Web 110 and the web server 100 may return processed data to
30 clients 150.

Having briefly described one embodiment of the network environment in which an example embodiment may operate, Figures 2a and 2b show an example of a computer system 200 illustrating an exemplary client 150 or server 100 computer system in which the features of an example embodiment may be
35 implemented. Computer system 200 is comprised of a bus or other communications means 214 and 216 for communicating information, and a processing means such as processor 220 coupled with bus 214 for processing information. Computer system 200 further comprises a random access memory

5 (RAM) or other dynamic storage device 222 (commonly referred to as main memory), coupled to bus 214 for storing information and instructions to be executed by processor 220. Main memory 222 also may be used for storing temporary variables or other intermediate information during execution of instructions by processor 220. Computer system 200 also comprises a read only
10 memory (ROM) and /or other static storage device 224 coupled to bus 214 for storing static information and instructions for processor 220.

An optional data storage device 228 such as a magnetic disk or optical disk and its corresponding drive may also be coupled to computer system 200 for storing information and instructions. Computer system 200 can also be
15 coupled via bus 216 to a display device 204, such as a cathode ray tube (CRT) or a liquid crystal display (LCD), for displaying information to a computer user. For example, image, textual, video, or graphical depictions of information may be presented to the user on display device 204. Typically, an alphanumeric input device 208, including alphanumeric and other keys is coupled to bus 216 for
20 communicating information and/or command selections to processor 220. Another type of user input device is cursor control device 206, such as a conventional mouse, trackball, or other type of cursor direction keys for communicating direction information and command selection to processor 220 and for controlling cursor movement on display 204.

25 Alternatively, the client 150 can be implemented as a network computer or thin client device. Client 150 may also be a laptop or palm-top computing device, such as the Palm Pilot™. Client 150 could also be implemented in a robust cellular telephone, where such devices are currently being used with Internet micro-browsers. Such a network computer or thin client device does not
30 necessarily include all of the devices and features of the above-described exemplary computer system; however, the functionality of an example embodiment or a subset thereof may nevertheless be implemented with such devices.

A communication device 226 is also coupled to bus 216 for accessing
35 remote computers or servers, such as web server 100, or other servers via the Internet, for example. The communication device 226 may include a modem, a network interface card, or other well-known interface devices, such as those used for interfacing with Ethernet, Token-ring, or other types of networks. In any

5 event, in this manner, the computer system 200 may be coupled to a number of servers 100 via a conventional network infrastructure such as the infrastructure illustrated in Figure 1 and described above.

The system of an example embodiment includes software, information processing hardware, and various processing steps, which can be described 10 below. The features and process steps of example embodiments may be embodied in machine or computer executable instructions. The instructions can be used to cause a general purpose or special purpose processor, which is programmed with the instructions to perform the steps of an example embodiment. Alternatively, the features or steps may be performed by specific 15 hardware components that contain hard-wired logic for performing the steps, or by any combination of programmed computer components and custom hardware components. While embodiments are described with reference to the Internet, the method and apparatus described herein is equally applicable to other network infrastructures or other data communications systems.

20 Various embodiments are described. In particular, the use of embodiments with various types and formats of user interface presentations may be described. It can be apparent to those of ordinary skill in the art that alternative embodiments of the implementations described herein can be employed and still fall within the scope of the claimed invention. In the detail 25 herein, various embodiments are described as implemented in computer-implemented processing logic denoted sometimes herein as the "Software". As described above, however, the claimed invention is not limited to a purely software implementation.

Thus, a computer-implemented method and system for keyword bidding 30 are disclosed. While the present invention has been described in terms of several example embodiments, those of ordinary skill in the art can recognize that the present invention is not limited to the embodiments described, but can be practiced with modification and alteration within the spirit and scope of the appended claims. The description herein is thus to be regarded as illustrative 35 instead of limiting.

CLAIMS

5 What is claimed is:

1. A computer-implemented method comprising:
 - identifying a keyword searched by a buyer on a host site just prior to their purchase transaction;
 - recording a host site category associated with the purchase transaction;
 - correlating the keyword with the host site category;
 - determining a revenue per click value associated with the keyword;
 - obtaining bidding information associated with the keyword; and
 - automatically generating a bid value for the keyword based on the revenue per click value, the bidding information, and the host site category.
2. The method as claimed in Claim 1 further including submitting the bid value via an API.
3. The method as claimed in Claim 1 wherein the bidding information is obtained via an API.
4. The method as claimed in Claim 1 wherein the host site category is obtained via an API.
5. The method as claimed in Claim 1 wherein the bidding information includes a last bid amount.
- 30 6. The method as claimed in Claim 1 including associating a category moniker with the host site category.
7. The method as claimed in Claim 6 further including submitting the bid value using the category moniker.

35

- 5 8. An article of manufacture comprising at least one machine readable storage medium having one or more computer programs stored thereon and operable on one or more computing systems to:
- identify a keyword searched by a buyer on a host site just prior to their purchase transaction;
- 10 record a host site category associated with the purchase transaction; correlate the keyword with the host site category; determine a revenue per click value associated with the keyword; obtain bidding information associated with the keyword; and automatically generate a bid value for the keyword based on the revenue per click value, the bidding information, and the host site category.
- 15
9. The article of manufacture as claimed in Claim 8 being further operable to submit the bid value via an API.
- 20
10. The article of manufacture as claimed in Claim 8 being further operable to obtain the bidding information via an API.
- 25
11. The article of manufacture as claimed in Claim 8 being further operable to obtain the host site category via an API.
- 30
12. The article of manufacture as claimed in Claim 8 wherein the bidding information includes a last bid amount.
13. The article of manufacture as claimed in Claim 8 being further operable to associate a category moniker with the host site category.
- 35
14. The article of manufacture as claimed in Claim 13 being further operable to submit the bid value using the category moniker.

- 5 15. A system comprising:
 a processor;
 a memory coupled to the processor to store information related to
 keywords; and
 an automatic keyword bidding module, operably coupled with the
10 processor and the memory, operable to identify a keyword
 searched by a buyer on a host site just prior to their purchase
 transaction; record a host site category associated with the
 purchase transaction; correlate the keyword with the host site
 category; determine a revenue per click value associated with the
15 keyword; obtain bidding information associated with the
 keyword; and automatically generate a bid value for the keyword
 based on the revenue per click value, the bidding information, and
 the host site category.
- 20 16. The system as claimed in Claim 15 being further operable to submit the bid
 value via an API.
17. The system as claimed in Claim 15 being further operable to obtain the
 bidding information via an API.
- 25 18. The system as claimed in Claim 15 being further operable to obtain the host
 site category via an API.
19. The system as claimed in Claim 15 wherein the bidding information includes
30 a last bid amount.
20. The system as claimed in Claim 15 being further operable to associate a
 category moniker with the host site category.
- 35 21. The system as claimed in Claim 20 being further operable to submit the bid
 value using the category moniker.

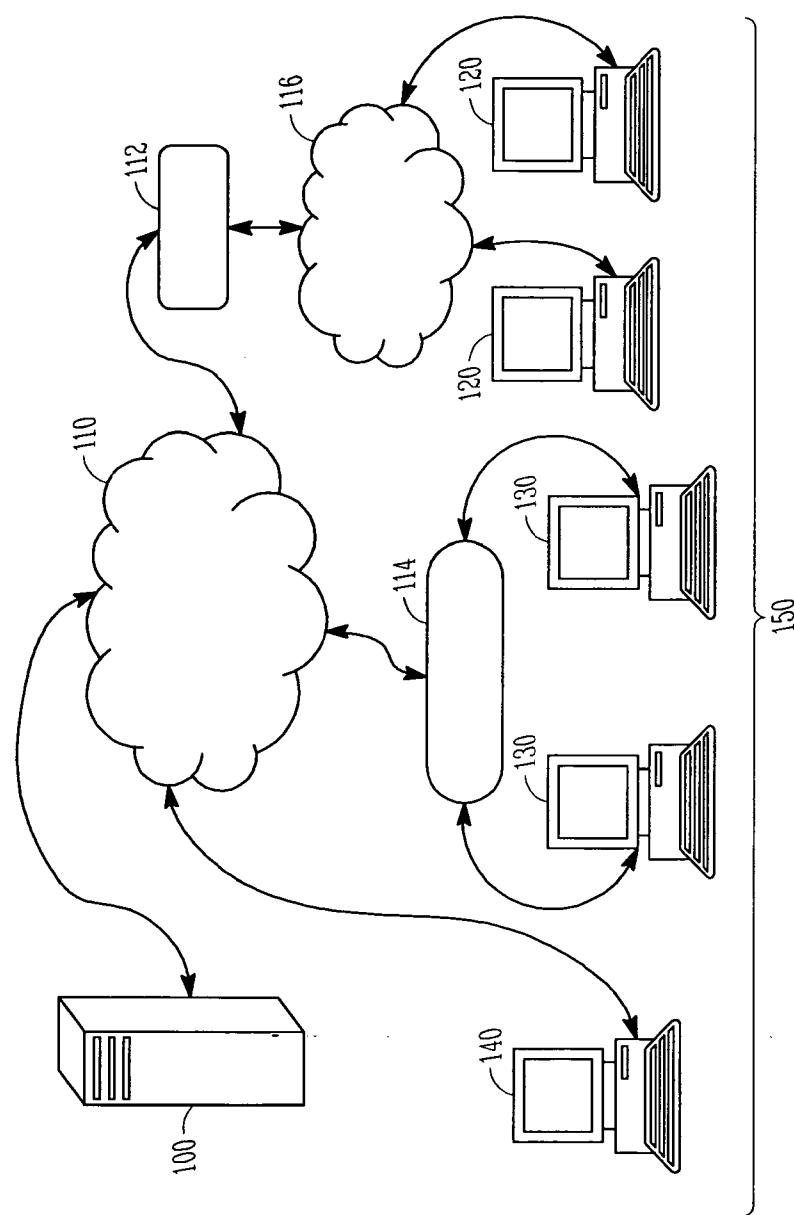


FIG. 1

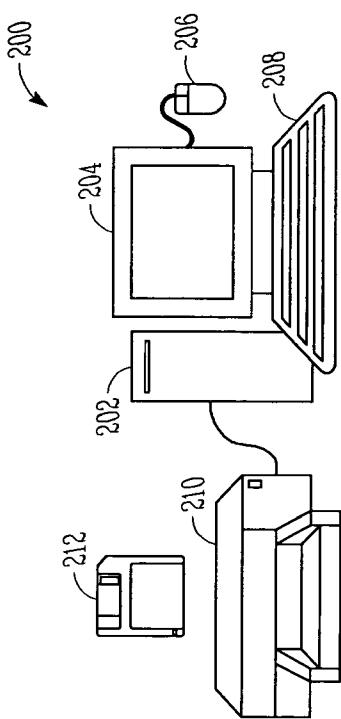


FIG. 2A

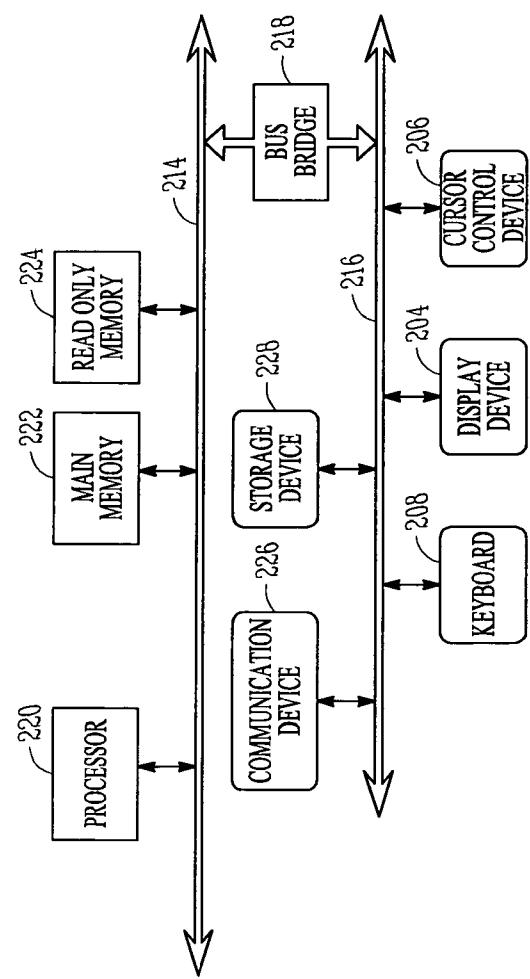


FIG. 2B

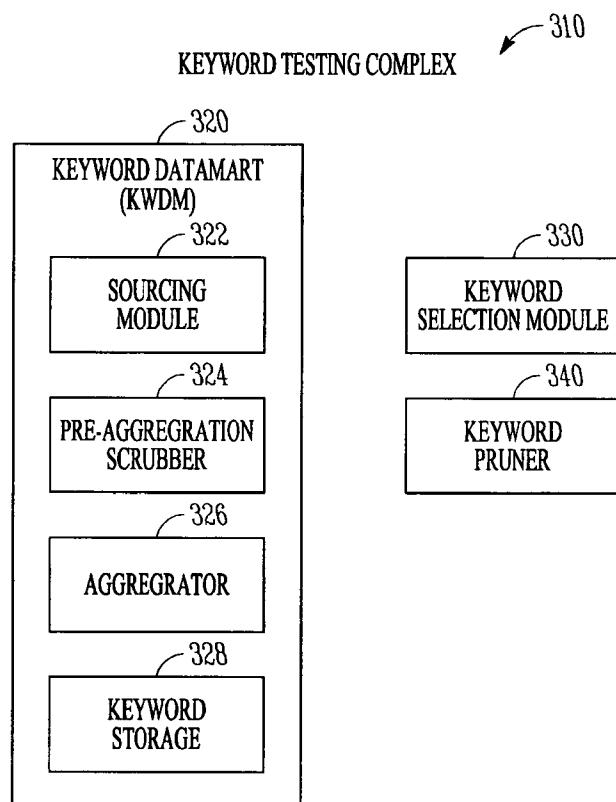
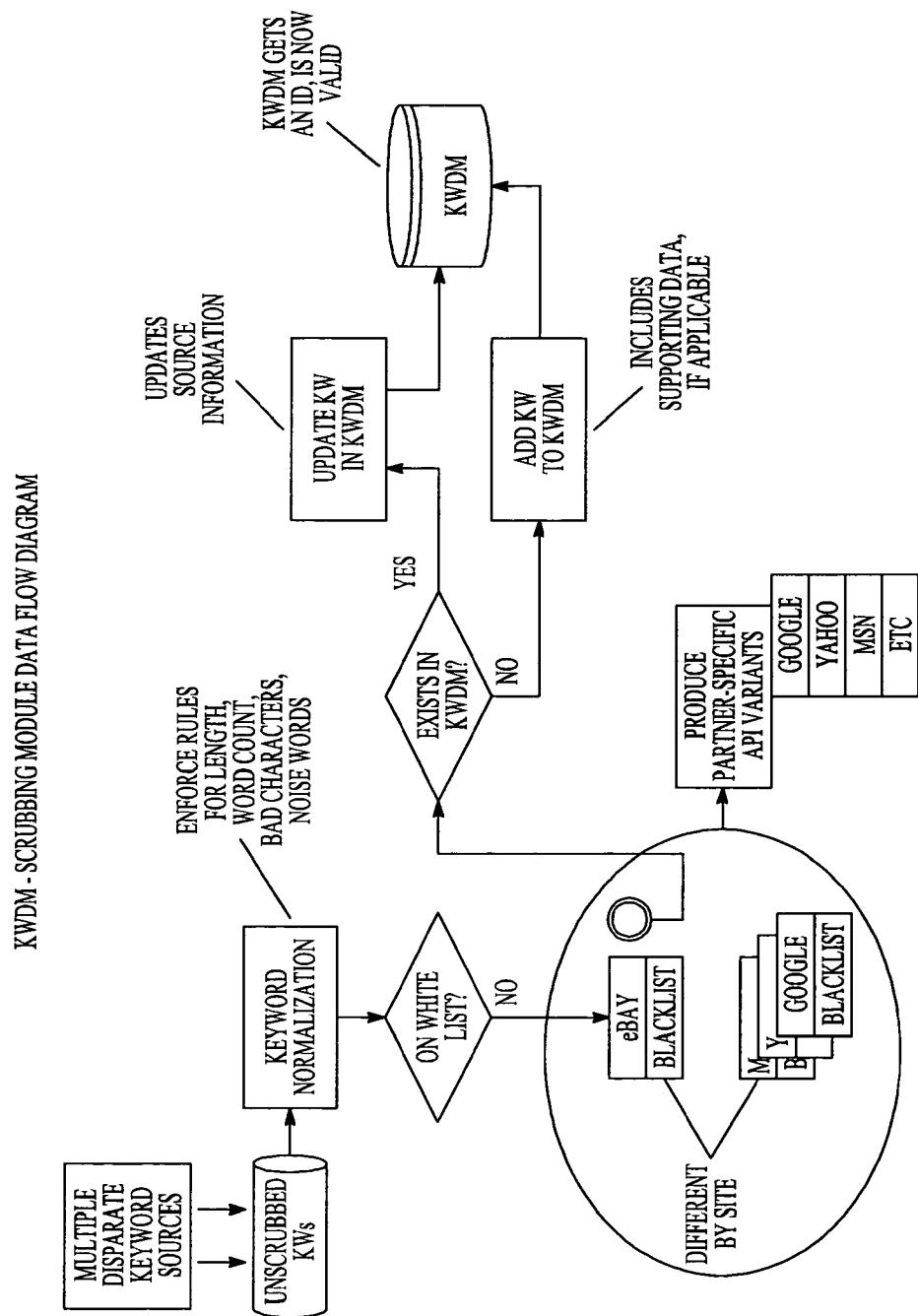


FIG. 3

**FIG. 4**

KEYWORD	GLOBAL DIMENSIONS				SOURCE SPECIFIC			TRAFFIC	CLUSTERING							
	YAHOO VOLUME	# EBAY VOLUME	# EBAY SEARCH RESULTS	AFF KW?	INTERNATIONAL KW?	NATURAL KW?	ETC.	AFFILIATE ID	WHICH COUNTRY	COUNTRY REVENUE	COUNTRY COST	ETC.	TRAFFICKED	CPC	CATEGORY AFFINITY	VCRU BY KW
KEYWORD 1	100	50	200	1				123	NA NA NA NA NA							
KEYWORD 2	3	0	3			1			NA NA NA NA NA							
ETC.																

FIG. 5

<u>KEYWORD</u>	<u>SCALED RPC</u>	<u>NEW BID</u>	<u>NEW NEXT BID</u>	<u>EXPECTED CPC</u>
MAPLE WOOD	0.247	0.26	0.26	0.22
	<u>CURRENT POSITION</u>	<u>CPChi</u>	<u>POS</u>	<u>CPClow</u>
	3	0.27	2	0.21
	<u>POS</u>	<u>MINIMUM DEVIATION</u>		
	4	0.043		
	<u>BID-2</u>	<u>DEVIATION-2</u>	<u>POSITION-2</u>	
	0.28	0.043	1	
	<u>BID-1</u>	<u>DEVIATION-1</u>	<u>POSITION-1</u>	<u>CEILING</u>
	0.27	0.033	2	0.35

FIG. 6

<u>KEYWORD</u>	<u>SCALED RPC</u>	<u>CPCaug</u>	<u>NEW CPCmax</u>	<u>PREVIOUS DAY CPCmax</u>
LONGABERGER POTTERY	0.66	0.14	0.77	0.77
	<u>IMPRESSIONS</u>	<u>CLICKS</u>	<u>COST</u>	<u>AVG. POS</u>
	67	5	0.68	1.1
	<u>\$ DEVIATION</u>	<u>% DEVIATION</u>	<u>CALC CPCmax</u>	<u>CEILING</u>
	0.52	78.70%	1.38	0.86

FIG. 7

FIG. 8

The Science of Search Marketing

Name	Partner	Active	Parameters	Groups	Delete
Google Experimental	Google US	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Google Main	Google US	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
MSN Experimental	MSN US	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
MSN Main	MSN US	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
New Yahoo ABC US	Yahoo US	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Yahoo Experimental	Yahoo US	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
Yahoo Main	Yahoo US	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X

Done Local intranet

Edit ABC Parameters: Google	
Default Minimum CPC	0.05 The minimum CPC we can bid for any keyword
Default Maximum CPC	2.00 The maximum CPC we can bid for any keyword
RPC Scaling Factor	0.20 The amount to adjust all RPCs by. Used to produce the Scaled RPC (Scaled RPC = RPC * RPC Scaling Factor)
Bid Ceiling Factor	1.30 Our bid amount should never exceed Bid Ceiling Factor * Scaled RPC
Bid Increment Factor	2.00 Limit all bid amount increases to no more than this % change
Bid Increment Velocity Factor	1.00 The amount to adjust the final bid by during upward movements of the bid
Bid Decrement Factor	1.00 Limit all amount decreases to no more than this % change
Bid Decrement Velocity Factor	1.00 The amount to adjust the final bid by during downward movements of the bid
Mac Acceptable Average Position	1.50 The goal for Avg Position. If we are spending less than the scaled_rpc and the Avg Position is greater than this...up our bid!
No Activity Delay Period	5.00 When there is no activity (no clicks, no impressions) dont do anything until this many days have passed
No Clicks Increment Factor	0.15 When there is no clicks at the end of the No Activity Delay Period then we want to increase the bid amount by this factor
No Impressions Increment Factor	0.25 When there is no impression at the end of the No Activity Delay Period then we want to increase the bid amount by this factor
Initial Bid Scaling Factor	1.10 The first bid for a new keyword is the (TPC * TPC Scaling Factor * Initial Bid Scaling Factor). NOTE: The initial bid must be below the Bid Ceiling, otherwise the Bid Ceiling will be used instead
Default RPC	0.10 The RPC value to use when no other RPC has been determined for a keyword
	<input type="button" value="Update Params"/>

FIG. 9

FIG. 10

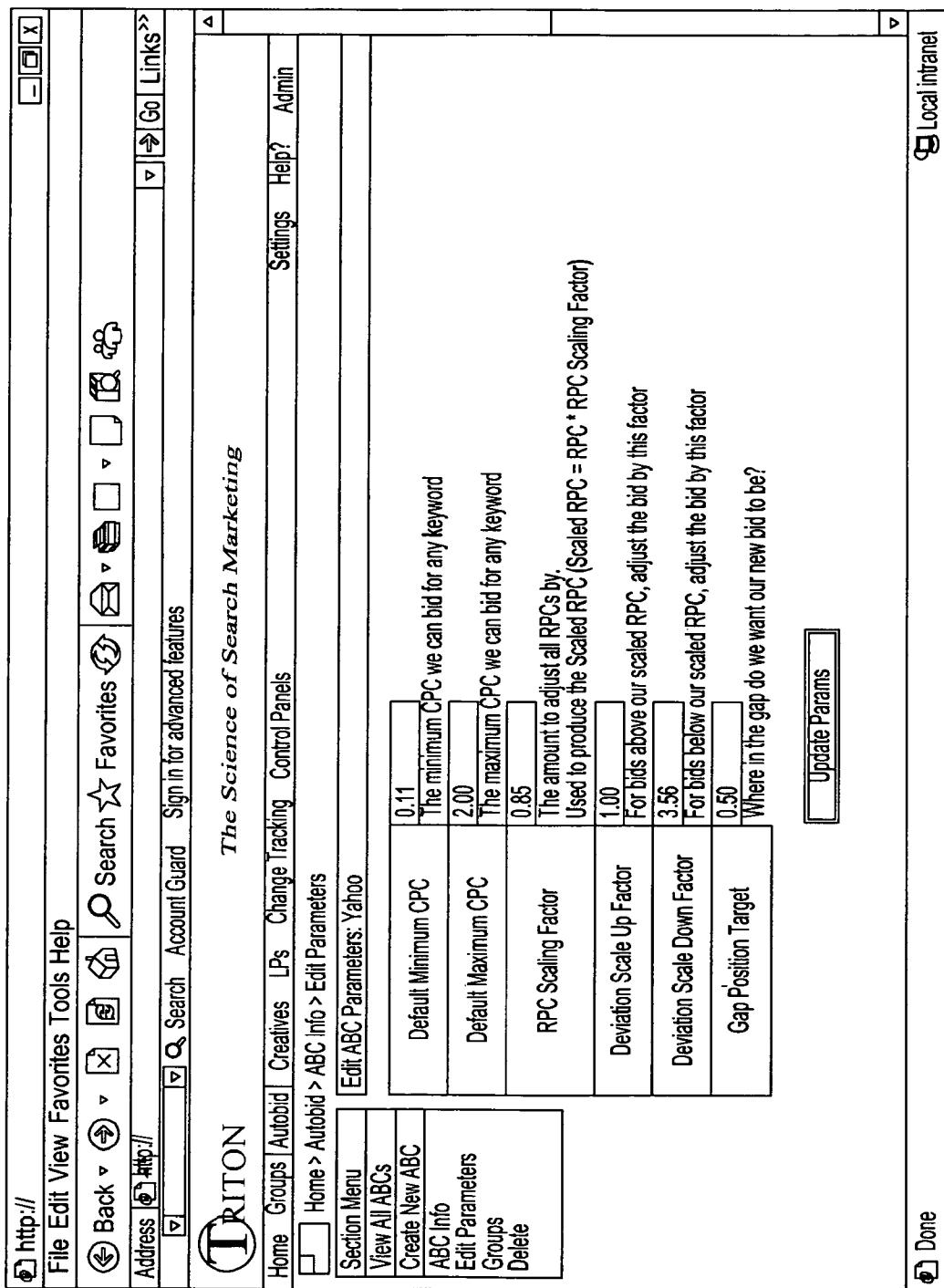


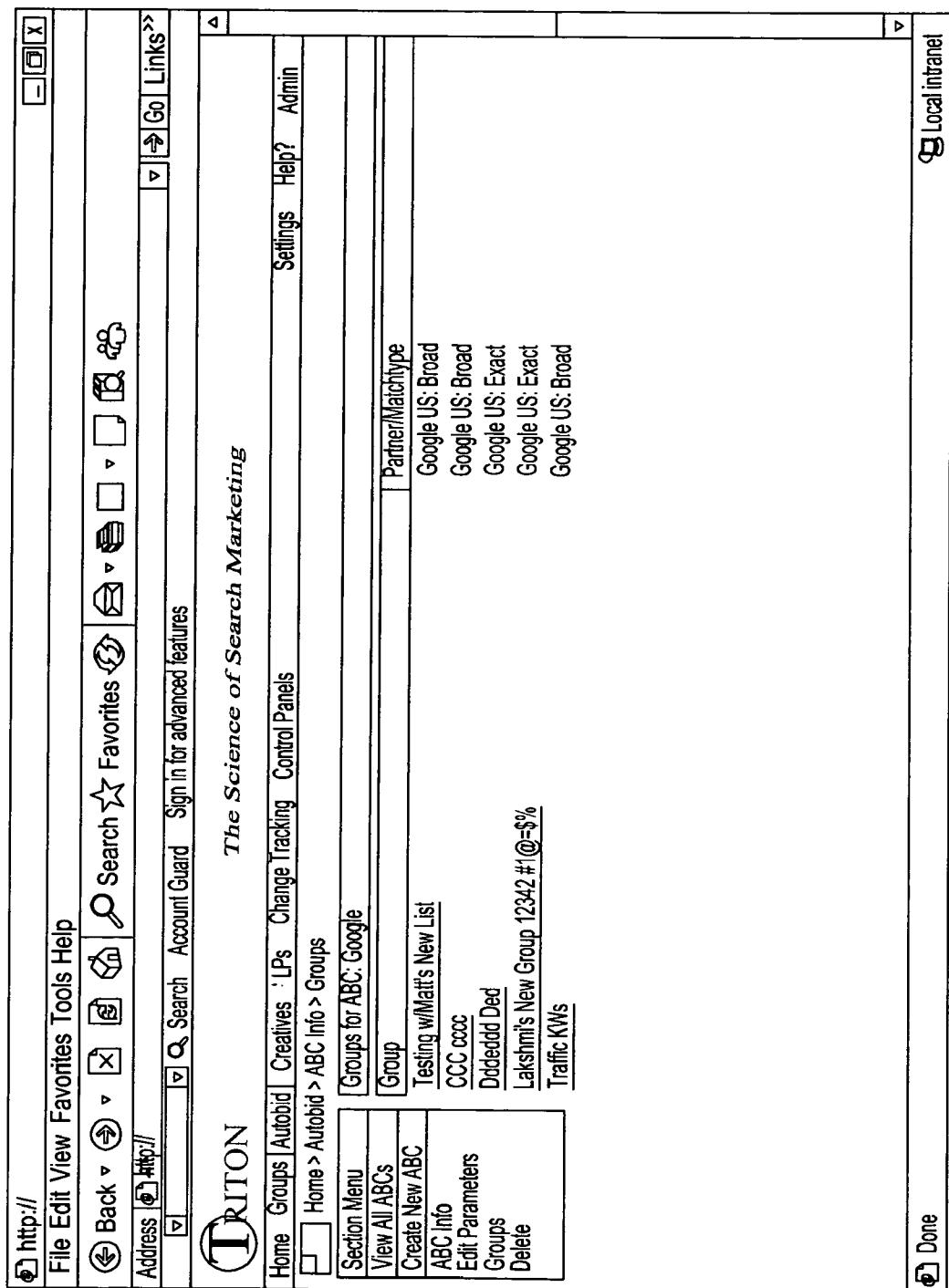
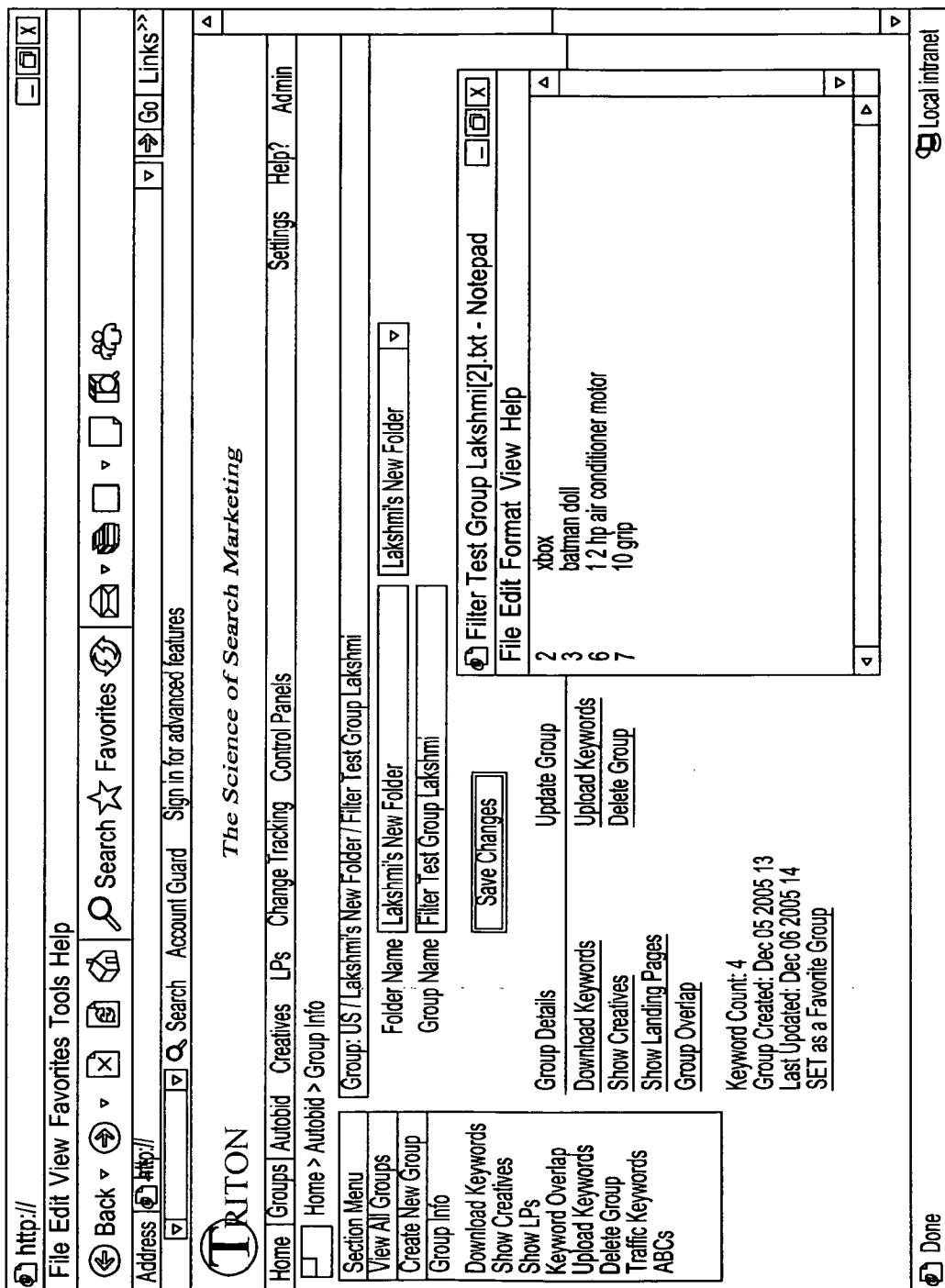
FIG. 11

FIG. 12



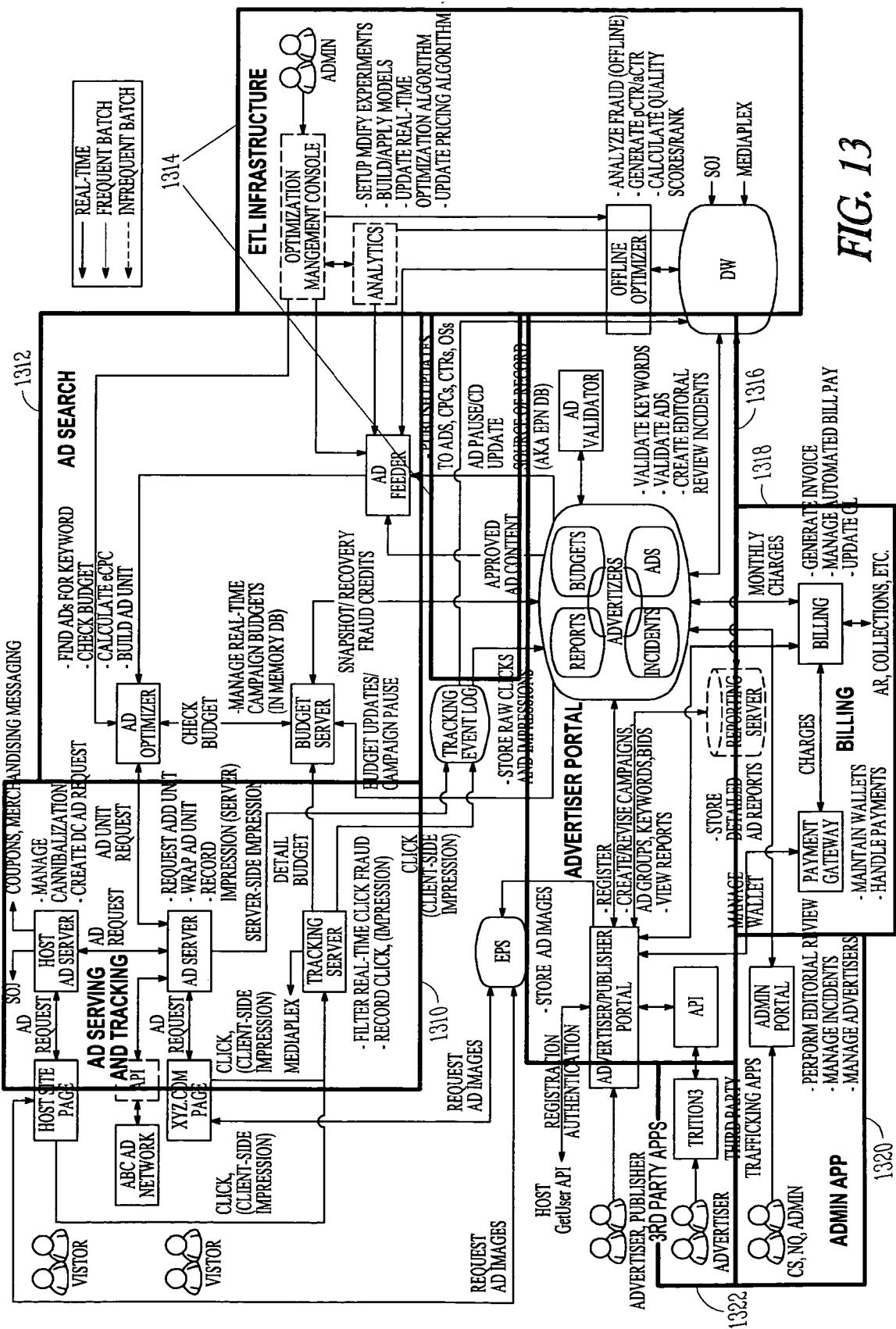
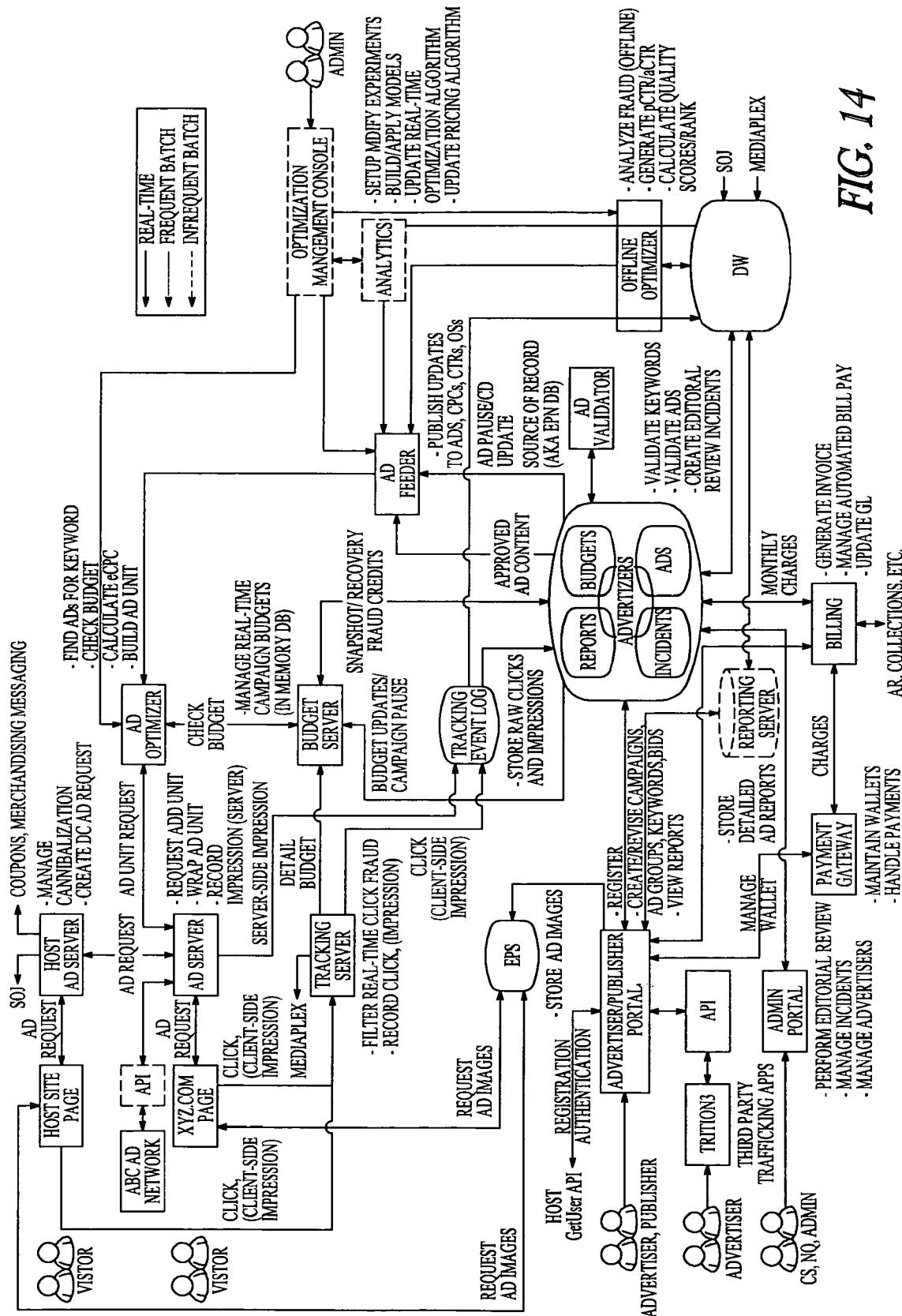


FIG. 13



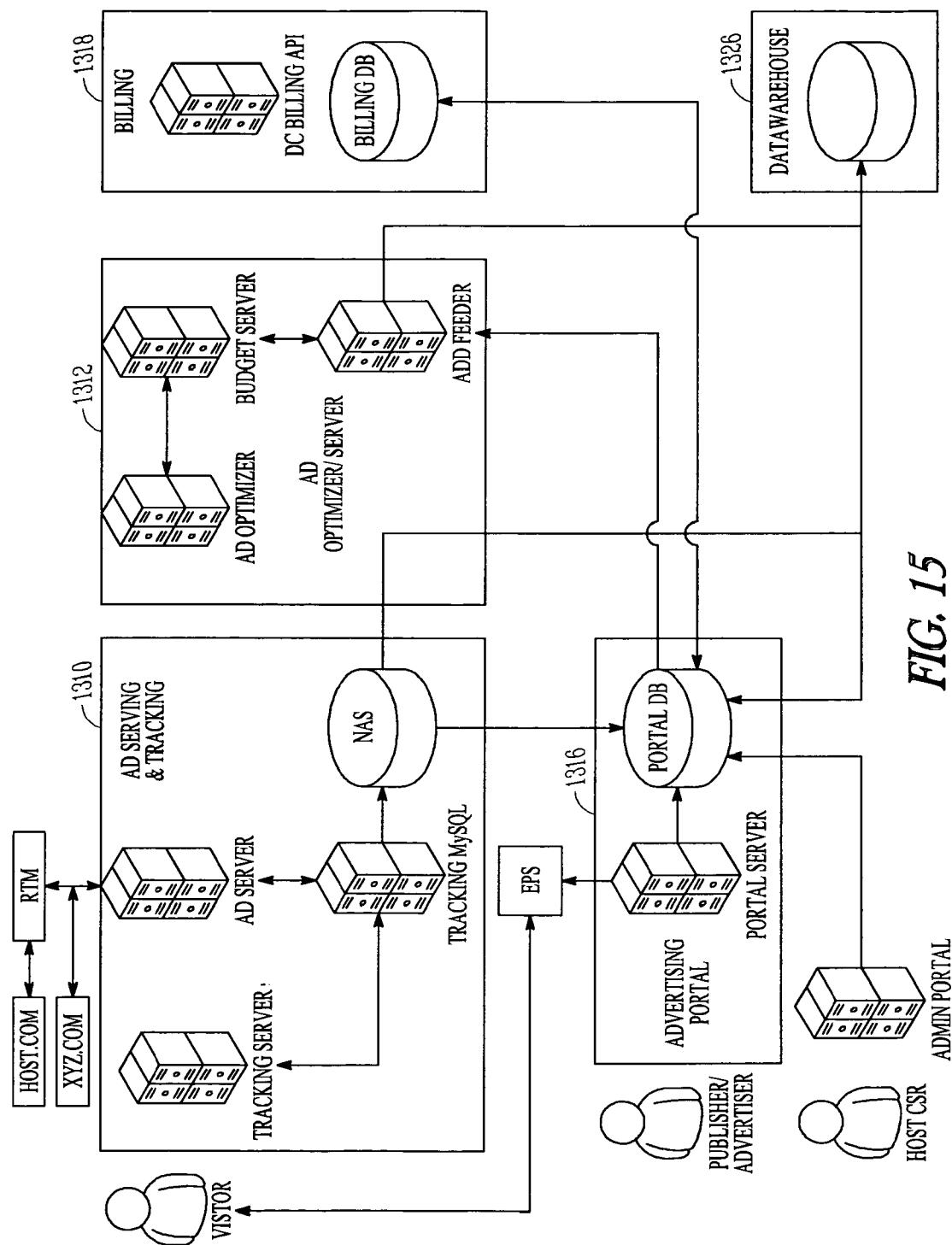


FIG. 15

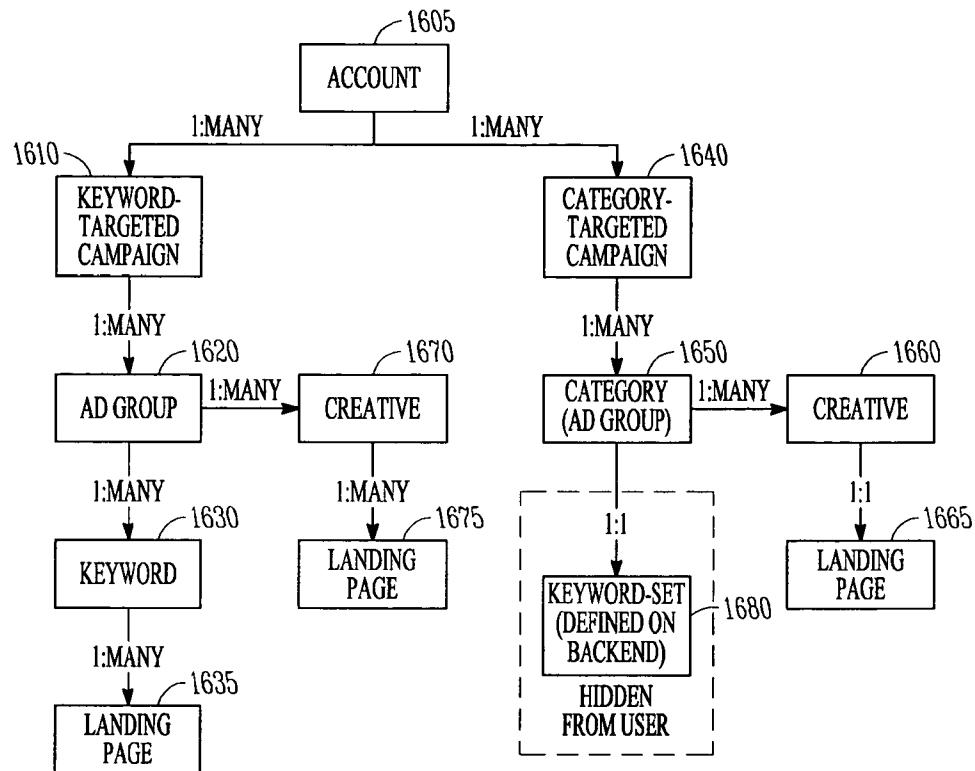


FIG. 16

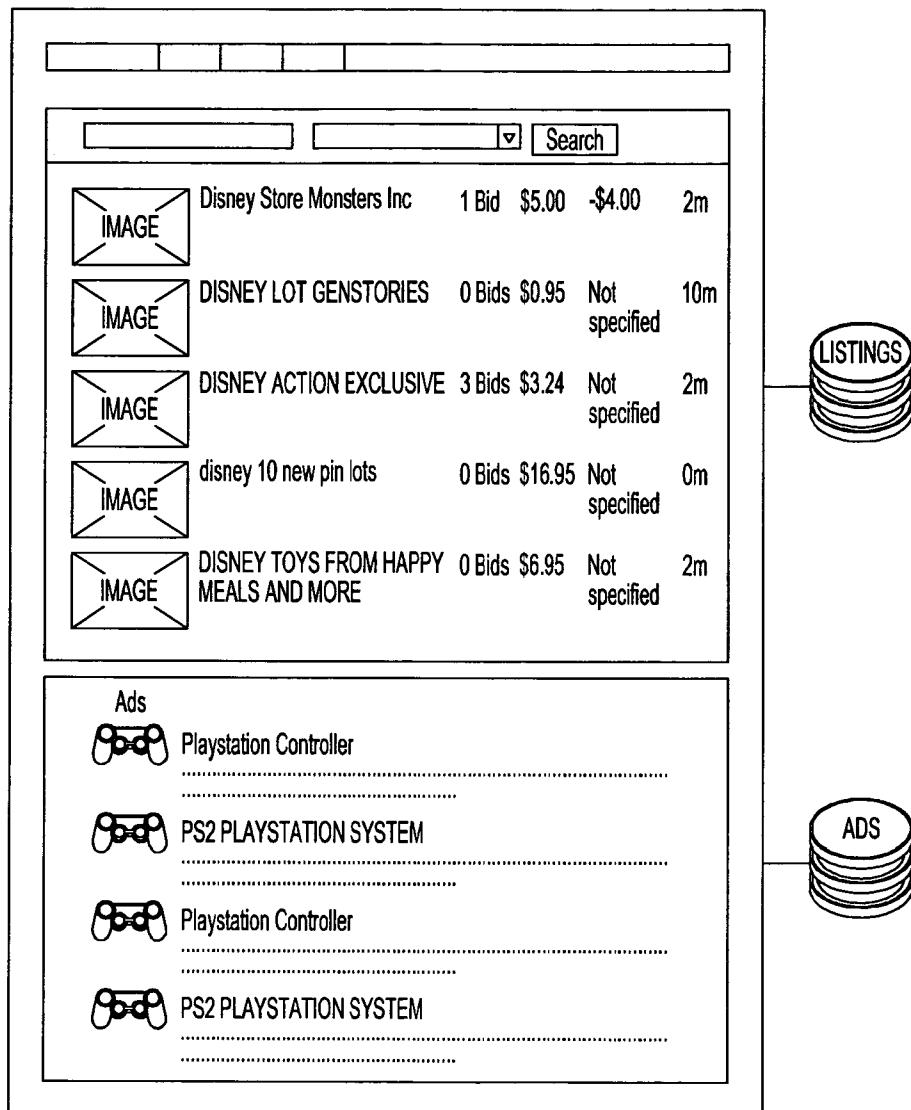


FIG. 17

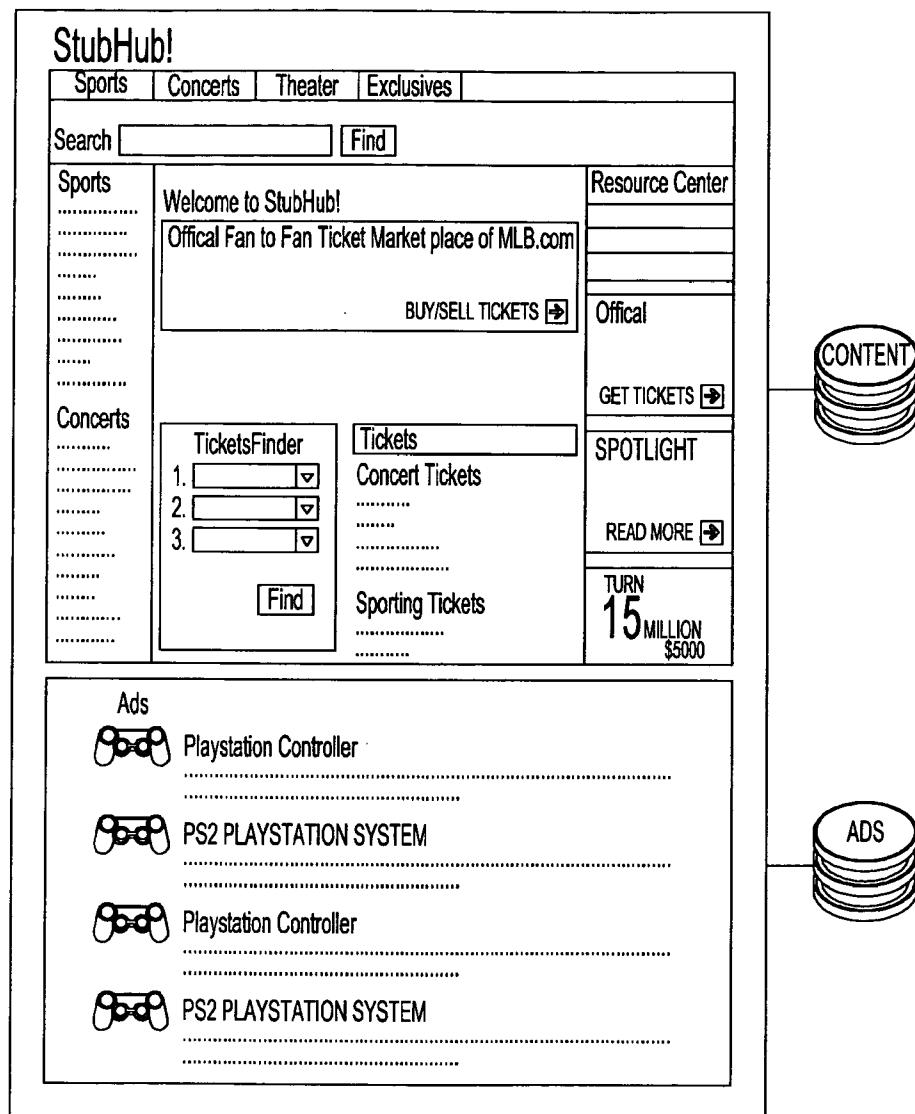
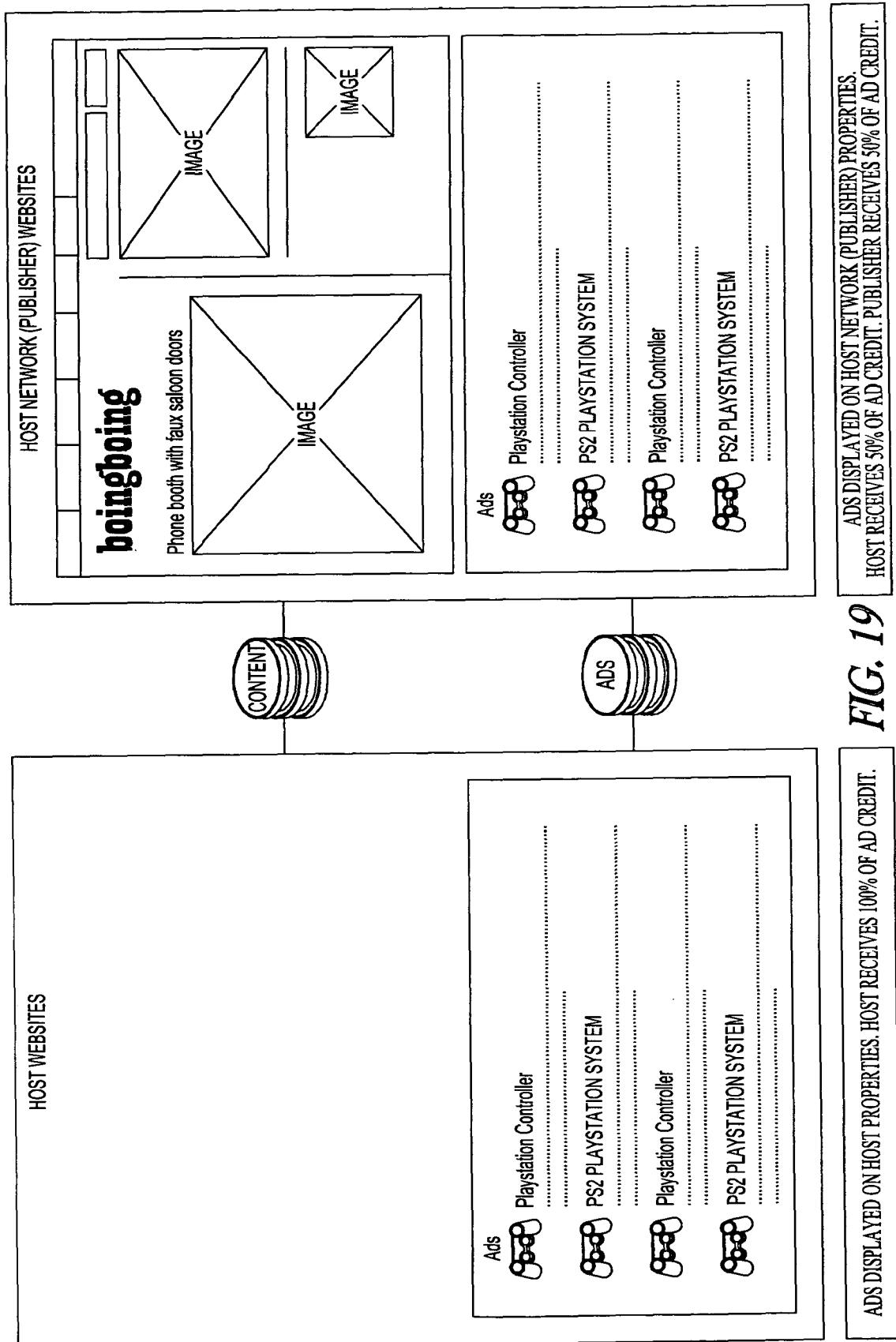


FIG. 18



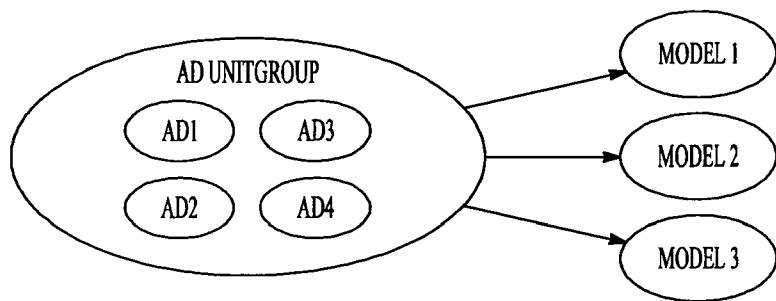


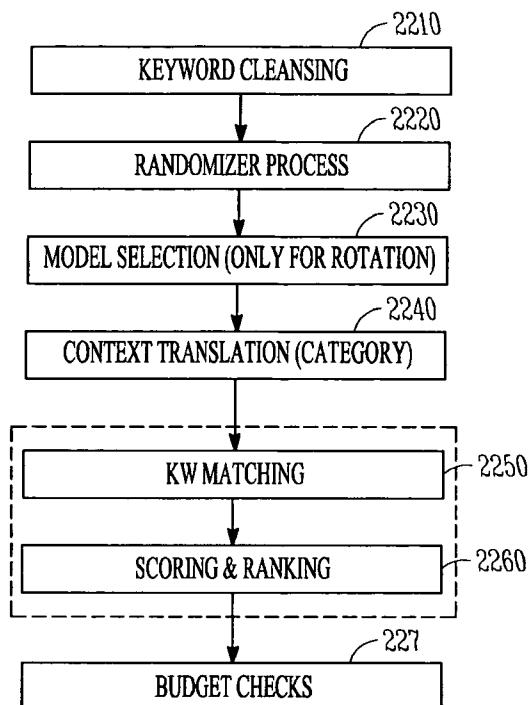
FIG. 20

MODEL	COEFF 1	COEFF 2	COEFF N	ROTATION PCT	
M1	1.2	0	1	400	
M2	0	0.5	0.1	60	
M3	1.2	2	4	95	
M4	0	0	2.5	5	

TOTAL = 100%

The diagram shows the distribution of rotation percentages across two **AD UNIT GROUP**s. **AD UNIT GROUP #1** receives 95% of the rotation, and **AD UNIT GROUP #2** receives 5%. The total rotation is 100%.

FIG. 21

*FIG. 22*

AD	SCORE/YIELD
A1	120
A2	95
A3	84
A4	81
A5	73
A6	32
A7	9
A8	6
A9	5

PICK 3RD POSITION AMONG THESE ADS

SLOPE

1ST, 2ND POSITION

3RD POSITION (SUBOPTIONAL)

FIG. 23

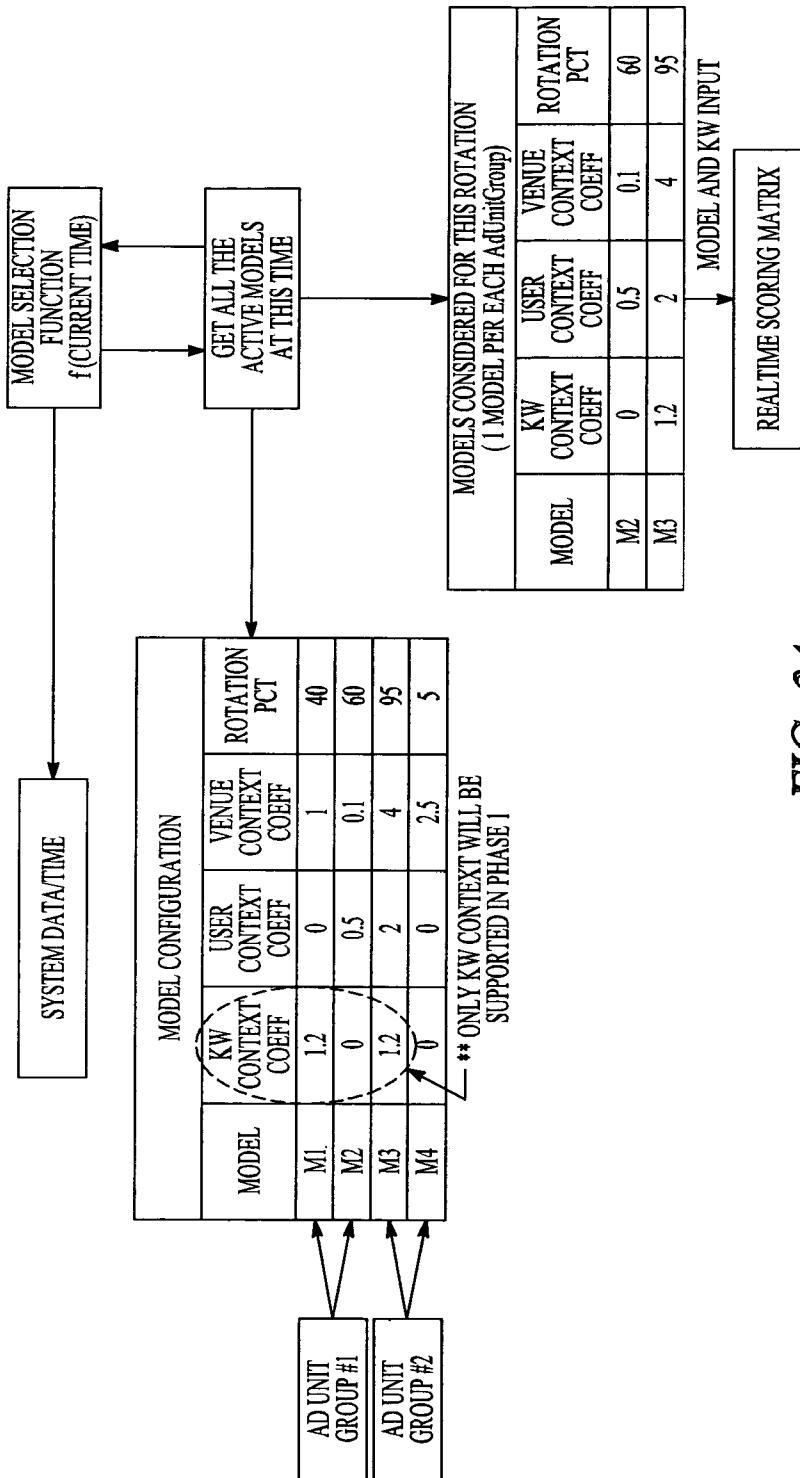


FIG. 24

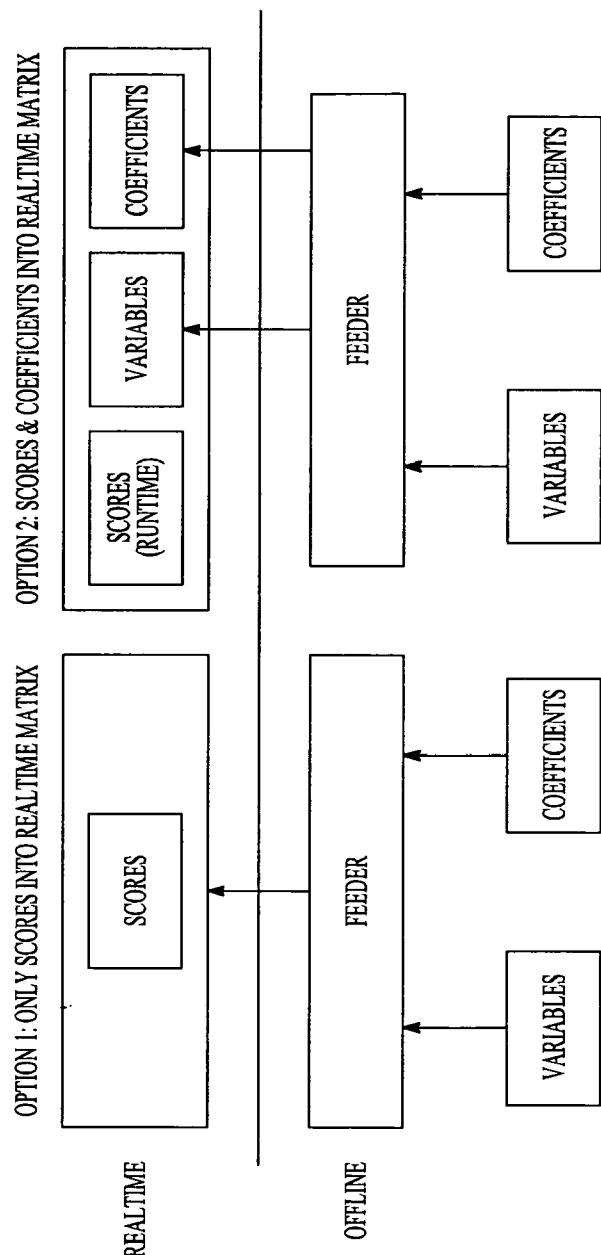
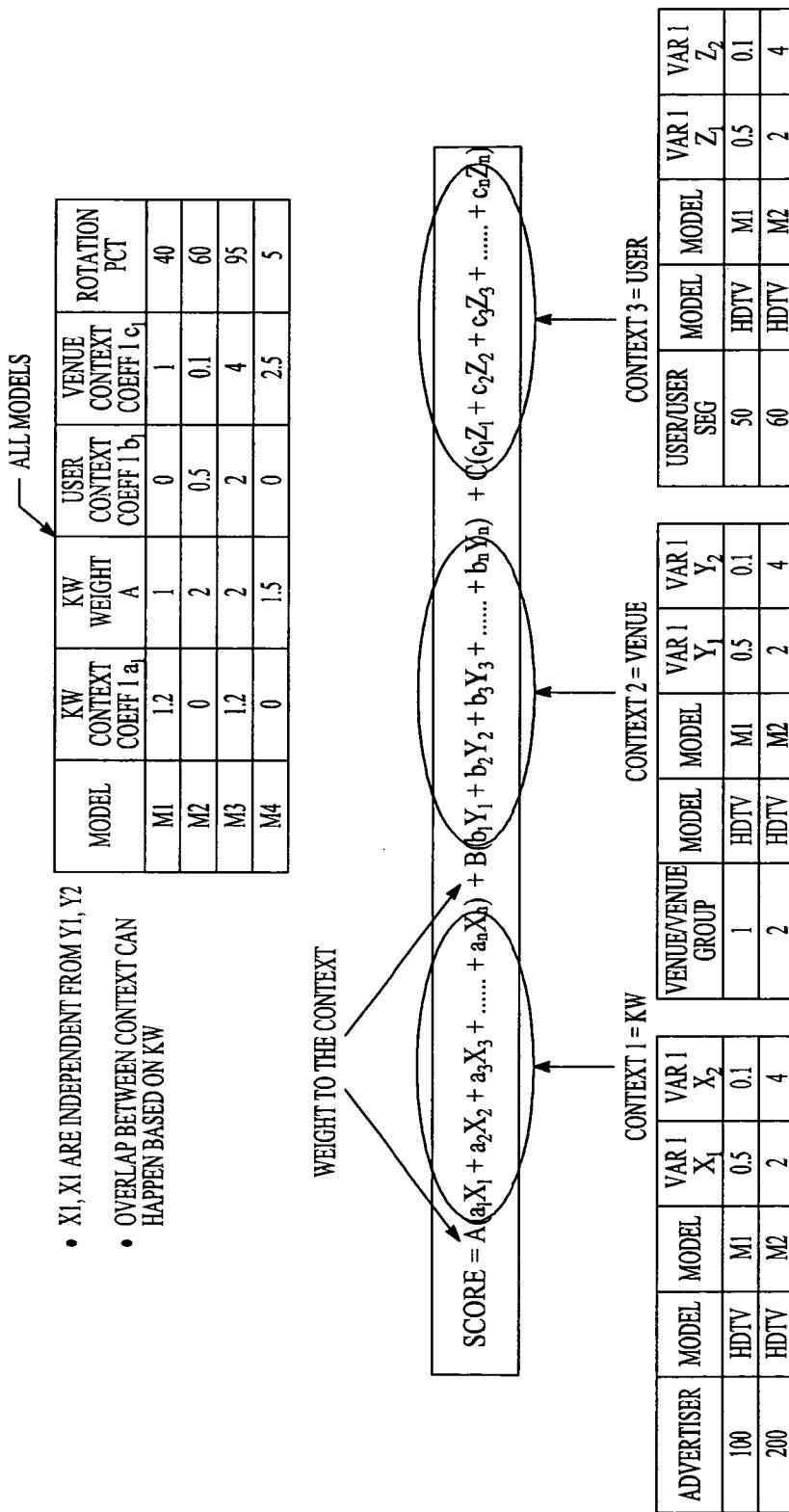


FIG. 25

**FIG. 26**

ONLINE (REAL TIME) OR OFFLINE BASED ON IMPLEMENTATION APPROACH/CONSTRAINTS

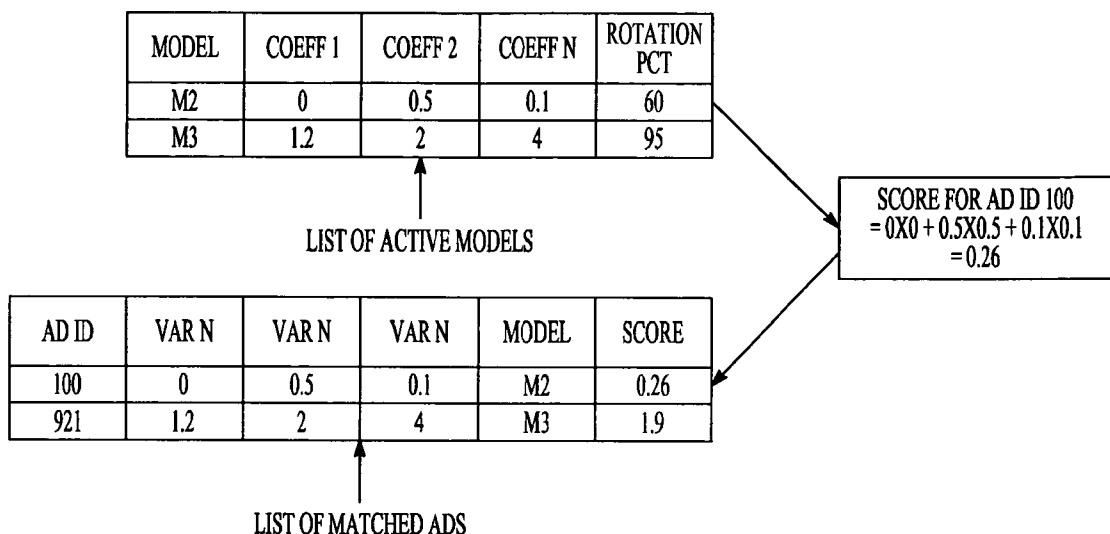


FIG. 27

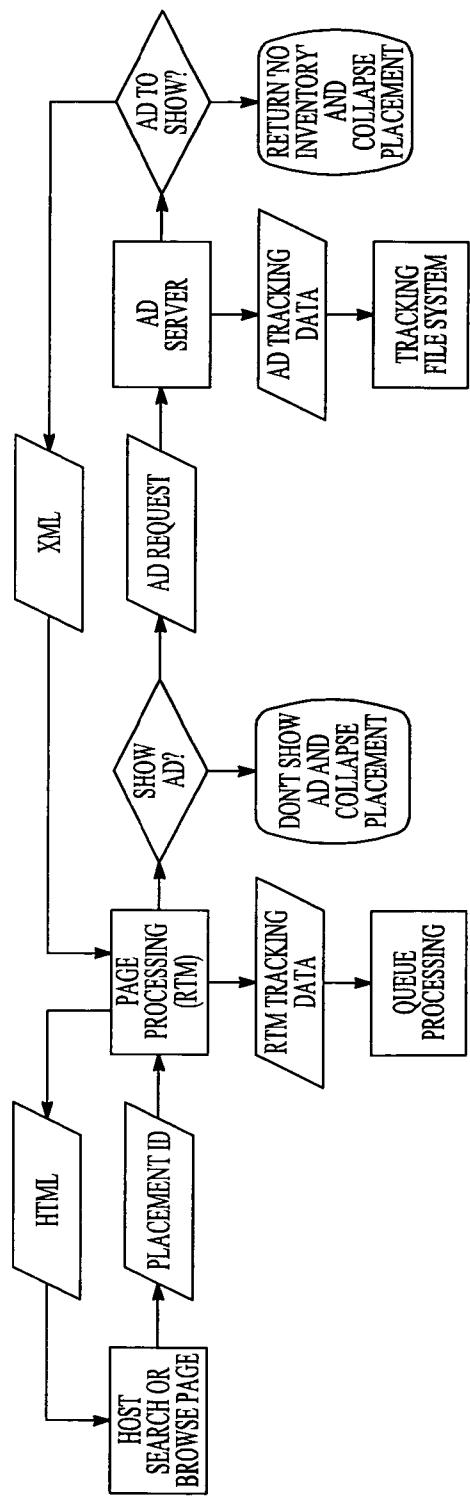


FIG. 28

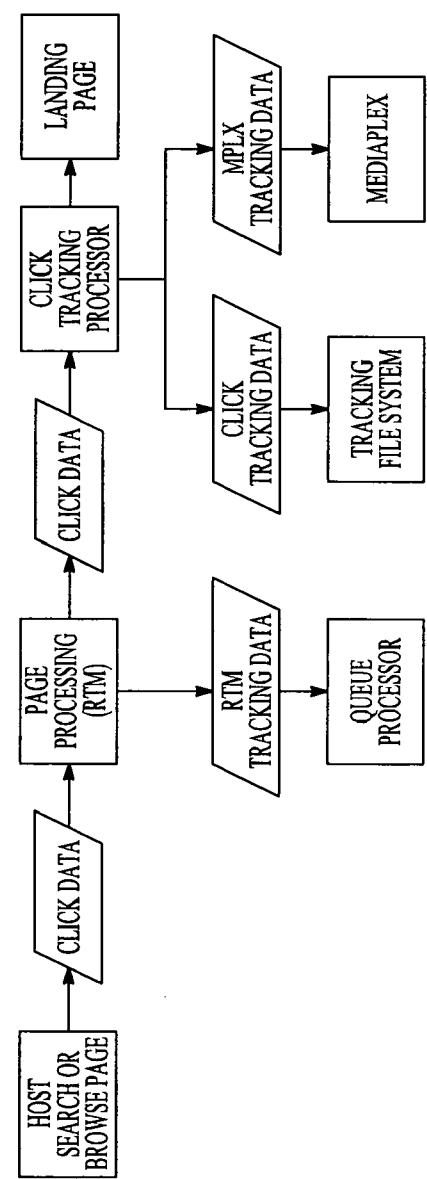


FIG. 29

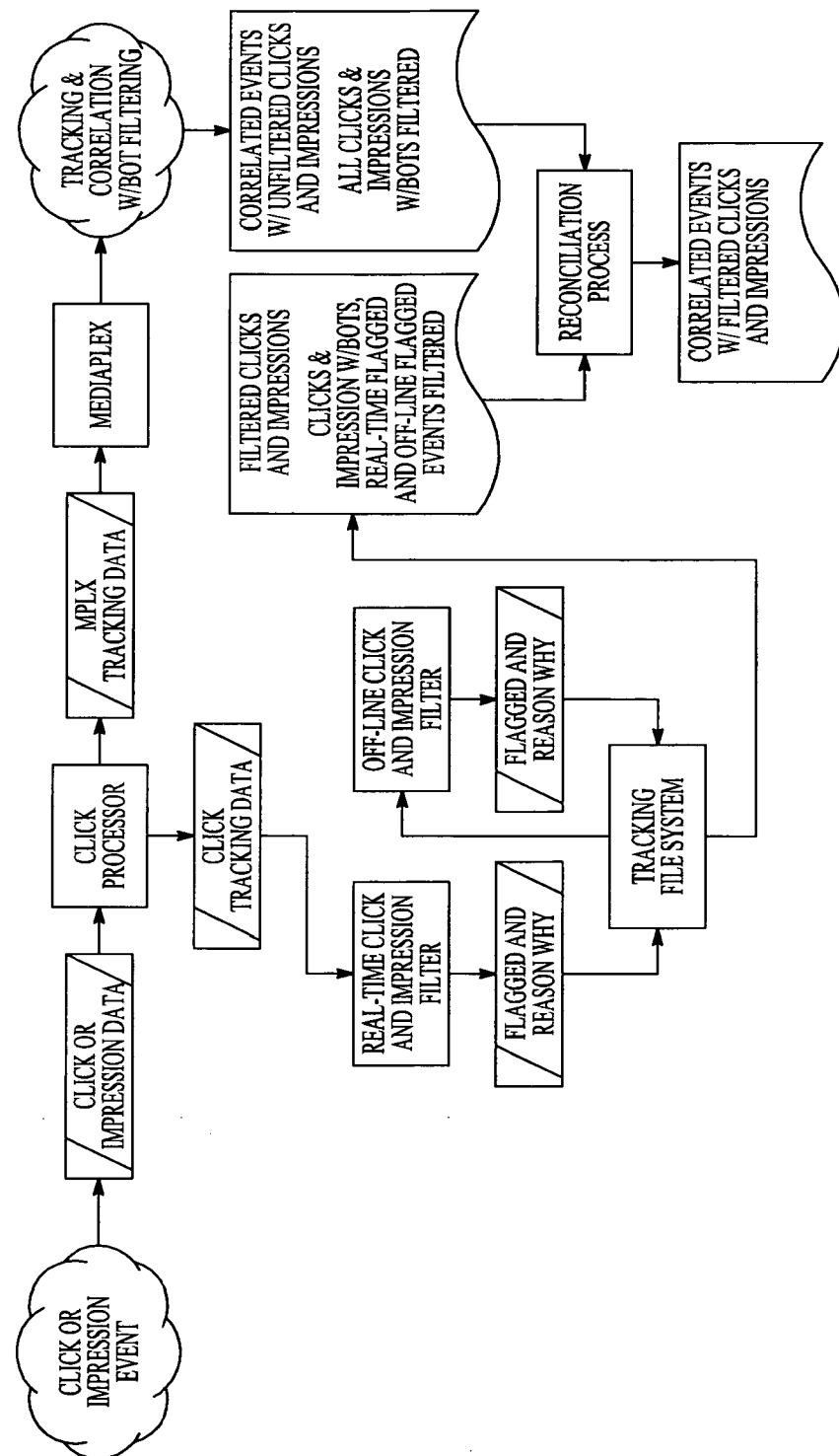


FIG. 30

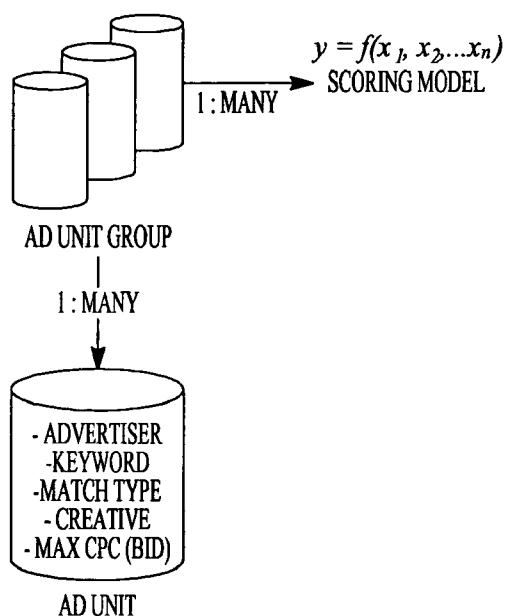


FIG. 31

INTERNATIONAL SEARCH REPORT

International application No

PCT/US 09/60701

A CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - G06Q 40/00 (2009.01)
 USPC- 705/37

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

B FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 USPC 705/37

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 USPC: 705/1, 7, 8, 14, 27, 37, 500; 707/1, 3, 6, 10; 700/1, 90, 91 (keyword limited - see search terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Electronic databases: PubWEST (PGPB, USPT, USOC, EPAB, JPAB); Google; Google Scholar
 Search Terms Used, keyword, bid, auction, automatically, advertisement, targeted, search, engine, revenue, click, api, determine, value etc.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 2007/0162379 A1 (Skinner) 12 July 2007 (12.07.2007), entire document, especially abstract, para [0012], [0040], [0053], [0054], [0055], [0068], [0197], [0200], [0201], [0202], [0203], [0204], [0205], [0219], [0250], [0350].	1-21
A	US 2005/0144064 A1 (Calabria et al) 30 June 2005 (30.06.2005), entire document, especially abstract, para [0004], [0036].	1-21
A	US 2005/0071325 A1 (Bern) 31 March 2005 (31.03.2005), entire document, especially abstract, para [001 1], [0060].	1-21

Further documents are listed in the continuation of Box C

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

Date of the actual completion of the international search	Date of mailing of the international search report
17 November 2009 (17.11.2009)	25 NOV 2009
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer. Lee W. Young <small>PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774</small>