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Bennett

(54) **SEARCH ENGINE USING CLIENT BROWSER AND APPLICATION SOFTWARE ACTIVITY INFORMATION**

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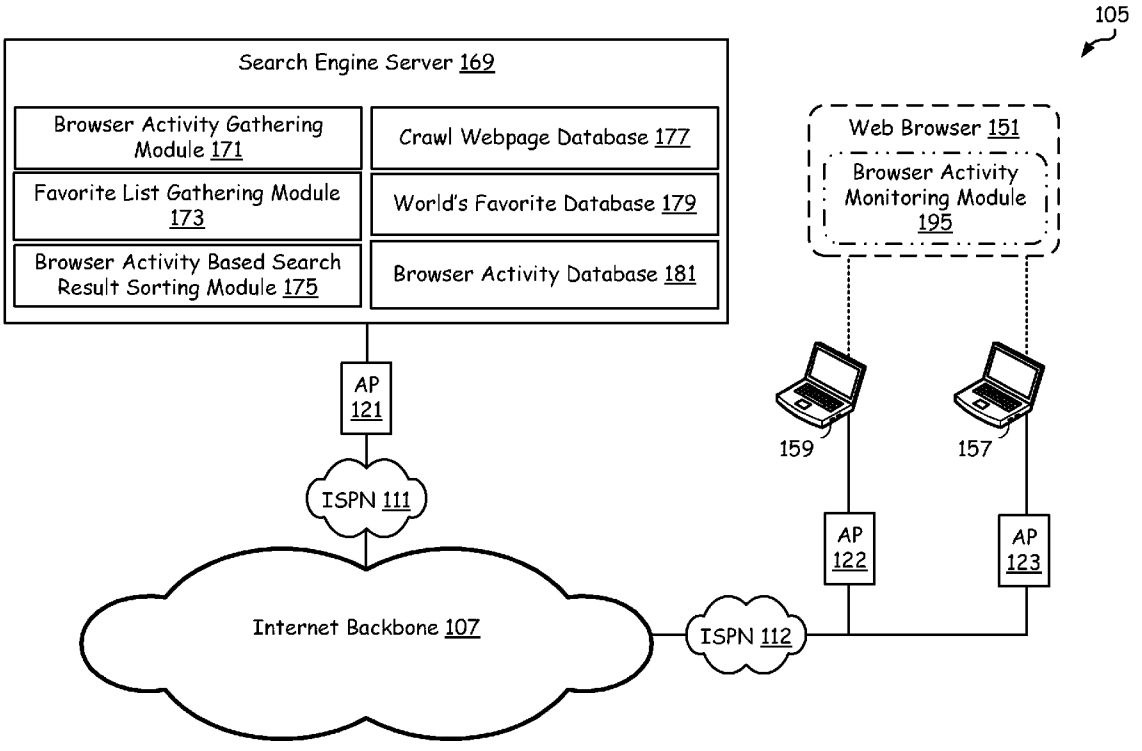
(57) **ABSTRACT**

An Internet infrastructure supports searching of web links to select search results by processing browser activity information along with one or more of favorite lists, and related metadata, user profiles, and trends based on browser activity behavior and favorite behavior. A plurality of web browsers located on client device are incorporated with a browser activity-monitoring module that tracks user's Internet usage, processes this information, and sends this information periodically or upon user request to the server to aid in improving search operation results. The search engine server communicatively couples to the plurality of web browsers and supports delivery of search results/web links to the client device based upon a search string, browser activity information, and possibly the favorite lists and related metadata. The gathered browser activity information, favorite lists, and related metadata are stored in one or more server databases that are associated with the search engine server.



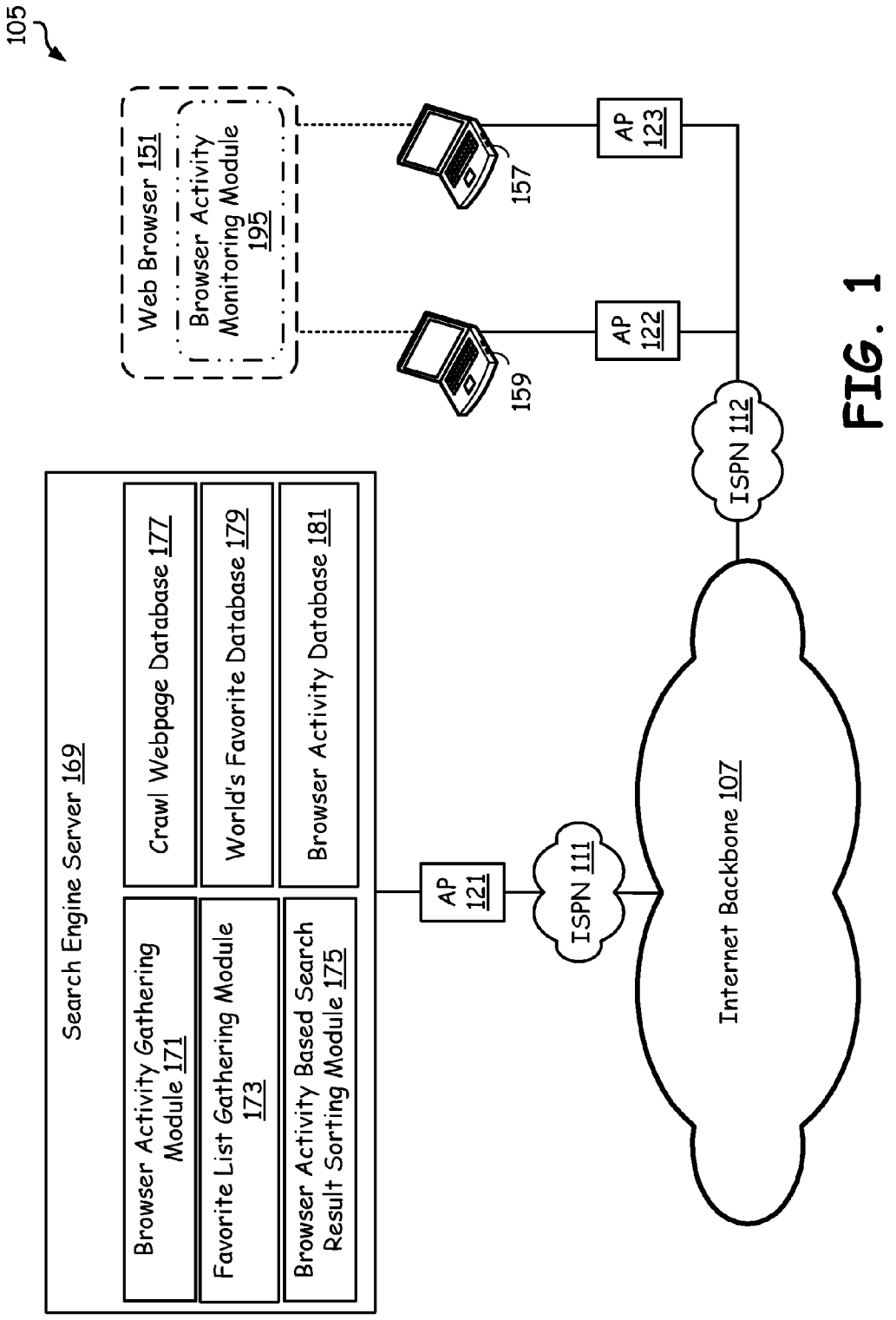

105
Search Engine Server 169
Browser Activity Gathering Module 171
Favorite List Gathering Module 173
Browser Activity Based Search Result Sorting Module 175
Crawl Webpage Database 177
World's Favorite Database 179
Browser Activity Database 181
AP 121
ISPN 111
Internet Backbone 107
ISPN 112
AP 122
AP 123
159
157
Web Browser 151
Browser Activity Monitoring Module 195

FIG. 1

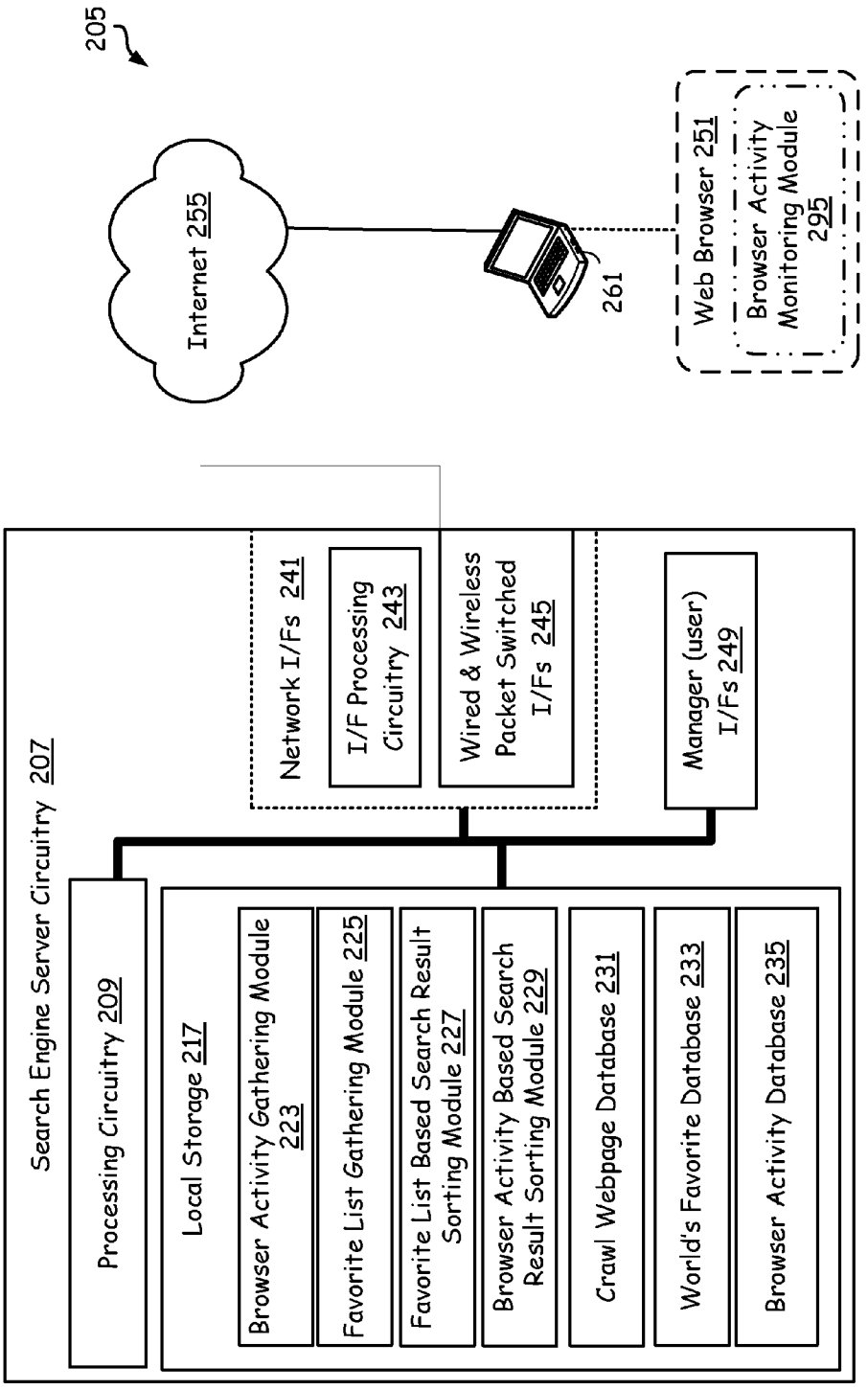

205
Internet 255
261
Web Browser 251
Browser Activity Monitoring Module 295
Search Engine Server Circuitry 207
Processing Circuitry 209
Local Storage 217
Browser Activity Gathering Module 223
Favorite List Gathering Module 225
Favorite List Based Search Result Sorting Module 227
Browser Activity Based Search Result Sorting Module 229
Crawl Webpage Database 231
World's Favorite Database 233
Browser Activity Database 235
Network I/Fs 241
I/F Processing Circuitry 243
Wired & Wireless Packet Switched I/Fs 245
Manager (user) I/Fs 249

FIG. 2

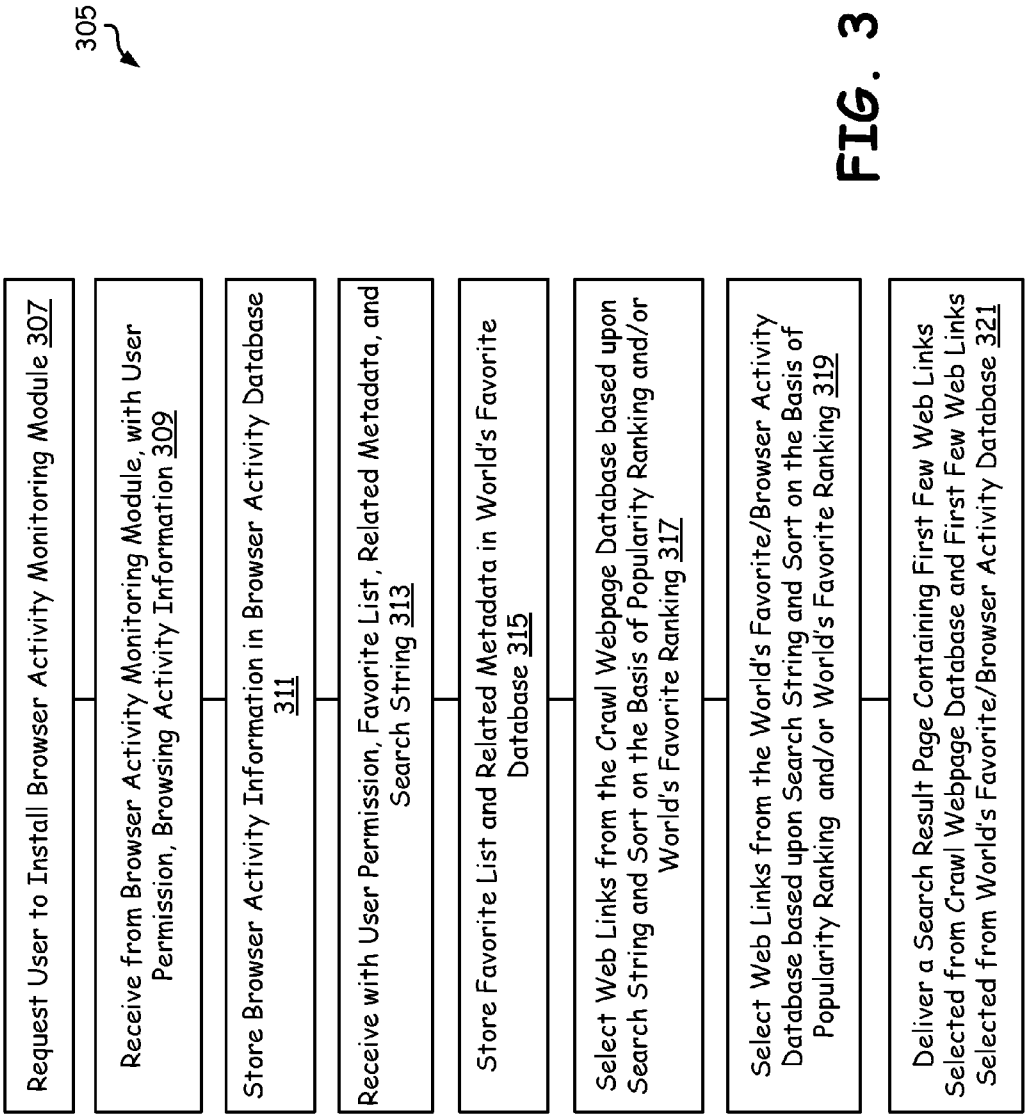

305
Request User to Install Browser Activity Monitoring Module 307
Receive from Browser Activity Monitoring Module, with User Permission, Browsing Activity Information 309
Store Browser Activity Information in Browser Activity Database 311
Receive with User Permission, Favorite List, Related Metadata, and Search String 313
Store Favorite List and Related Metadata in World's Favorite Database 315
Select Web Links from the Crawl Webpage Database based upon Search String and Sort on the Basis of Popularity Ranking and/or World's Favorite Ranking 317
Select Web Links from the World's Favorite/Browser Activity Database based upon Search String and Sort on the Basis of Popularity Ranking and/or World's Favorite Ranking 319
Deliver a Search Result Page Containing First Few Web Links Selected from Crawl Webpage Database and First Few Web Links Selected from World's Favorite/Browser Activity Database 321

FIG. 3

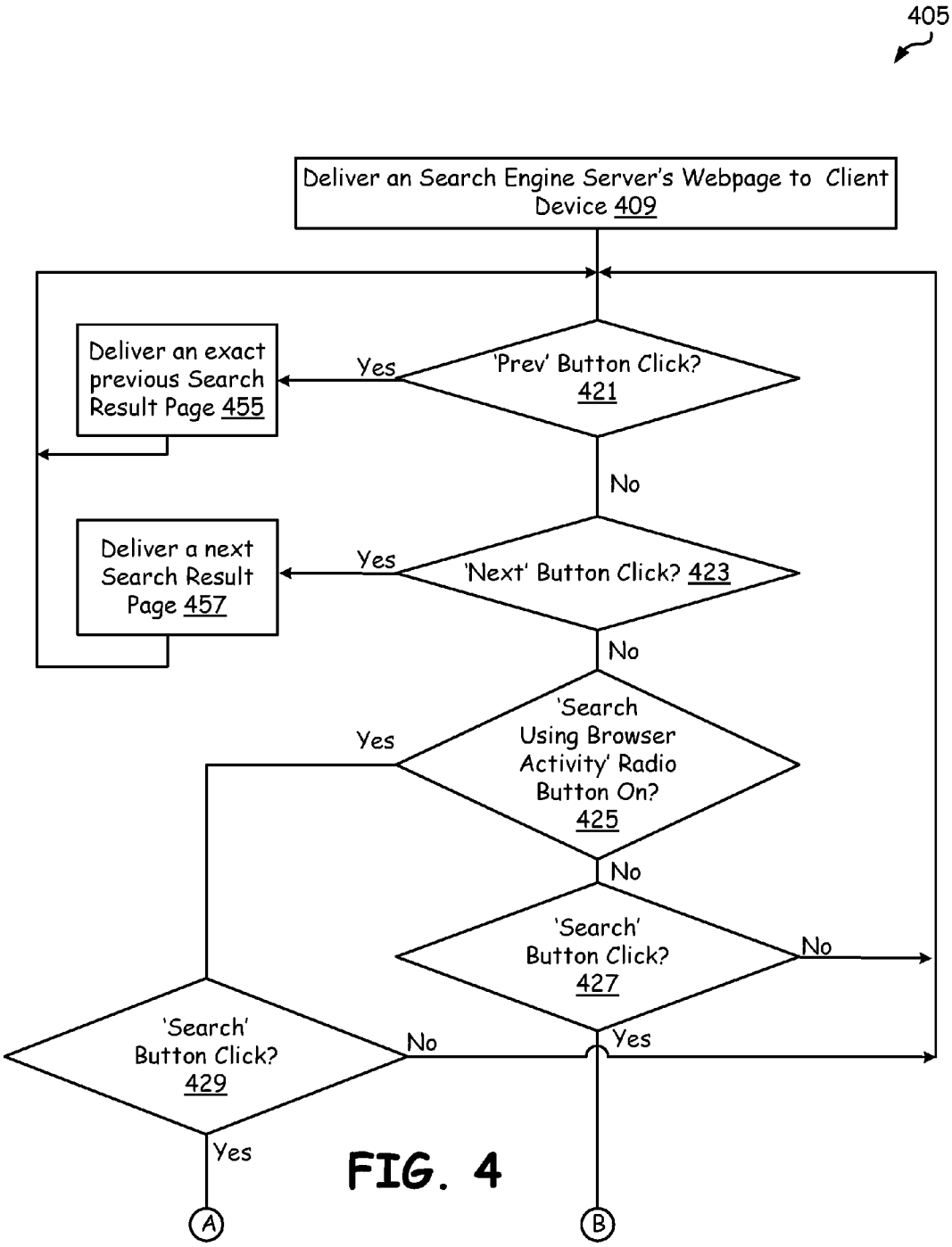

405
Deliver an Search Engine Server's Webpage to Client Device 409
'Prev' Button Click? 421
Yes
Deliver an exact previous Search Result Page 455
No
'Next' Button Click? 423
Yes
Deliver a next Search Result Page 457
No
'Search Using Browser Activity' Radio Button On? 425
Yes
No
'Search' Button Click? 427
No
Yes
'Search' Button Click? 429
No
Yes
A
B

FIG. 4

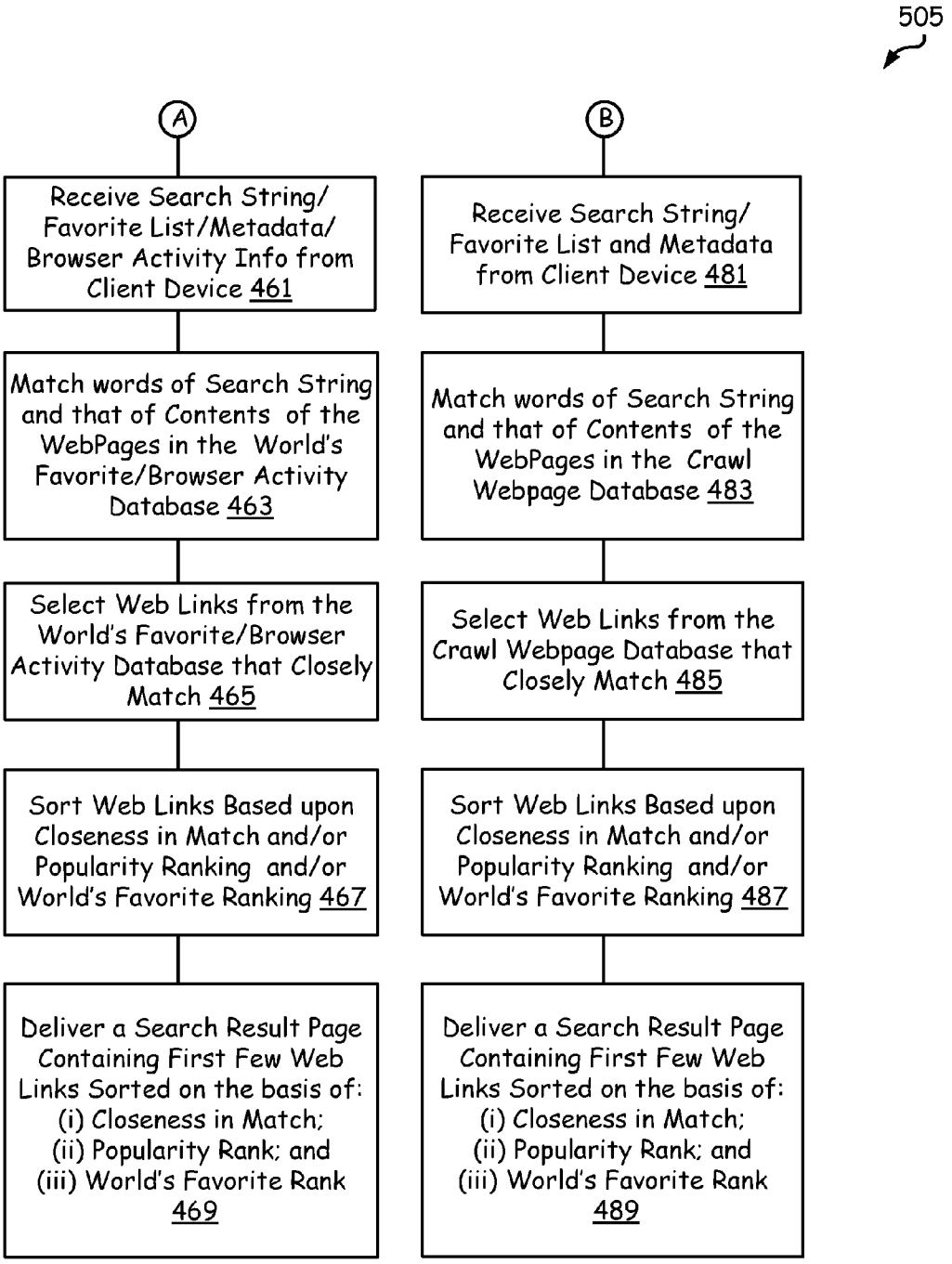

505
A
Receive Search String/ Favorite List/Metadata/ Browser Activity Info from Client Device 461
Match words of Search String and that of Contents of the WebPages in the World's Favorite/Browser Activity Database 463
Select Web Links from the World's Favorite/Browser Activity Database that Closely Match 465
Sort Web Links Based upon Closeness in Match and/or Popularity Ranking and/or World's Favorite Ranking 467
Deliver a Search Result Page Containing First Few Web Links Sorted on the basis of: (i) Closeness in Match; (ii) Popularity Rank; and (iii) World's Favorite Rank 469
B
Receive Search String/ Favorite List and Metadata from Client Device 481
Match words of Search String and that of Contents of the WebPages in the Crawl Webpage Database 483
Select Web Links from the Crawl Webpage Database that Closely Match 485
Sort Web Links Based upon Closeness in Match and/or Popularity Ranking and/or World's Favorite Ranking 487
Deliver a Search Result Page Containing First Few Web Links Sorted on the basis of: (i) Closeness in Match; (ii) Popularity Rank; and (iii) World's Favorite Rank 489

FIG. 5

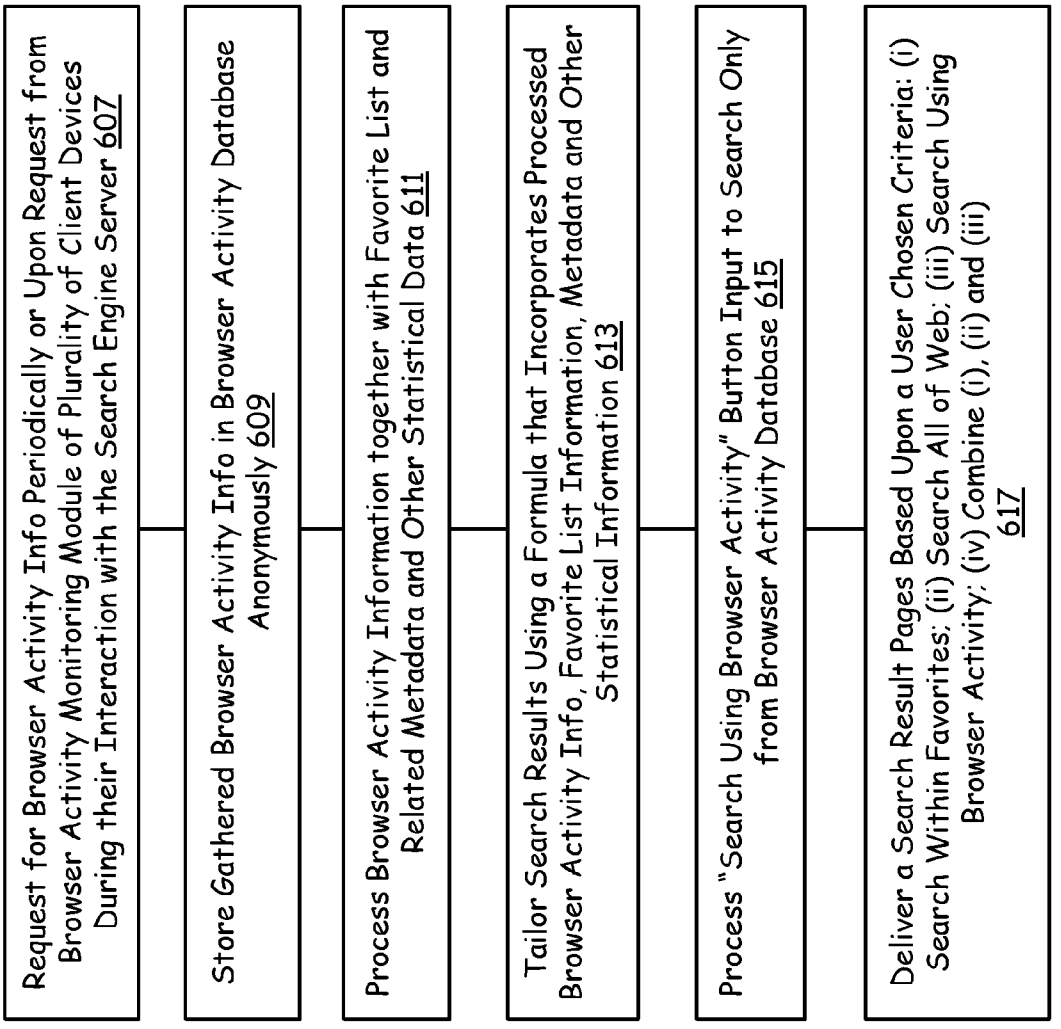

605
Request for Browser Activity Info Periodically or Upon Request from Browser Activity Monitoring Module of Plurality of Client Devices During their Interaction with the Search Engine Server 607
Store Gathered Browser Activity Info in Browser Activity Database Anonymously 609
Process Browser Activity Information together with Favorite List and Related Metadata and Other Statistical Data 611
Tailor Search Results Using a Formula that Incorporates Processed Browser Activity Info, Favorite List Information, Metadata and Other Statistical Information 613
Process "Search Using Browser Activity" Button Input to Search Only from Browser Activity Database 615
Deliver a Search Result Pages Based Upon a User Chosen Criteria: (i) Search Within Favorites; (ii) Search All of Web; (iii) Search Using Browser Activity; (iv) Combine (i), (ii) and (iii) 617

FIG. 6

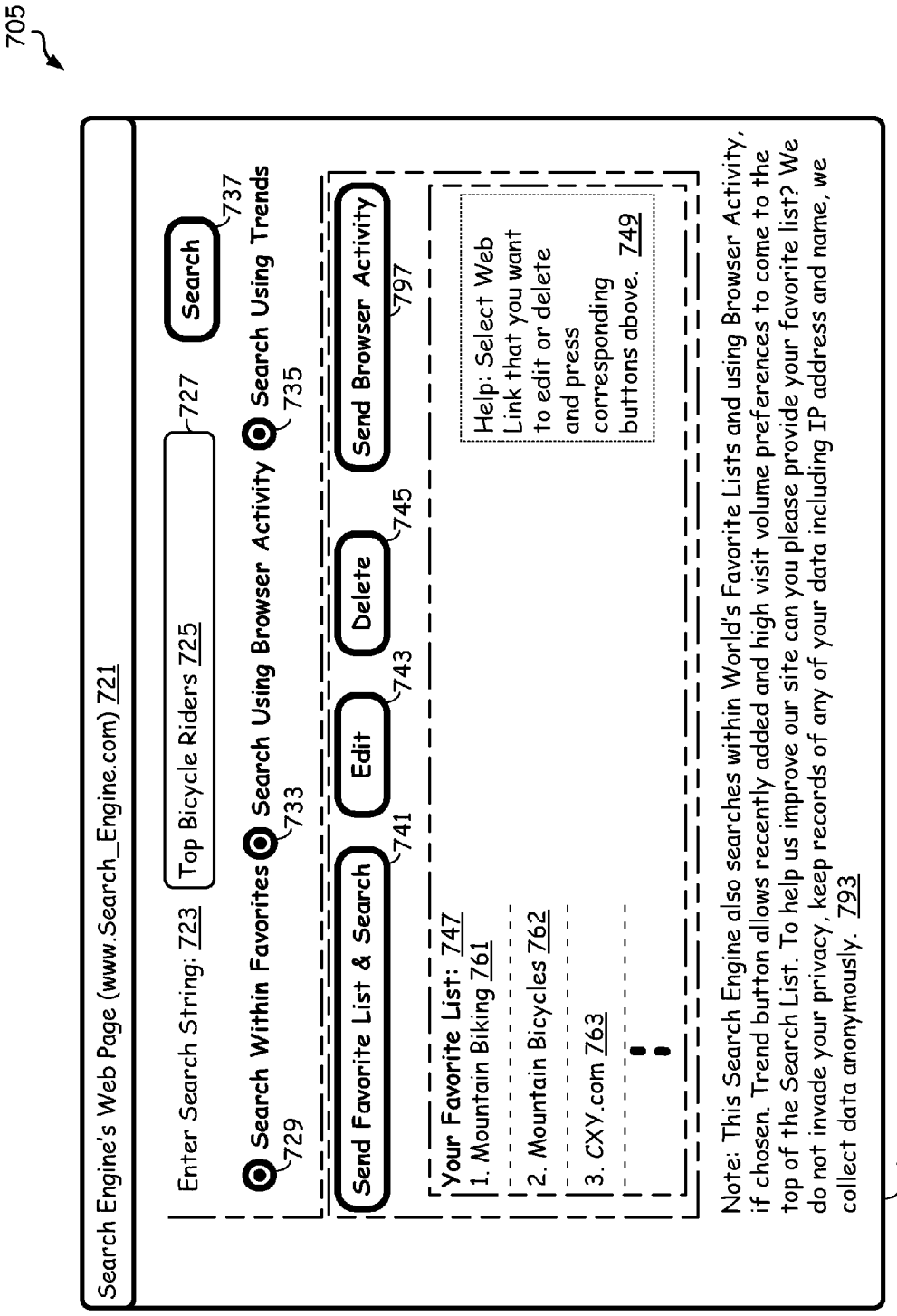

705
Search Engine's Web Page (www.Search_Engine.com) 721
Enter Search String: 723
Top Bicycle Riders 725
727
Search
737
Search Within Favorites
733
Search Using Browser Activity
735
Search Using Trends
729
Send Favorite List & Search
741
Edit
743
Delete
745
Send Browser Activity
797
Your Favorite List: 747
1. Mountain Biking 761
2. Mountain Bicycles 762
3. CXY.com 763
Help: Select Web Link that you want to edit or delete and press corresponding buttons above. 749
Note: This Search Engine also searches within World's Favorite Lists and using Browser Activity, if chosen. Trend button allows recently added and high visit volume preferences to come to the top of the Search List. To help us improve our site can you please provide your favorite list? We do not invade your privacy, keep records of any of your data including IP address and name, we collect data anonymously. 793
Client's Browser 795

FIG. 7

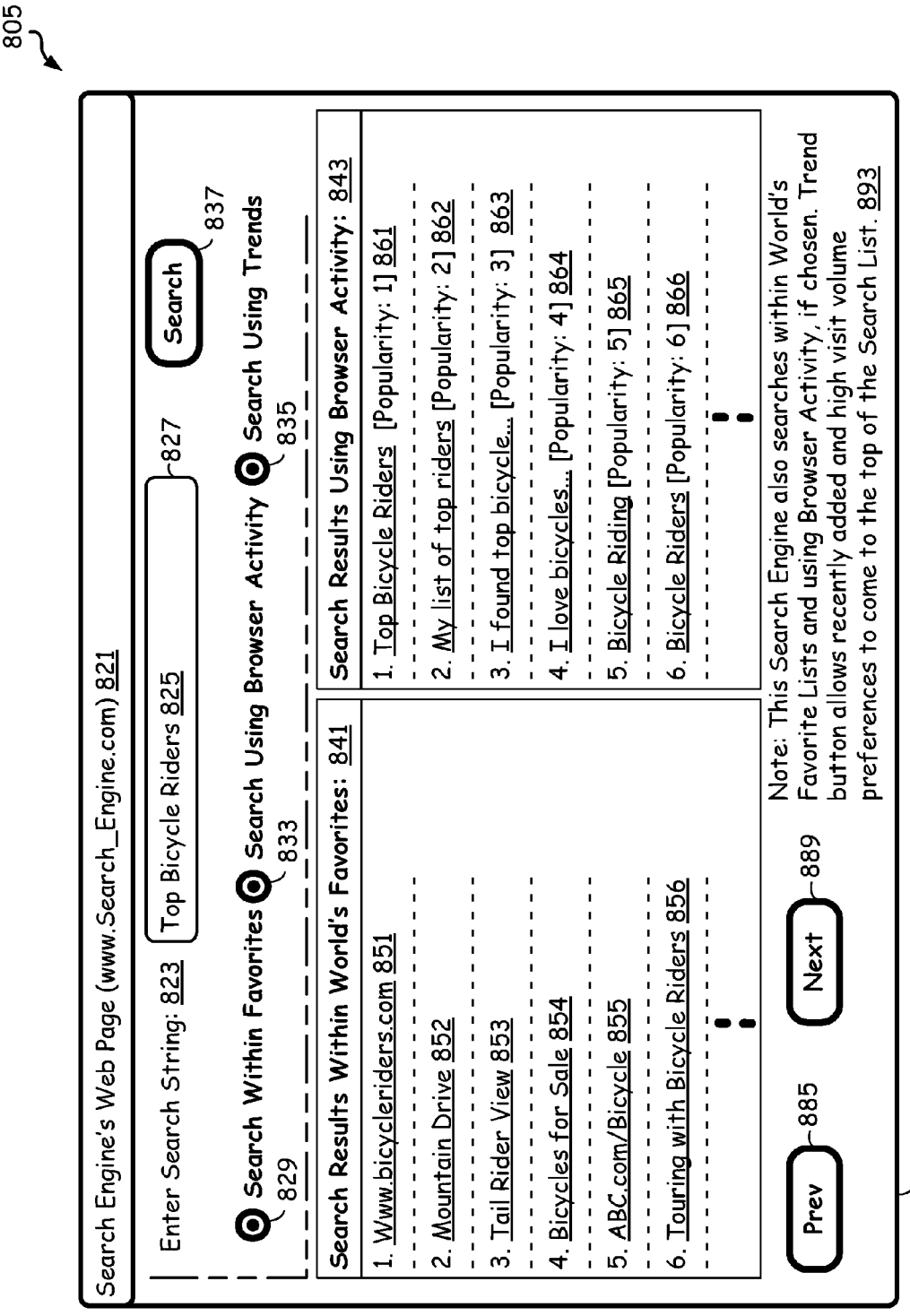

805
Search Engine's Web Page (www.Search_Engine.com) 821
Enter Search String: 823
Top Bicycle Riders 825
827
Search
837
Search Within Favorites
829
Search Using Browser Activity
833
Search Using Trends
835
Search Results Within World's Favorites: 841
1. Www.bicycleriders.com 851
2. Mountain Drive 852
3. Tail Rider View 853
4. Bicycles for Sale 854
5. ABC.com/Bicycle 855
6. Touring with Bicycle Riders 856
Search Results Using Browser Activity: 843
1. Top Bicycle Riders [Popularity: 1] 861
2. My list of top riders [Popularity: 2] 862
3. I found top bicycle... [Popularity: 3] 863
4. I love bicycles... [Popularity: 4] 864
5. Bicycle Riding [Popularity: 5] 865
6. Bicycle Riders [Popularity: 6] 866
Prev
885
Next
889
Note: This Search Engine also searches within World's Favorite Lists and using Browser Activity, if chosen. Trend button allows recently added and high visit volume preferences to come to the top of the Search List. 893
Client's Browser 895

FIG. 8

SEARCH ENGINE USING CLIENT BROWSER AND APPLICATION SOFTWARE ACTIVITY INFORMATION

CROSS REFERENCE TO PRIORITY APPLICATIONS

[0001] The present U.S. Utility Patent Application claims priority pursuant to 35 U.S.C. §120, as a continuation of U.S. Utility patent application Ser. No. 12/415,711 filed Mar. 31, 2009, co-pending, which claims priority under 35 U.S.C. §119(e) to U.S. Provisional Application Ser. No. 61/052,897, filed May 13, 2008, both of which are incorporated herein by reference in their entirety for all purposes.

BACKGROUND

[0002] 1. Technical Field

[0003] The present invention relates generally to Internet clients and servers; and, more particularly, to search engines operating on the Internet.

[0004] 2. Related Art

[0005] Search engines deliver search results based upon a search string. Searching can help users find their way around Internet, which contains billions of web pages, or can help users narrow large amounts of information down to workable sub-sets of meaningful information that is relevant to the user's interest. Only a very few of the billions of web pages on the Internet are useful to a user, depending upon what a user is looking for at any given time. A user may look for web pages with a variety of interests such as business, medical, social, engineering, and scientific research as well as home-based general or personal interests. Search engines usually select web links based upon a search keyword (or, search phrase or search string) and often orders search results based on the rank-ordered popularity of the web links with each other.

[0006] Typically, users look for web links that contain useful information with certain user expectations. The specific expectations may relate to specific business, engineering and scientific organizations, medical, help groups, web sites designed to impart knowledge, email web sites, or other information. However, the delivered search results are often not in accordance with the user's expectations, and the user's expectations are significantly different from the search results that the search engine delivers to the user. Search results that are delivered are often vaguely related to what the user is looking for, if related at all.

[0007] Popular web sites are pushed up to the top of the search result lists, assuming that all users who use the same or similar keywords have same expectations in mind as other users who visited the more popular sites. Often, this turns out to be a disappointment for many users because many users are in minorities when it comes to expectations and interest and it is not always a good assumption to believe all users have the same interests and expectations for a search. This assumption does not hold true most of the time. Thus, users waste a lot of time browsing through unwanted, uninteresting, and/or junk web sites before they can find one web site that is in some way is closer to what they are looking for (if they find any relevant sites at all). The user may never find the few web sites among billions of web pages that provide exact information regarding what they are searching for, because some of these pages may not be popular or may not immediately correlate well with the search string. Therefore, none of these meaningful web sites or search results ever makes it to the top of the search result list.

[0008] A user may often look for information within certain area of interest, and they may exhibit trends, habits, or patterns of looking for similar information or related information to a core set of interests over time. Unaware of user's interests, search engines deliver web links that are vaguely associated with user's area of interest, if associated at all. For example, a user may enter a search string 'top bicycle riders'. The user may be looking for a list top ranked bicycle riders in world. Unaware of user's area of interest (that is, bicycle racing; and that the user is looking for top ranked bicycle riders worldwide), a search engines may deliver web links of top bicycle magazines, bicycle sellers, resellers and renters, bicycle touring in a remote holiday resort, etc. Unable to find what he/she is looking for, the user clicks on 'next' button again and again to scan ever deeper into the search results list, often getting same unsatisfactory results.

[0009] These and other limitations and deficiencies associated with the related art may be more fully appreciated by those skilled in the art after comparing such related art with various aspects of the present invention as set forth herein with reference to the figures.

BRIEF SUMMARY OF THE INVENTION

[0010] The present invention is directed to apparatus and methods of operation that are further described in the following Brief Description of the Drawings, the Detailed Description of the Invention, and the claims. Other features and advantages of the present invention will become apparent from the following detailed description of the invention made with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. **1** is a schematic block/step diagram illustrating an Internet infrastructure containing a plurality of client devices and web browser accessible search engine server, wherein the search engine server delivers web links based upon browser activity information gathered from client devices;

[0012] FIG. **2** is a schematic block/step diagram illustrating components of the search engine server constructed in accordance with the embodiment of FIG. **1**;

[0013] FIG. **3** is a flow diagram illustrating functionality of the search engine server of FIG. **1**;

[0014] FIGS. **4-5** illustrate a flow diagram showing functionality of the search engine server of FIG. **1** upon delivering a search engine server's webpage, in one embodiment;

[0015] FIG. **6** is a flow diagram illustrating functionality of the search engine server of FIG. **1** wherein the search engine server gathers and processes browser activity information, and delivers web links based upon this data;

[0016] FIG. **7** is a schematic diagram illustrating a snap shot of search interface webpage of the search engine server of FIG. **1**, wherein the search interface webpage allows a user to send browser activity information either periodically or when desired, to a server; and

[0017] FIG. **8** is a schematic diagram illustrating a snap shot of a first search result page based upon a search string, favorite lists and related metadata, trends, and browser activity information.

DETAILED DESCRIPTION OF THE DRAWINGS

[0018] FIG. **1** is a schematic block/step diagram illustrating an Internet infrastructure **105** containing a plurality of client devices **157** through **159** and at least one web browser accessible search engine server **169**. In FIG. **1**, the search engine server **169** delivers search results or web links based upon browser activity information gathered from a browser activity monitoring module **195** incorporated into web browsers **151** of the plurality of client devices **157** through **159**. In specific, the browser activity monitoring module **195** tracks user's Internet activities, such as a time at which a webpage is visited, duration for which a webpage is visited, the kind of interaction performed with a web site, the content accessed in the web site (ads, movies, text, PDF, audio, etc), the amount of clicks or level of interaction with the web site, the number of sub-URLs visited within a parent web site, and/or number of times a webpage is revisited. The module **195** sends this compiled browser activity information to the search engine server **169** periodically, upon a trigger event (like the start of a search), or upon user request(s). The search engine server **169** stores the gathered browser activity information and tailors the search results based upon this information. Then, the search engine server **169** delivers the results to the web browser **169**, along with search results that are obtained using word matching in general, using favorite lists, and popular search trends from this user or other users.

[0019] Said another way, the search engine server **169** collects the user's browser activity information along with a favorite list used by the user and related client/user/browser metadata from each of the plurality of client devices **157** through **159** during its interaction with the client device **157** or **159**, such as during a search interface webpage delivery (the time the server delivers a web page to the client to start or enable search operations). The search interface webpage contains interfaces useful for a user to search the Internet or another network using a search string and the search interface web page contains interfaces to edit favorite lists and send favorite list(s) data to the server along with browser activity information (for more details refer to the detailed description with reference to the FIG. **7**). Then, the search engine server **169** processes this information during search operations before delivery of each of the search result pages and refines the search results according to information derived from the favorites, trends, metadata, and historical user/browser activity. Based upon the favorite list and related metadata, and browser activity information, the search engine server generates user profiles and trends that can be used to refine search results and search operations.

[0020] Furthermore, the search engine server tailors the search results and/or user advertisements based upon: (a) browser activity information; (b) favorite lists and related metadata; (c) the search string and/or information parsed therefrom; (d) a user profile created from browser activity information, and favorite list and related metadata; and (e) trends that are derived based upon favorite behavior and browser activity behavior. The search string or information parsed or derived therefrom may be matched with web contents in a crawl web page database **177**, a world's favorite database **179**, and/or a browser activity database **181**. The crawl webpage database **177** contains a collection of all of the web pages hosted by a plurality of web hosting servers across the Intranet (the servers are not specifically shown in FIG. **1**). The web pages within the database **177** are obtained by having a server crawl from web page to web page over the Internet, or by user submission to the server. The world's favorite database **179** contains web pages and related metadata (such as time at which a favorite webpage is visited, duration for which the favorite webpage is visited and number of times the favorite webpage is revisited) gathered from the web browsers **151** of the plurality of client devices **157** through **159**. Therefore, the database **179** contains favorite sites visited by one user or a plurality of users, and the users may be grouped together by common profiles, interest, search patterns, may be statistically linked to each other, or may be grouped randomly together. The browser activity database **181** contains browser activity information such as webpage visited (either via a search process or directly), time at which the webpage is visited, duration for which the webpage is visited, number of times the webpage is revisited (hit count), etc (as discussed previously).

[0021] The search engine server **169** is able to process data in the world's favorite database **179** and/or browser activity database **181** to determine (from browser activity information, favorite lists and metadata) many possible interpretations of the resident data, such as: (a) a web link may be added to a favorite list, but may not be revisited by the user at all (if a web site or search result is in the favorite list but hit count is very low, the web page is likely not a true favorite); (b) a webpage may have been visited by many users, but the various durations of the visits are very small (this profile may indicate a junk or popup site that was unexpectedly and undesirable encountered by a user in a repeated manner); (c) a webpage is visited for long duration and visited many times, though may not be in favorite list (possibly, a true favorite that is simply not saved in a favorites list, could be the home page for example); (d) a webpage that is visited many times via searching, but duration is low (e.g., an accidentally visited website that had little or no interest to the user in the end); (e) a webpage is visited via manually entering the site address (the address is known to the users by some other means, not searched), etc. Such processing enables the search engine server **169** to tailor search results and advertisements to the user needs based on interpretation of data in the various databases **177**, **179**, and **181**.

[0022] The browser-activity-monitoring module **195** on the clients in FIG. **1** collects and sends browser activity information, periodically, upon a trigger event, or upon a user request, to the search engine server **169** for storing and further processing. Note the module **195** may be a shared module between several clients or may be independent copies of the same or similar program/function on each client device. Alternatively, the browser-activity-monitoring module **195** may also perform pre-processing to reduce the volume of data sent to the server so that the data can be more easily consumed by the search engine server **169**, via many client sources. For example, the browser activity monitoring module **195** may perform only a daily summary of only high volume visits, the module **195** may generate monthly, yearly, or lifetime summaries for the server, or the module **195** may remove interactions associated with pop-ups, adware, virus programs, other malware, quickly closed pages, certain illegal or

restricted content (e.g., adult content, or content know to be violating copyright rights through digital rights management monitoring), etc.

[0023] The search engine server **169** of FIG. **1** generates a search result page for review by the user at a client device. This search result page (or pages) contains, in part or full, search result web links selected for presentation to the user on the basis of: (a) matching words, patterns, or phrases of search string with that of webpage contents only from crawl webpage database **177**; (b) matching words, parsed data, etc., of search string with that of webpage contents only from world's favorite database **179**; (c) matching words, etc., of search string with that of webpage contents only from browser activity database **181**; (d) matching words, etc., of search string with that of contents from an advertisement database (not specifically shown in FIG. **1** but operating similarly to databases **177-181**, but for advertisement and commercial content); (e) user profile(s) created using favorite list, related metadata, and browser activity information; (f) trends based on favorite behavior and browser activity behavior; (g) persistence information; and/or (h) combinations of (a) through (g). Each of the search result lists sent to the user to satisfy a search operation thus obtained from (a) through (g) are also sorted on the basis of popularity or one some other rank-ordered characteristic (e.g., age of content, location, data size, date of creation or last edit, etc). All of the web links thus selected from (a) through (g), and sorted via some characteristic, may be delivered separately in each search result page or may be mixed together from the different sources (a) through (g) to form less number of lists and delivered in one or more columns to the user. In addition, the user may be provided with some flexibility in deciding which of the combinations of (a) through (g) is delivered in a search result page, and this can be set dynamically by a user input to a client window, a control panel, a software or hardware setting, interfacing to the operating system (OS), etc. The favorite list related metadata as well as browser activity information may include 'times visited', 'date added' and 'active duration of interaction with the site' or other relevant data to allow search operations to be refined and improved over time.

[0024] A user profile may be developed immediately upon reception of updated or current favorite list(s) and related metadata, and/or browser activity information. The user profile may be developed using the favorite list and related metadata and/or browser activity information obtained during delivery of the search interface web page or as updated in another manner from time to time. As one example, a user may often visit web links (some of which may be selected from the favorite list, while some others may be entered via direct entry into a address/URL text box or through search hyperlinks) in the area of commerce, some other in the area of news, and a few more on a personal topic of interest (such as an NBA site, mail related web sites, banking web sites, financial news web sites) etc. In addition, the favorite list related metadata and browser activity information may contain useful data that indicates that the user mostly uses Internet for browsing between certain times (e.g., from 9 am to 5 pm), and visits commerce related web links (such as stock related websites) 80% of the time and news related web sites 10% of the time from Monday through Friday, but not on weekends, etc. The search engine server **169**, in this case, is able to construct a user profile that includes all of the user browsing behavior as related to the favorite list and related metadata and browser activity information. An example profile or trend with capture information such as: (a) User's Area of Interests: Commerce, Business News and Personal; (b) Visiting Hours for Science: 9am to 5 pm, Most Viewed Web Site: 'XYZ.com', Percentage of Time Dedicated to 'XYZ.com': 70% etc. From this user profile and/or trends, the search engine server **169** may determine that if the search string received during a search is related to the area of commerce, the user is likely to be interested in many of the commerce related web links that others have visited that have similar interests, profiles, or trends to the user. If a user with a similar trend pattern or profile often visits certain sites in the subject matter area of this search, then the server can choose to deliver such web links either separately or mixed with other lists mentioned above for review by the current user. In other words, the server can assume that users that have similar profile and similar browse histories, behaviors, favorites, interaction with the browser, etc., may be looking for similar content when searching in similar areas via a search string.

[0025] The trends that use favorite behavior and browser activity behavior allows the search engine server **169** to reorder the search result list, based upon, for example, recently added and high visit volume preferences. The search engine server **169** may push some of these recently added and high visit web links to the top of the list. In addition, the search engine server **169** may process the data stored in the world's favorite database **179** and browser activity database **181** to determine search hit probability by applying weighting factors (a modified natural language search) to different favorites, trends, user interactions, etc. A few of the factors that may be used to determine a weighting factor are: (a) number of users tagging a webpage as favorite; (b) number of users visiting the web page, either via a search engine or directly; (c) time at which the webpage is visited; (d) duration for which the webpage is visited; and (e) number of times the webpage is revisited (hit count). Similar processing may be adapted to form a specific browsing activity weighting factor, a specific favorite weighting factor or a crawl web page weighting factor.

[0026] The internet infrastructure **105** illustrated in FIG. **1** contains the search engine server **169** communicatively coupled to the plurality of client devices **157** through **159** via access points (APs) **121**, **122**, and **123**, ISPNs (Internet Service Provider's Networks) **111** and **112**, and an Internet backbone **107**. The search engine server **169** contains browser activity gathering module **171** that collects the browser activity information and stores this data in the browser activity database **181**. The search engine server **169** also contains favorite list gathering module **173** that collects the favorite lists and related metadata for a user or client and stores this data in the world's favorite database **179**. The browser-activity-monitoring module **195** tracks the user's usage of the Internet and temporarily stores trends, usage data, etc., in the client devices **157** through **159**. Then, in one embodiment, upon a clicking of a 'send browser activity' button in the web browser **151**, the browser-activity-gathering module **171** receives the stored browser activity information and stores it in browser activity database **181** for further processing.

[0027] When the search engine server **169** begins interaction with the web browser **151** or a similar application on a client, a search support module (not shown) fills up a favorite list pane or popup window with favorite lists. Therefore, the search interface web page contains options to upload favorite list and related metadata, and browser related activity to the search engine server **169**. Then, upon possible user editing/

changes and a clicking of a 'send favorite list' button, via the client device **157** or **159**, the favorite list gathering module **173** receives the favorite list and related metadata and stores this information in world's favorite database **179** for further processing.

[0028] Soon after the favorite list and related metadata, and browser activity information is received, a user profiling module (not specifically shown in FIG. **1**) creates a user profile as mentioned in above paragraphs. A trend estimation module (not specifically shown in FIG. **1**) retrieves stored information from the world's favorite database **179** and browser activity database **181** and processes this information to create trends, such as recently added websites and high visit volume preferences of the user. A browser-activity-based search result sorting module **175** orders search results or search result web links, selected from the browser activity database **181**, on the basis of the search string and by popularity (or some other meaningful characteristic of the search result data). It also reorders the web links selected from crawl webpage database **177** based upon information processed from browser activity database **181** or other user relevance/priority information.

[0029] The search interface webpage that is delivered as a first page upon request from the web browser **151** facilitates the user to select between the following options for the current search: (a) search within browser activity database **181** alone; (b) search within world's favorite database **179** alone; (c) search within crawl webpage database **177** alone; (d) search based upon trends based on favorite behavior and browser activity behavior alone; and/or (e) any of the combinations of (a) through (d). In addition, 'send browser activity' and 'send favorite list' buttons allow user to send browser activity information and/or favorite lists and related metadata. The user may also be provided with a helpful tip that lets the user know terms with which the favorite list, trends, user profile, and related metadata, as well as web browser activity information are gathered, stored, shared, and used by the search server engine **169**. For example, the helpful tip may be:

[0030] "To help us improve our site can you please provide your favorite list and browser activity information? You may edit, include, or delete any web link from the favorite list before sending it to us. We do not invade your privacy; keep records of any of your data including IP address and name."

[0031] As an example of a search, a user may enter 'top bicycle riders' as a search string and choose the 'search using browser activity' option to enable searching for search results or search result web links that are associated or correlated strongly with historical user browser activity. Then user may click on 'search' button. The search engine server **169** searches for web links from the browser activity database **181** and delivers search results in one or more of the columns on a display screen of the client device. One or more other columns on the display screen or graphical user interface may have results derived from the crawl webpage database **177**. Still another column or columns may have advertisements tailored by using a user profile, derived from the browser activity and favorite lists of the web browser **151**, and so on.

[0032] FIG. **2** is a schematic block/step diagram illustrating components of the search engine server constructed in accordance with the embodiment of FIG. **1**. The search engine server circuitry **207** may, in part or full, be incorporated into any computing device that is capable of serving as an Internet based server or computer. The search engine server circuitry **207** generally includes processing circuitry **209**, local storage **217**, manager interfaces **249**, and network interfaces **241**. These components are communicatively coupled to one another via one or more of a system bus, dedicated communication pathways, or other direct or indirect communication pathways. The processing circuitry **209** may be, in various embodiments, a microprocessor, central processing unit (CPU), a digital signal processor (DSP), a graphics processor, a state machine, an application specific integrated circuit, a field programming gate array, combinations thereof, or other processing circuitry.

[0033] The network interfaces **241** contain wired, optical, and/or wireless packet switched interfaces **245** and may also contain built-in or an independent interface processing circuitry **243** (usually another central processing unit of some sort). The network interfaces **241** allow the search engine server **207** to communicate with client devices such as devices **261** and to deliver search result pages of web links. The manager interfaces **249** may include one or more display and keypad interfaces. These manager interfaces **249** allow the user or IT expert at the search engine server **207** to control aspects of the system/server. The client device **261** that is illustrated is communicatively coupled to the search engine server **207** via an Internet **255**.

[0034] Local storage **217** may be any type of random access memory (RAM), read-only memory (ROM), flash memory, electrically erasable memory, optical storage, magnetic storage, a disk drive or array, an optical drive, any combination thereof, or another type of memory that is operable to store computer instructions and data. The local storage **217** includes a browser activity gathering module **223**, favorite list gathering module **225**, favorite list based search result sorting module **227**, browser activity based search result sorting module **229**, crawl webpage database **231**, a world's favorite database **233** and a browser activity database **235** to facilitate a user's search in accordance with the teachings herein. The client device **261** is illustrated as being communicatively coupled to the search engine server **207** via the Internet **255** or another communication network of any kind.

[0035] The browser-activity-gathering module **223** collects browser activity information and stores this data in the browser activity database **235** on the server. A browser-activity-monitoring module **295** incorporated into web browser **251** tracks the user's usage of Internet and temporarily stores them in the client device **261**. In addition, either or both of the client or the server may process and filter the data collected by the browser-activity modules. By performing this processing and filtering, only relevant user activity is processed in a manner that influences search results. So, for example, virus-controlled activity, banned activity, adult content, unwanted ad pop-ups, etc., can be filtered from the data recording in the browser-activity modules and other activity that is highly relevant to the user may even be weighted higher by the modules. Upon clicking of a 'send browser activity' button in the web browser **251** or upon a timed event, a trigger event, or commission of a search, the browser activity gathering module **223** on the server receives the stored browser activity information from the client and stores it in browser activity database **235** for further processing during search operations. The favorite-list-gathering module **225** gathers favorite lists and related metadata from the web browser **251** and stores this data in the world's favorite database **233**. This information can be used in addition to the browser activity modules to further refine or advantageously expand search operations

and search results. The gathering of favorite list information and related user metadata/profiles occurs during search engine server's **207** interaction with the web browser **251** of the client device **261**. However, the client device can be running browser activity data collection from the user at all times or at critical intervals or activities, even when search operations are not being performed and even when the client and server are not communicating with one another. For example, the module **295** on the client may monitor user interaction with locally cached Internet content, email, downloaded software or documents, downloaded content, cached advertising, and other activity to generate user profiles, user data, and user browser activity. Therefore, the browser activity may involve user activity in other applications, like a virus prevention application, an email application, a media processor (e.g., WinDVD or iTunes), and other applications.

[0036] The favorite list based search result sorting module **227** orders web links, selected on the basis of search string, often by popularity or some other meaningful characteristic to the user. The browser activity based search result sorting module **229** orders web links, selected from the browser activity database **235**, on the basis of the search string and by popularity of some other client-set or server-set characteristic. It also reorders the web links selected from crawl webpage database **231** based upon information processed from browser activity database **235**.

[0037] In other embodiments, the search engine server **207** of FIG. **2** may include fewer or more components than are illustrated as well as lesser or further functionality. In other words, the illustrated search engine server is meant to merely offer one example of possible functionality, parsing of functionality, and system construction in accordance with one embodiment.

[0038] FIG. **3** is a flow diagram illustrating the functionality of the search engine server of FIG. **1**. The functionality begins at a block/step **307**, where the search engine server requests that the user of the client device install and/or execute the browser activity-monitoring module **295** of FIG. **2**. The search engine server or code stored in the application on the client provides all the necessary details and terms and conditions upon which the browser activity monitoring module is installed within the browser of the client device. After installation, the browser activity monitoring module **295** (see FIG. **2**) starts tracking user Internet activity and sends this browser activity information periodically, upon trigger events, or upon user request to the server. During one such search interface webpage delivery, the user sends browser activity information (along with or in conjunction with a search string) to the server. The search interface webpage is the first webpage that is delivered to the web browser to initiate a new search. At a next block/step **309**, the search engine server receives browsing activity data from the browser activity monitoring module on the client, often with the requirement that the user gives permission for the access or transfer of data and/or the user has a chance to change, edit, delete, or add data to/from the communicated information. Then, at a next block/step **311**, the search engine server stores the browser activity information in browser activity database, as shown in FIG. **2**.

[0039] A separate search support module also sends user or browser favorite list(s) information and related user/client metadata to the search engine server. Again, this part of functionality may occur during delivery of the search interface web page, a search string, or some other function. In the search interface webpage, the search engine server provides an option to upload the favorite list(s) on to an editable window pane or popup window and allows the user to edit, remove, and then send the favorite list along with a search string. At a next block/step **313**, the search engine server receives, with user permission (which is often a good idea to enable), the favorite list, and related metadata, along with search string (if a new search is to be initiated). At a next block/step **315**, the search engine server stores favorite list and related metadata in a world's favorite database and also constructs one or more user profiles using the collected browser activity information and possibly the favorite lists and related metadata. To construct a user profile, the search engine server uses browser activity information, favorite list information, and the related metadata to create profile data such as: (a) percentages of categories of webpage visits; (b) the times at which web pages are visited; (c) the time and date at which a webpage is added to the favorites list; and (d) the active duration for which a webpage is interacted with, among other related metadata. In addition, before delivery of a search result page, the search engine server processes stored data in the world's favorite database and browser activity database to allow for the monitoring and processing of trends, such as the user access to recently added websites and high visit volume sites/preferences. The user may choose to search, using the search string, within the world's favorite database, within the crawl webpage database, within the browser activity database and/or search using trends to obtain one or more lists of search results or web sites/pages relevant to the user's search needs.

[0040] At a next block/step **317**, the search engine server selects web links from the crawl webpage database based upon the search string and sorts on the basis of popularity ranking and/or world's favorite ranking (or some other ranking scheme like date, size, etc). The world's favorite ranking is decided by using favorite weighting factor(s) that determines how many users select a webpage as a favorite. The browser activity information may also be used to rank the web links selected. At a next block/step **319**, the search engine server selects web links from the world's favorite database and/or browser activity database based upon the search string and sorts on the basis of popularity ranking and/or world's favorite ranking (or some other mechanism). Again, the browser activity information may also be used to rank the web links selected, and as always, multiple two-tier or multi-tier rank-ordered algorithms may be employed. The process of block/step **319** is performed only if the user chooses to search within the world's favorite database or search using browser activity information. At a final block/step **321**, the search engine server delivers a first search result page containing one or more of: (a) search results or web links selected and ranked from crawl webpage database; (b) search results or web links selected and ranked from world's favorite database; (c) search results or web links selected and ranked from browser activity database; (d) search results or web links selected from an advertisement database; (e) user profile created using favorite list and related metadata, and browser activity information; (f) trends based on favorite behavior and browser activity behavior; (g) persistence information; and/or (h) any combination of (a) through (g).

[0041] FIG. **4** is a flow diagram illustrating the functionality of the search engine server of FIG. **1** upon delivering a search engine server's web page to start a search operation, in accordance with one embodiment. The functionality of the search engine server, in this embodiment, begins at a block/

step **409**, when a search interface webpage (refer to FIG. **7** for detailed description of a typical search interface web page format) or subsequent search engine server's webpage is delivered. The search interface webpage that initiates a new search using a new search string typically contains provisions to enter a search string and upload favorite list and related metadata, as well as to upload browser activity information between the client and server. Similarly, the subsequent search result pages (one of search engine server's web pages) contain provisions to enter a new or refined search string, as well as 'next' button and 'prey' (or 'previous') button, to continue refinement and processing of search results over time. The search interface webpage or subsequent search engine server's webpage provides user facilities to search using any of the combination of the databases provided by the server and the client, based upon a search string, such as: (a) search using browser activity information; (b) search using favorite lists and related metadata; (c) user profile created from browser activity information, and favorite list and related metadata; and/or (e) trends based upon favorite behavior and browser activity behavior. The browser activity information related search may be selected and performed using a 'search using browser activity' radio button or other selection mechanism within the graphical user interfaces (GUIs) displayed to the user.

[0042] At a next decision block/step **421**, the search engine server determines if a 'prey' button is clicked. If yes, at a next block/step **455**, the search engine server delivers an exact previous search result page and waits for new inputs from the user of the client device. In case of the first search interface web page (when there is no previous data to display), the 'prey' button is not available. If the 'prey' button is not clicked at the decision block/step **421**, then, at a next decision block/step **423**, the search engine server determines if a 'next' button is clicked. If yes, at a next block/step **457**, the search engine server delivers a subsequent search result page. In case of the search interface web page or a last search page, the 'next' button is not available as there is no next page of search results to deliver at this time.

[0043] If the 'next' button is not clicked at the decision block/step **423**, then, at a next decision block/step **425**, the search engine server determines if the 'search using browser activity' radio button is on. If not (if the button is off), the search engine server determines, at a next decision block/step **427**, if 'search' button is clicked. If yes at the decision block/step **427**, then the search engine server begins processing of a new search criteria, based upon a search string at connector **13'** (refer to the FIG. **5** for continuation of the process/method). If 'search using browser activity' radio button is clicked at the decision block/step **425**, then, at a next decision block/step **429**, the search engine server determines if a 'search' button is clicked. If yes at the decision block/step **429**, then the search engine server begins processing of a new search criteria, based upon a search string and favorites at connector 'A' (refer to the FIG. **5** for continuation of the method via connector A). In another embodiment the options of 'search within favorites' and 'search using trends' may be incorporated using similar process. It is important to note that the order of the decision blocks/steps in FIG. **4** may be changed. It is possible, for example, to poll for a next button before a prey button, and still perform an algorithm that servers the purposes taught herein.

[0044] FIG. **5** is a flow diagram illustrating functionality of the search engine server of FIG. **1**, continued from connectors 'A' and 'B' as shown in FIG. **4** and FIG. **5**. The continued functionality of FIG. **4** at connector 'A' begins at a block/step **461** with the search engine server receiving a search string along with browsing activity information, favorite list, and metadata from client device's web browser. At a next block/step **463**, the search engine server matches words, phrases, or parsed data of the search string with that of contents of the web pages in the world's favorite database and/or browser activity database. Then, at a next block/step **465**, the search engine server selects web links from the world's favorite database and/or browser activity database, on the basis of closeness in match. At a next block/step **467**, the search engine server sorts the selected web links based upon closeness in match and/or popularity and/or world's favorite ranking, etc. The world's favorite ranking is decided based upon a favorite weighting factor that determines how many users select a webpage as their favorite or a favorite. The browser activity information may also be used to sort the web links selected. At a next block/step **469**, the search engine server delivers a search result page containing a first few web links sorted on the basis of: (a) closeness in match; (b) popularity rank; and/or (c) world's favorite rank. These combinations may be displayed separately in multiple columns or in a single column on the client display screen. The browser activity ranking based web links may also be presented.

[0045] The continued functionality of FIG. **4** at connector 'B' begins at a block/step **481** with the search engine server receiving a search string along with favorite list data and metadata from client device's web browser. At a next block/step **483**, the search engine server matches words of the search string with that of contents of the web pages in the crawl webpage database. Then, at a next block/step **485**, the search engine server selects web links from the crawl webpage database, on the basis of closeness in match. At a next block/step **487**, the search engine server sorts the selected web links based upon closeness in match and/or popularity and/or world's favorite ranking. The browser activity information may also be used to sort the web links selected. At a next block/step **489**, the search engine server delivers a search result page containing a first few web links sorted on the basis of: (a) closeness in match; (b) popularity rank; and/or (c) world's favorite rank. These combinations may be displayed separately in multiple columns or in a single column on the display screen or display device located with the client device. The browser activity ranking based web links may also be presented in another column.

[0046] Note that the functionality of 'search within favorites', 'search using trends' and also that of user sending the favorite list and metadata to the search engine server are not illustrated in FIGS. **4** and **5**, but these features can be combined in any combination to create new modes of searching for search results to improve search result relevance to the user. for other such embodiments the functionality of selecting other search modes or combinations is shown in the snap shot of FIG. **7**, as well as other variations (such as displaying mixed search results from various databases), as all such combinations are possible.

[0047] FIG. **6** is a flow diagram illustrating a functionality of the search engine server of FIG. **1** wherein the search engine server gathers and processes browser activity information, and delivers web links based upon this data. The functionality of gathering and processing the browser activity information to refine search result lists begins at a block/step **607** where the search engine server requests browser activity

information from web browsers of a plurality of client devices periodically, upon trigger events, or upon request from the browser activity monitoring module, during their interaction with the search engine server. The search engine server makes requests for browser activity information periodically from the browser activity-monitoring module located on one or more client devices. The search engine server may also request for browser activity information from the plurality of client devices during delivery of a search interface webpage (refer to the description of FIG. **7**). Therefore, there are many mechanisms, timing, and modes that the server and client can use to exchange meaningful user profile, trend data, metadata, browser data, etc., to assist in improving search operations. During the delivery of a search interface web page, the search engine server requests that the user of the client device provide their browser activity information along with favorite lists and related metadata (if selected or needed, and in some embodiments only if authorized and approved by the user). In one embodiment, the search interface webpage contains a window pane that is loaded with user's favorite lists and allows user to add, edit, remove and send them, and button to send browser activity information along with a search string.

[0048] Then, at a next block/step **609**, the search engine server stores gathered browser activity information in browser activity database in a user-anonymous manner. The search engine server also stores gathered favorite list and related metadata in world's favorite database in an anonymous manner. The user is informed during installation of browser activity monitoring module and collecting of the browser activity information, and favorite list and related metadata that the collection is anonymous and no private data such as IP address and name(s) are collected or used in the process of searching. At a next block/step **611**, the search engine server processes the browser activity information along with favorite list and related data with other statistical data. For example, the search engine server may process this data to create a user profile immediately after collection of the data, which is used to reorder, prioritize, select, and omit various search results available for inclusion in the search result list and selectable advertisements to better cater to the needs/desires of the user. Another example is that of creating trends based upon browser activity behavior and favorite behavior that again is used to reorder the search result list and advertisements.

[0049] At a next block/step **613**, the search engine server tailors and orders the search results using a formula that incorporates processed browser activity information, favorite list and related metadata and other statistical information. The formula may also give certain weight to each of the factors that influence reordering of the search result list, such as user profile, search within favorites, search using browser activity, and search using trends. At a next block/step **615**, the search engine server processes 'Search Using Browser Activity' button input (if turned on) to search from browser activity database, 'Search Within Favorites' button input (if turned on) to search from world's favorite database, and 'Search Using Trends' button input (if turned on) to allow recently added and high visit volume preferences to come to the top of the search result list. These radio button selections can be additive or mutually exclusive in different embodiments. A separate set of search result lists may be generated from each of the above radio button selections or the search results from each source can be assembled together and rank-ordered as a single compilation. The search result processing occurs immediately after collecting browser activity information, favorite list and related metadata, and the processing includes selection and sorting from browser activity database and world's favorite database alone and/or sorting on the basis of trends. At a next block/step **617**, for each of the search string, browser activity information and favorite list and related metadata received from the plurality of web browsers, the search engine server delivers a search result page based upon a user chosen criteria, which includes: (a) search within favorites; (b) search all of the web; (c) search using browser activity; (d) a combination of (a) and (b). In other embodiments, any combination of the selections (a)-(c) may be used.

[0050] FIG. **7** is a schematic diagram illustrating a snap shot of search interface webpage **705** of the search engine server of FIG. **1**, wherein the search interface webpage **705** allows a user to send browser activity information either periodically, upon trigger events, or when desired, and provides for user options to enable searching within favorites, search using trends, and/or search using browser activity information. Specifically, the exemplary snap shot illustrated in FIG. **7** shows the search engine server's search interface webpage **705** delivered to web browser **795** of the client device to facilitate user's search and to send browser activity information, and favorite list and related metadata. Note, in other embodiments, the function of providing trends, metadata, browser activity information, etc., can be decoupled from the process of performing a search with a search string. However, for ease of user interface to the server/browser, these two functions are combined together in one page in FIG. **7**. The search engine server's search interface webpage **705** may contain a page title such as 'Search Engine's web page (www.Search_Engine.com)' **721**, and a 'search' button **737**.

[0051] Along with 'search' button **737**, the search interface webpage **705** also contains 'search within favorites' **729**, 'search using browser activity' **733** and 'search using trends' **735** radio buttons or selections in FIG. **7** that help refine the search, in accordance with the embodiments taught herein. The user is able to restrict searches to within browser activity database, world's favorite database and/or search using trends based upon favorite behavior, by using these radio buttons **729**, **733**, and **735** in FIG. **7**. In addition a text such as 'Enter Search String:' **723** and text box **727** are provided to facilitate user's search string/data input. The user may enter the search string in the text box **727**, such as 'Top Bicycle Riders' **725**, make appropriate choices with buttons and interfaces in FIG. **7** and click on the 'search' **737** button to initiate a new search. The source of search result selection, ordering, etc., will be modified by the server based upon user selections and data input via the screen shown in FIG. **7**.

[0052] An additional favorite list windowpane is provided for the user to send browser activity information, favorite list, and related metadata, in modified, redacted, expanded, or other forms. The windowpane loads up one or more favorite lists from the web browser automatically, as illustrated in FIG. **7**. For example, the windowpane may contain a title such as "Your Favorite List" **747**, followed by a list of web links such as links **761** through **763**. The windowpane also has button to edit and delete, 'Edit' **743** and 'Delete' **745**, content within the lists **747**. By using these buttons **743** and **745**, the user can add additional web links to the list, delete certain web links from the list, or edit some of the links. Also, a 'Send Favorite List and Search' **741** button allows the user to send favorite list and initiate a new search (based on the search string in the text box **727**) at the same time. A 'Send Browser

Activity' **797** button allows the user to send browser activity information to the server and use this information to refine selection, ordering, and processing of search results. In another embodiment, the windowpane may allow simultaneous sending of browser activity information, favorite lists, and metadata and search information.

[0053] A helping tip within the window pane such as the text "Help: Select Web Link that you want to edit or delete and press corresponding buttons above" **749** helps the user(s) to understand how to edit and send favorite list and related metadata to assist and modify their search operations and results. In addition, a helpful note can be provided that helps the user to understand that the data that is collected anonymously from their client machine to facilitate a better search. This message can be a message such as:

[0054] "Note: This Search Engine also searches within World's Favorite Lists and using Browser Activity, if chosen. Trend button allows recently added and high visit volume preferences to come to the top of the Search List. To help us improve our site can you please provide your favorite list? We do not invade your privacy, keep records of any of your data including IP address and name, we collect data anonymously" **793**

[0055] FIG. **8** is a schematic diagram illustrating a snap shot of a first set/list of search results provided in a first search results page based upon a search string, favorite lists and related metadata, trends and/or browser activity information. Specifically, the exemplary snap shot illustrated in FIG. **8** shows the first search result page **805** as delivered to web browser **895** of the client device. This page is used to facilitate a user's search. The first search result page **805** may contain a page title such as 'Search Engine's web page (www.Search_Engine.com)' **821**, and a 'search' button **837**. A text such as 'Enter Search String:' **823** and text box **827** are provided to further facilitate user searching. The user may enter the search string in the text box **827**, such as 'Top Bicycle Riders' **825**, make appropriate choices in the various areas of FIG. **8** and click on the 'search' button **837** to initiate a new or refined search.

[0056] The first search result page **805** also contains 'search within favorites' **829**, 'search using browser activity' **833** and 'search using trends' **835** radio buttons that help restrict the search to specific data sources, data organization and selection algorithms, and different modes of searching. The user is able to restrict a search to only within browser activity database, world's favorite database and/or search using trends (or any combination thereof) based upon browser activity and favorite behavior, by using the radio buttons **829**, **833**, and **835** in FIG. **8**. The first search result page **805** also contains the 'prey' **885** and 'next' **889** buttons to access prior displayed search result pages and the subsequent search result pages, respectively. A helpful note can be provided to help the user to search in accordance with the present invention. This helpful note can be any not, such as

[0057] "Note: This Search Engine also searches within World's Favorite Lists and using Browser Activity, if chosen. Trend button allows recently added and high visit volume preferences to come to the top of the Search List" **893**

[0058] Also, the first search result page **805** may contain in various columns and window panes, web links selected from one or more of: (a) browser activity database; (b) world's favorite database; (c) crawl webpage database; and/or (d) an advertisement database. The columns may also contain web links selected on the basis of: (i) user profile created from browser activity information and favorite list and related metadata; and (ii) trends based on browser activity behavior and favorite behavior. All of the web links thus selected using the above-mentioned criteria may be delivered separately in separate or different search result pages or may be mixed together to form fewer lists and search results pages whereby the data in these pages are mixed from several database sources within the server, to form fewer lists that are delivered in fewer columns or fewer windows. The first search result page **805** illustrated in the exemplary snap shot of FIG. **8** shows two columns, namely, 'Search Results Within World's Favorites' **841** and 'Search Results Using Browser Activity' **843**. Each of these columns contains web links selected on the basis of the search string 'Top Bicycle Riders' **825**. The columns are segregated in FIG. **8** to display results from specific sources in their own columns, with the sources being from one or more of the crawl web page database, the browser activity database and the world's favorite database. The two columns illustrated in FIG. **8** show web links **1** through **6**, as web sites **851** through **856** and web sites **861** through **866**, under the columns 'Search Results Within World's Favorites' **841** and 'Search Results Using Browser Activity', respectively. Again, as previously mentioned, the search results can be mixed and ordered together, regardless of search source or database origination. In fact, some entries may be redundant in several databases of FIG. **1**, requiring a filtering of some search results to avoid duplication in the search lists.

[0059] The terms "circuit" and "circuitry" as used herein may refer to an independent circuit or to a portion of a multifunctional circuit that performs multiple underlying functions. For example, depending on the embodiment, processing circuitry may be implemented as a single chip processor or as a plurality of processing chips (e.g., a multi-core device). Likewise, a first circuit and a second circuit may be combined in one embodiment into a single circuit or, in another embodiment, operate independently perhaps in separate chips. The term "chip," as used herein, refers to an integrated circuit. Circuits and circuitry may comprise general or specific purpose hardware, or may comprise such hardware and associated software such as firmware or object code.

[0060] As one of ordinary skill in the art will appreciate, the terms "operably coupled" and "communicatively coupled," as may be used herein, include direct coupling and indirect coupling via another component, element, circuit, or module where, for indirect coupling, the intervening component, element, circuit, or module may or may not modify the information of a signal and may adjust its current level, voltage level, and/or power level. As one of ordinary skill in the art will also appreciate, inferred coupling (i.e., where one element is coupled to another element by inference) includes direct and indirect coupling between two elements in the same manner as "operably coupled" and "communicatively coupled."

[0061] The present invention has also been described above with the aid of method steps illustrating the performance of specified functions and relationships thereof. The boundaries and sequence of these functional building block/steps and method steps (and their order in many some cases) have been arbitrarily defined herein for convenience of description. Alternate boundaries and sequences can be defined so long as the specified functions and relationships are appropriately performed. Any such alternate boundaries or sequences are thus within the scope and spirit of the claimed invention.

[0062] The present invention has been described above with the aid of functional building block/steps illustrating the performance of certain significant functions. The boundaries of these functional building block/steps have been arbitrarily defined for convenience of description. Alternate boundaries could be defined as long as any requisite or significant functions of a specific embodiment are appropriately performed in some manner by some structure/method. Similarly, flow diagram block/steps may also have been arbitrarily defined herein to illustrate certain significant functionality. To the extent used, the flow diagram block/step boundaries and sequence could have been defined otherwise and still perform the certain significant functionality. Such alternate definitions of both functional building block/steps and flow diagram block/steps and sequences are thus within the scope and spirit of the claimed invention.

[0063] One of average skill in the art will also recognize that the functional building block/steps, and other illustrative block/steps, modules and components herein, can be implemented as illustrated by discrete components, application specific integrated circuits, processors executing appropriate software, software modules, and the like, or any combination thereof. The algorithms taught herein were also focused on user-browser interaction and the use of this data in refining search results found based on a search string. However, a search result list may be derived by processing one more of the following sources of data in addition to the browser interaction database: a user profile data, user historic search patterns, user-client interaction data, client location, the time of day, the search string, user metadata, and user favorites data. Such combinations of two or more sources can even further refine search results to items that are more meaningful to the user.

[0064] Moreover, although described in detail for purposes of clarity and understanding by way of the aforementioned embodiments, the present invention is not limited to such embodiments. It will be obvious to one of average skill in the art that various changes and modifications may be practiced within the spirit and scope of the invention, as limited only by the scope of the appended claims.

1. A server system that receives a first search input of a first user of a plurality of users, the first search input being delivered by a first computer of a plurality of user computers, the server system comprising:

a first service that receives and stores first activity data associated with the plurality of users via the plurality of user computers, the first activity data being produced in accordance with a first type of program code in operation on each of the plurality of user computers, the first type of program code supporting Internet web page searching, browsing, selection, retrieval and display based on hypertext functionality, the first activity data comprising at least references to a first subset of a plurality of Internet hosted web pages;

a second service that receives and stores second activity data that is produced in accordance with a second type of program code in operation on at least a portion of each of the plurality of user computers, the second type of program code having substantially different functionally from that of the first type of program code, the second activity data comprising a plurality of hypertext link references; and

a third service that responds to the first search input by assisting in a sensory presentation on the first computer for the first user, the sensory presentation being generated from particular Internet hosted data selected based on the first search input, at least a first portion of the first activity data and at least a second portion of the second activity data.

2. The server system of claim **1**, wherein the second type of program code performs an identification function.

3. The server system of claim **1**, wherein the second type of program code performs a malware detection function.

4. The server system of claim **1**, wherein the second type of program code performs a pop-up ad detection function.

5. The server system of claim **1**, wherein the first activity data comprising objective activity data.

6. The server system of claim **1**, wherein the first activity data comprising subjective activity data.

7. The server system of claim **1**, wherein the second type of program code performs a media content related function.

8. A method performed by a server system that receives a first search input of a first user of a plurality of users, the first search input being delivered by a first computer of a plurality of user computers, the method comprising:

receiving first activity data associated with the plurality of users via the plurality of user computers, the first activity data being produced in accordance with a first type of program code in operation on each of the plurality of user computers, the first type of program code supporting Internet web page searching, browsing, selection, retrieval and display based on hypertext functionality, the first activity data comprising at least references to a first subset of a plurality of Internet hosted web pages;

receiving second activity data that is produced in accordance with a second type of program code in operation on at least a portion of each of the plurality of user computers, the second type of program code having substantially different functionally from that of the first type of program code, the second activity data comprising a plurality of hypertext link references; and

responding to the first search input by assisting in a sensory presentation on the first computer for the first user, the sensory presentation being generated from particular Internet hosted data selected based on the first search input, at least a first portion of the first activity data and at least a second portion of the second activity data.

9. The method of claim **8**, wherein the assisting comprising delivering at least a portion of the particular Internet hosted data to the first computer.

10. The method of claim **9**, wherein the assisting further comprises generating the at least a portion of the particular Internet hosted data by considering the first search input, the at least the first portion of the first activity data and the at least the second portion of the second activity data.

11. The method of claim **8**, wherein the second type of program code performs an identification function.

12. The method of claim **8**, wherein the second type of program code performs an email related function.

13. The method of claim **8**, wherein the second type of program code performs a media content related function.

14. First program code for instructing a user's computer to perform a method supporting interaction with an Internet search system and related to a plurality of Internet web pages, the user computer having second program code directing interaction with the Internet search system to perform first functions, the first functions being Internet web page related

searching, browsing, selection, retrieval and display based on hypertext functionality, the method comprising:

directing the user's computer to perform at least one second function that is substantially different from the first functions, the at least one second function being related to at least a subset of the plurality of Internet web pages; and

directing the user's computer to support at least one of the first functions by causing the user's computer to send interaction data associated with both the second function and at least one of the plurality of Internet web pages to the Internet search system.

15. The method of claim **14**, wherein the second function comprises an identification function.

16. The method of claim **14**, wherein the second function comprises a malware related function.

17. The method of claim **14**, wherein the second function comprises a pop-up ad related function.

18. The method of claim **14**, wherein the second function comprises an email related function.

19. The method of claim **14**, wherein the second function comprises a media content related function.

20. The method of claim **14**, further comprising directing the user's computer to generate the interaction data at least in part by performing an analysis associated with the at least one of the plurality of Internet web pages, and the analysis being at least a portion of the second function.

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