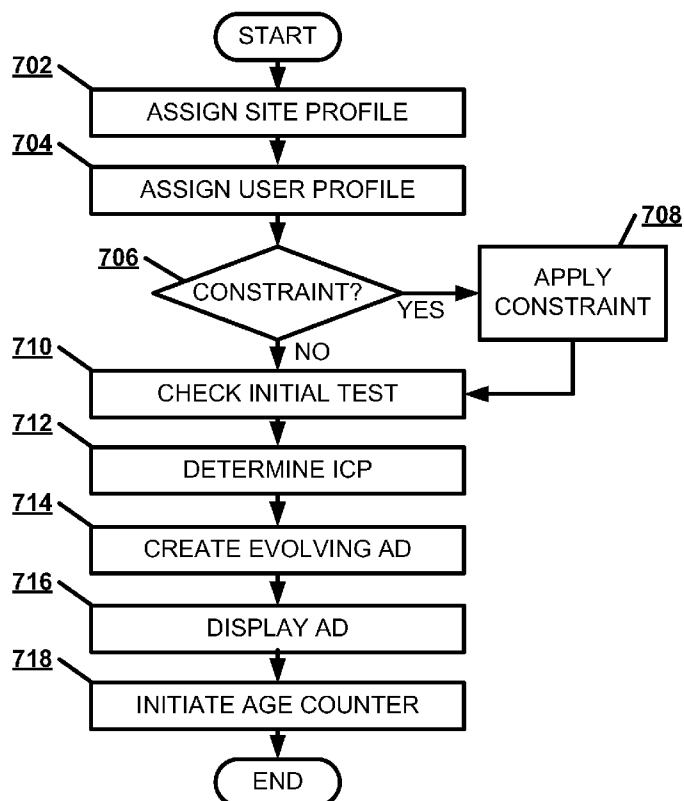
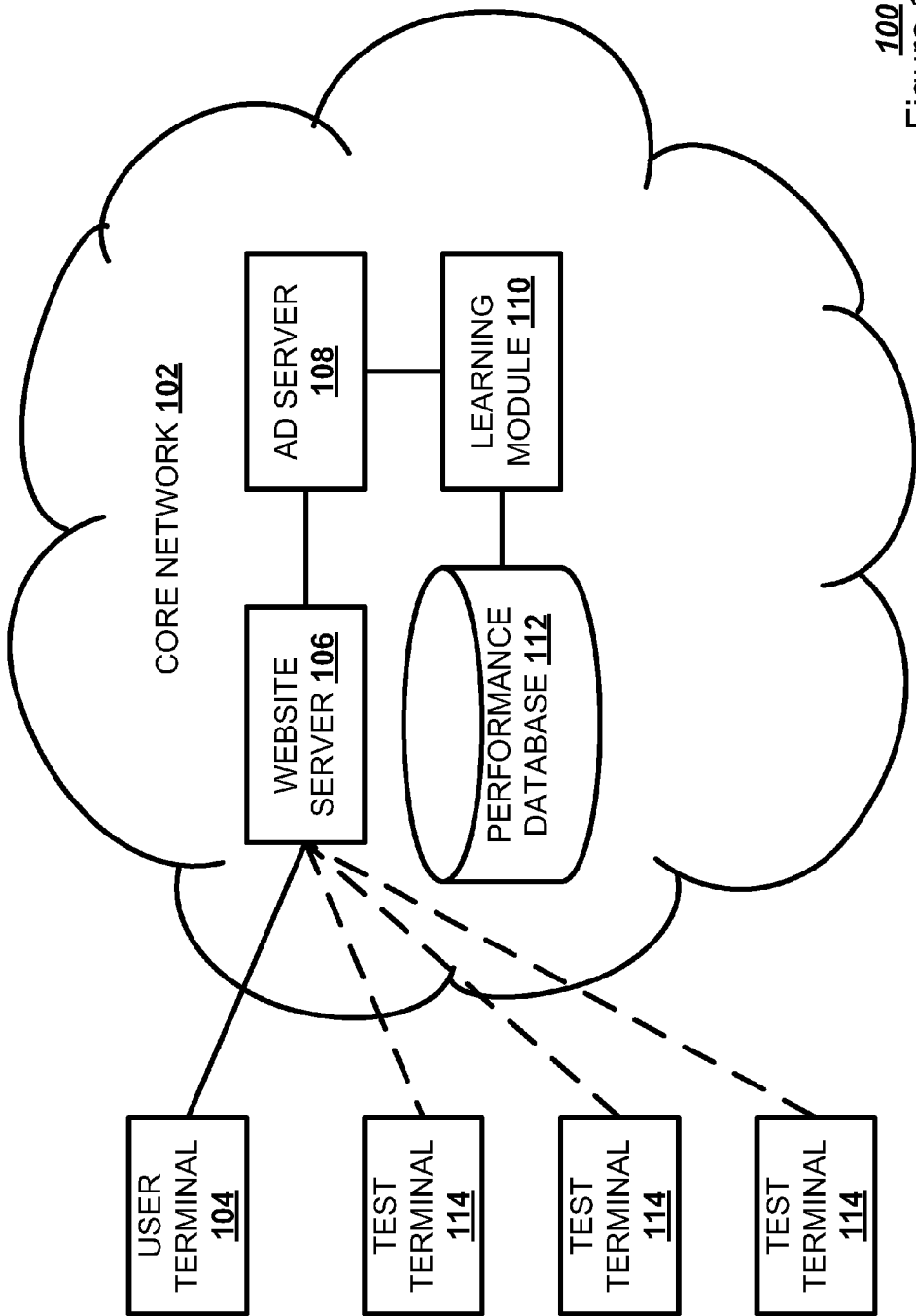


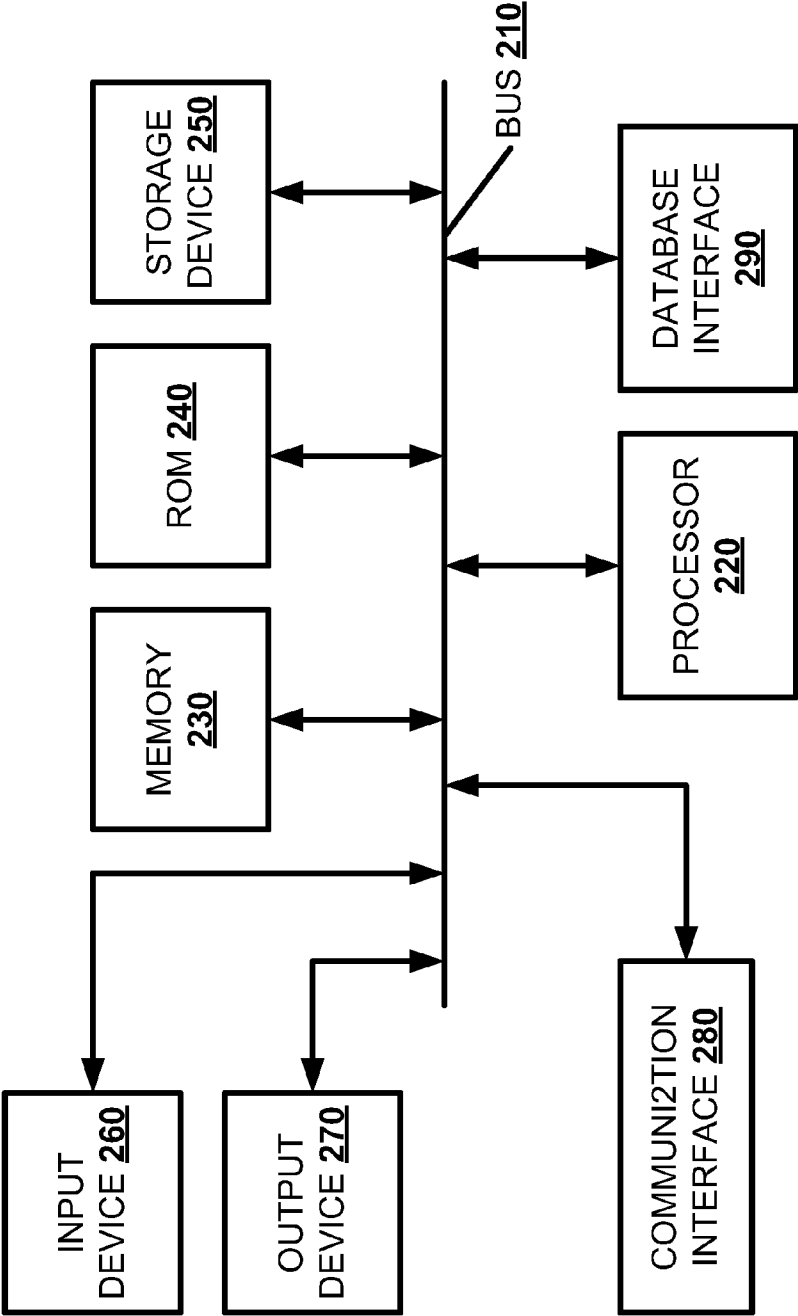
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MAXIMIZE ADVERTISING REVENUE****Publication Classification**(51) **Int. Cl.****G06Q 30/00** (2006.01)**G06Q 10/00** (2006.01)**G06F 15/18** (2006.01)(52) **U.S. Cl. 705/14.42; 706/12; 705/14.43**(75) **Inventors:** **Matthew Richardson**, Seattle, WA
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WA (US)(21) **Appl. No.: 12/818,157**(22) **Filed: Jun. 18, 2010**(57) **ABSTRACT**

In one embodiment, an evolving advertising system automatically optimizes internet advertising. A data storage unit **250** may store an evolving advertisement unit **320** with an advertisement characteristic according to an initial configuration parameter. A communication interface **280** may transmit the evolving advertisement unit **320** as part of a primary website **310**. A processor **220** may alter the evolving advertisement unit **320** automatically upon a trigger event by changing the advertisement characteristic to follow an automatically generated configuration parameter to optimize an advertisement performance metric.

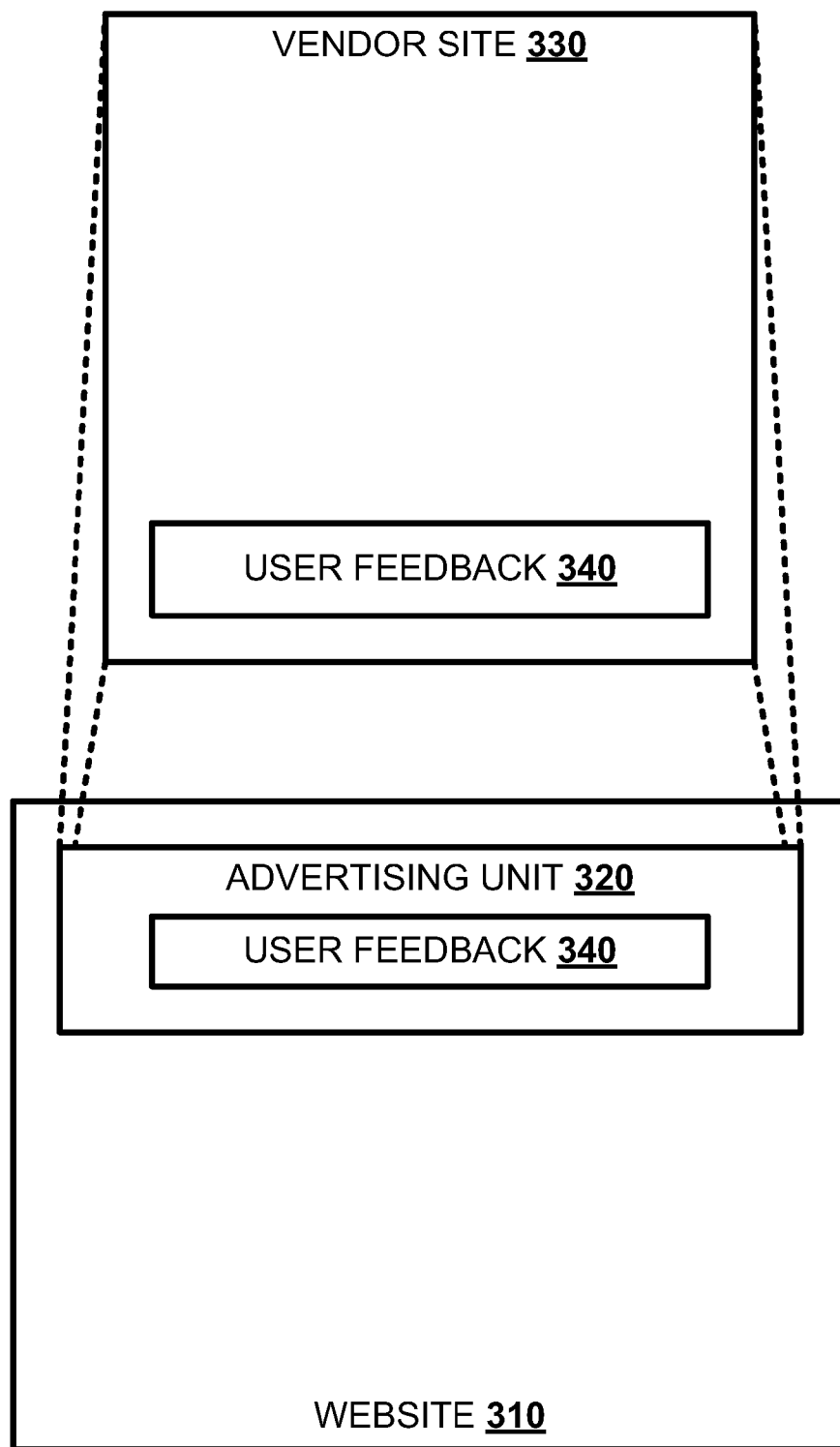




100
Figure 1



200
Figure 2



300
Figure 3

AD ID	CONTENT	AGE	CHAR	CONSTRAINT	ICP	AGCP	SEASON	METRIC	WT
<u>402</u>	<u>404</u>	<u>406</u>	<u>408</u>	<u>410</u>	<u>412</u>	<u>414</u>	<u>416</u>	<u>418</u>	<u>420</u>

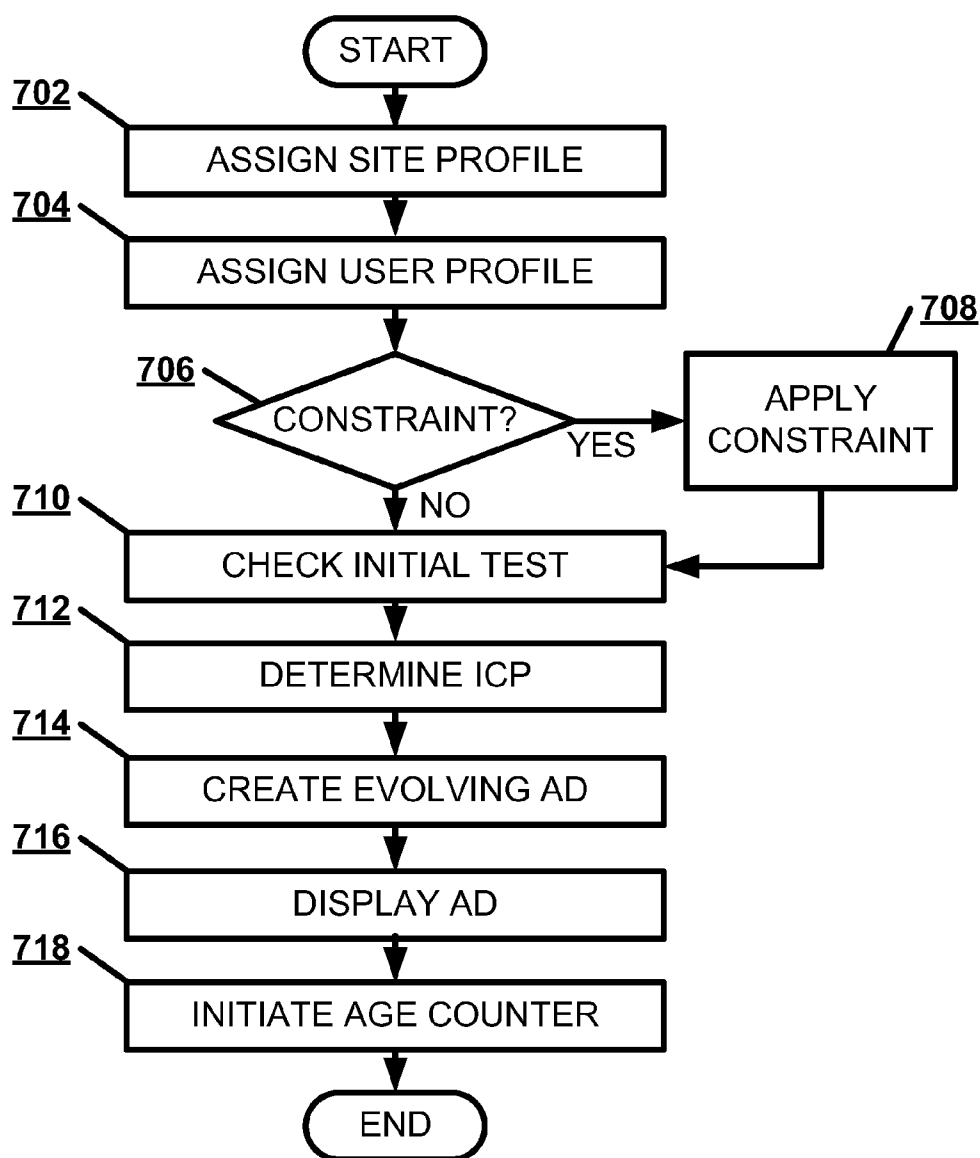
400
Figure 4

SITE ID	CONTENT	CHAR	SCP	METRIC	WT
<u>502</u>	<u>504</u>	<u>506</u>	<u>508</u>	<u>510</u>	<u>512</u>

500
Figure 5

USER ID	CONTENT	AD CHAR	UCP	METRIC	WT
<u>602</u>	<u>604</u>	<u>606</u>	<u>608</u>	<u>610</u>	<u>612</u>

600
Figure 6



700
Figure 7

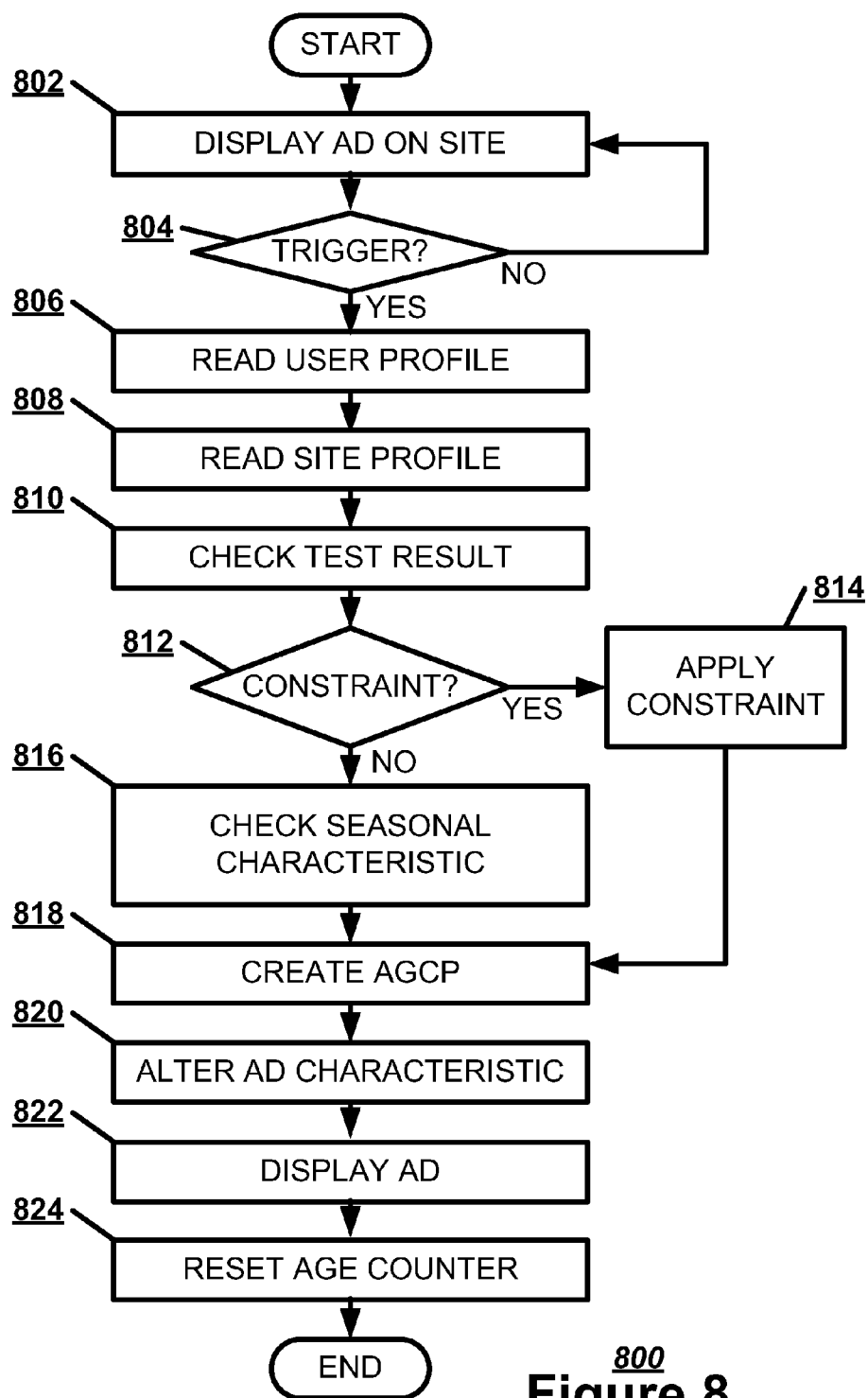


Figure 8

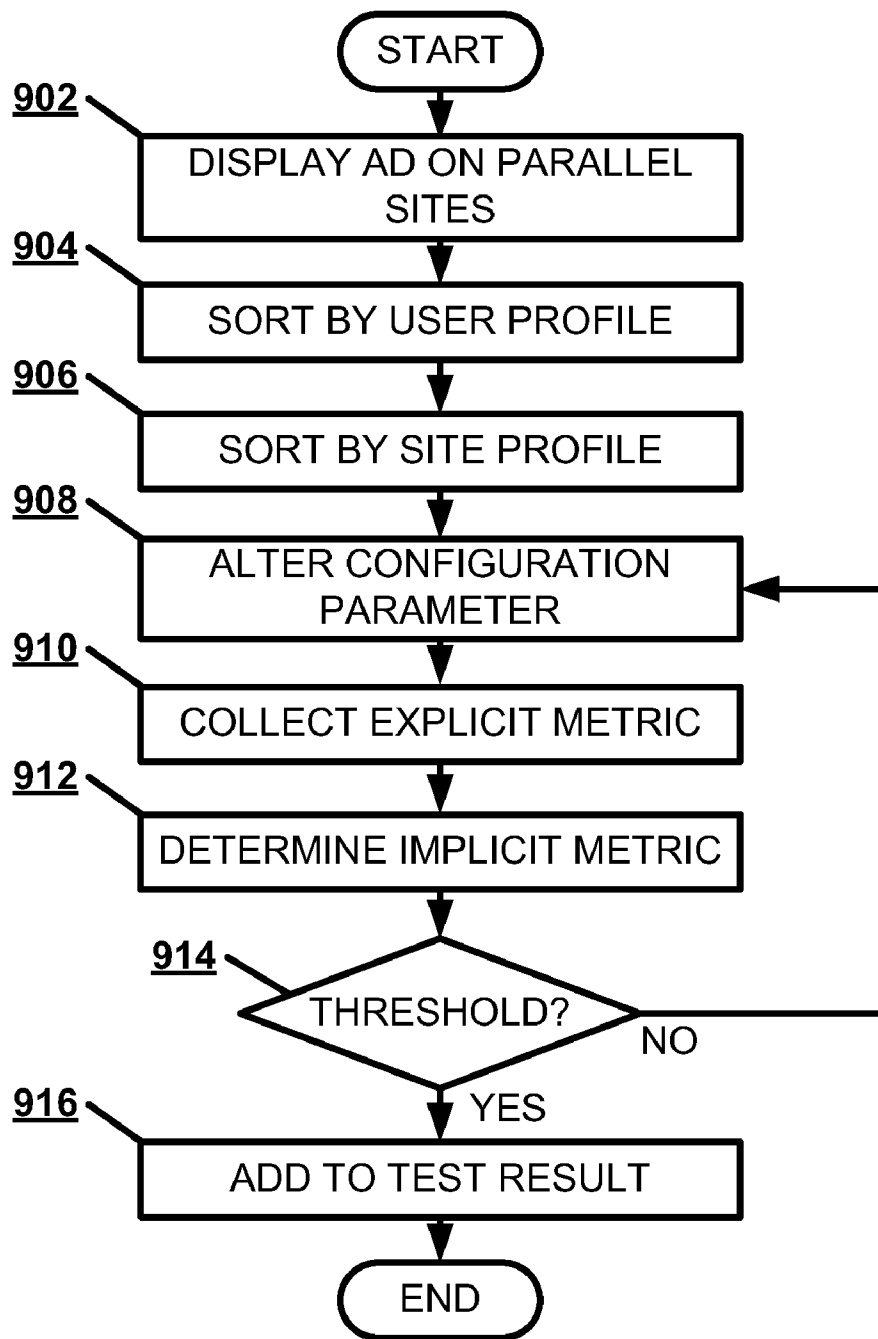


Figure 9

LEARNING DISPLAY PARAMETERS TO MAXIMIZE ADVERTISING REVENUE

BACKGROUND

[0001] Maintaining a website on the internet may entail a great deal of cost, based on server fees, bandwidth fees, and other expenditures. A website is any source for digital data maintained by a server on the internet. One revenue generating option is to provide advertising space on the website to an advertising platform. The advertising platform may then project an online advertisement on the website. While the content of the online advertisement may generally be provided by a client, the advertisement characteristics may be controlled, for the most part, by an advertising platform. The client is the entity paying for the advertising, usually for a brand, product or service sold by the client, while the advertising platform is the entity providing the advertising. The content of the advertisement is the information provided by the client contained in the advertisement. The advertisement characteristics are the stylistic elements of the advertisement used to present the content of the advertisement to the user.

[0002] Some examples of advertisement characteristics may include the advertising background, the advertising title text properties, the advertising description text properties, the advertising display uniform resource locator (URL), a sponsored link bar, the sponsored link text properties, special effects, and border descriptions. The advertising background may be described by parameters that include color, gradient, transparency, and patterns. The advertising title text properties may be described by parameters that include font face, color, size, and style. The advertising description text properties may be described by parameters that include font face, color, size, and style. The advertising display URL may be described by parameters that include font face, color, size, and style. The sponsored link may be described by parameters that include color, location, and string. The sponsored link text properties may be described by parameters that include font face, color, size, and style. The special effects may be described by parameters that include a drop shadow or a semi-transparent shadow. The border descriptions may be described by parameters that include thickness, corner shape, or colors.

SUMMARY

[0003] This Summary is provided to introduce a selection of concepts in a simplified form that is further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter.

[0004] Embodiments discussed below relate to optimizing online advertising. A data storage unit stores an evolving advertisement unit with an advertisement characteristic according to an initial configuration parameter. A communication interface transmits the evolving advertisement unit as part of a primary website. A processor alters the evolving advertisement unit automatically upon a trigger event by changing the advertisement characteristic to follow an automatically generated configuration parameter to optimize an advertisement performance metric.

DRAWINGS

[0005] In order to describe the manner in which the above-recited and other advantages and features can be obtained, a

more particular description is set forth and will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments and are not therefore to be considered to be limiting of its scope, implementations will be described and explained with additional specificity and detail through the use of the accompanying drawings.

[0006] FIG. 1 illustrates, in a block diagram, one embodiment of a network.

[0007] FIG. 2 illustrates, in a block diagram, one embodiment of a computing device.

[0008] FIG. 3 illustrates, in a block diagram, one embodiment of an advertising supported website.

[0009] FIG. 4 illustrates, in a block diagram, one embodiment of an advertisement profile.

[0010] FIG. 5 illustrates, in a block diagram, one embodiment of a site profile

[0011] FIG. 6 illustrates, in a block diagram, one embodiment of a user profile.

[0012] FIG. 7 illustrates, in a flowchart, one embodiment of a method for creating an evolving advertisement unit with an initial configuration.

[0013] FIG. 8 illustrates, in a flowchart, one embodiment of a method for altering an evolving advertisement unit.

[0014] FIG. 9 illustrates, in a flowchart, one embodiment of a method for creating a test performance result.

DETAILED DESCRIPTION

[0015] Embodiments are discussed in detail below. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art will recognize that other components and configurations may be used without parting from the spirit and scope of the subject matter of this disclosure. The implementations may be a machine-implemented method, a tangible machine-readable medium having a set of instructions detailing a method stored thereon for at least one processor, or an internet advertising system for a computing device.

[0016] Online advertising has become a useful revenue stream for most websites. An advertising platform wants to make sure that the online advertising is effective. The effectiveness of the online advertising may rely on both the brand, product, or service being sold, referred to herein as the content, and the presentation selling the brand, product, or service, referred to herein as the advertising characteristics. The content may generally be left to the client purchasing the advertising. The advertising characteristics may be manipulated by the advertising platform to select an optimum advertising characteristic.

[0017] Determining an optimum advertising characteristic may be a time intensive process. Calibrating the optimum advertising characteristics may be further complicated by the fact that an effective advertising characteristic may lose effectiveness over time as a user is continually exposed to that advertising characteristic. Additionally, an effective advertising characteristic during the summer may no longer be effective during the holiday season. For example, a green and red banner advertisement may stand out over the summer but not during Christmas time.

[0018] An advertising platform may improve the effectiveness of the online advertising using machine learning. In machine learning, the advertising platform may test a large

number of similar advertisements for a single product. For online machine learning, the test set of advertisements may be placed on the internet, with the results collected from the internet placements. The advertising platform may make changes to a key advertising characteristic on subsets of those advertisements, and then measure how well the advertisement performs. Those advertising characteristic adjustments that provide a statistically significant improvement in the advertisements performance may be used as the basis for making a similar change to other similar advertisements. The advertising characteristic adjustments may be performed and monitored using traditional statistical methods, such as A/B testing, banded convex optimization, multi-armed bandit solutions, or other statistical methods.

[0019] The test set of advertisements may be sorted so that similar advertisements are grouped together, as well as advertisements on similar web sites or advertisements viewed by demographically similar users. Additionally, the advertisement characteristic adjustment may be determined based on the demographic or viewing profile of the user viewing the advertisement. For example, an advertising platform may determine through online machine learning that middle-aged males that make over \$100,000 a year and like auto-racing tend to favor advertisements with blue Times New Roman descriptive text. Further, the advertisement characteristic adjustment may be determined based on the website displaying the advertisement. For example, the advertising platform may determine that banner advertisements with a solid red border tend to be more effective on celebrity gossip websites.

[0020] Thus, in one embodiment, an evolving advertising system automatically optimizes internet advertising. In this instance, the term “automatically” refers to optimization not initiated by an administrator. A data storage unit may store an evolving advertisement unit with an advertisement characteristic according to an initial configuration parameter. A communication interface may transmit the evolving advertisement unit as part of a primary website. A database interface may connect to a database storing a test performance result from a parallel test run on a test set of advertisement units. A processor may alter the evolving advertisement unit automatically upon a trigger event by changing the advertisement characteristic to follow an automatically generated configuration parameter based on a test performance result to optimize an advertisement performance metric of the evolving advertisement unit. The trigger event is an external event not initiated by an administrator that alerts the advertisement server to alter an advertising characteristic.

[0021] FIG. 1 illustrates one embodiment of a communication system 100, such as the internet. The communication system 100 may include a core network 102 that may be accessed by a user terminal 104. The user terminal 104 may also be referred to as subscriber units, desktops, laptops, work stations, mobiles, mobile stations, user, wireless communication devices, user devices, or by other terminology used in the art. Various communication devices may exchange data or information through the core network 102. The core network 102 may be a local area network (LAN), a wide area network (WAN), the internet, a WiMAX network, a universal terrestrial radio access network (UTRAN) cellular network, an evolved UTRAN (E-UTRAN) cellular network, or other type of telecommunication network. A server or a series of servers controlled by a site operator, referred to herein as a website server 106, may administer and provide a website to the user terminal 104. A website server 106 is any server that provides

data content to the user terminal 104. A website server 106 may have an arrangement with an advertisement server 108 to allow the advertisement server 108 to attach online advertising content to the website.

[0022] The online advertising content may be web page banner advertisements, search engine text advertisements, web page text advertisements, or other forms of online advertising. The advertisement server 108 may be associated with a learning module 110 that accesses a historical performance database 112 to determine the configuration parameters for an advertisement characteristic of an online advertisement to produce a result. The configuration parameters may have produced statistically significant results in other online advertisements or may be suggestions for experimental configuration parameters. The result may be quantified by an advertisement performance metric. The advertisement performance metric may be the number of users that have selected the advertisement and been led to a web page of a client, the number of viewers of the website that have performed a commercial transaction at the web page of the client, the number of positive survey responses, and other metrics. The advertising performance metric may be chosen by the advertising platform or by the client.

[0023] The historical performance database 112 may contain a test performance result collected from a test set of advertisement units shown to one or more test terminals 114 in a parallel test run. The test performance result may indicate configuration parameters that produce the optimum result for a given metric in the test set of advertisement units as compared to a control set. The test set of advertisement units may have a similar advertisement profile as the advertisement unit. Similarly, the test set of websites displaying the test set of advertisement units may have a similar site profile as the website. The user terminal 104 may have a similar user profile as the test terminal 114. The user terminal 104 may act as a test terminal 114 in some instances.

[0024] FIG. 2 illustrates a block diagram of an exemplary computing device 200 which may act as a user terminal 104, a website server 106, or an advertisement server 108. The computing device 200 may include a bus 210, a processor 220, a memory 230, a read only memory (ROM) 240, a storage device 250, an input device 260, an output device 270, a communication interface 280, and a database interface 290. The bus 210 may permit communication among the components of the computing device 200.

[0025] The processor 220 may include at least one conventional processor or microprocessor that interprets and executes a set of instructions. The memory 230 may be a random access memory (RAM) or another type of dynamic storage device that stores information and instructions for execution by the processor 220. The ROM 240 may include a conventional ROM device or another type of static storage device that stores static information and instructions for the processor 220. The storage device 250 may include any type of tangible machine-readable medium, such as, for example, magnetic or optical recording media and its corresponding drive. The storage device 250 may store a set of instructions detailing a method that when executed by one or more processors cause the one or more processors to perform the method.

[0026] The input device 260 may include one or more conventional mechanisms that permit a user to input information to the computing device 200, such as a keyboard, a mouse, a voice recognition device, a microphone, a headset, etc. The

output device **270** may include one or more conventional mechanisms that output information to the user, including a display, a printer, one or more speakers, a headset, or a medium, such as a memory, or a magnetic or optical disk and a corresponding disk drive. The communication interface **280** may include any transceiver-like mechanism that enables processing device **200** to communicate with other devices or networks. The communication interface **280** may include a network interface or a mobile transceiver interface. The communication interface **280** may be a wireless, wired, or optical interface. In one embodiment, the communication interface **280** may include a universal serial bus (USB) interface, a Bluetooth® interface, or other such interface that may be used to attach peripheral devices or pair other communication devices. A separate database interface **290** may interact with the historical performance database **112**.

[0027] The computing device **200** may perform such functions in response to processor **220** executing sequences of instructions contained in a computer-readable medium, such as, for example, the memory **230**, a magnetic disk, or an optical disk. Such instructions may be read into the memory **230** from another computer-readable medium, such as the storage device **250**, or from a separate device via the communication interface **280**.

[0028] FIG. 3 illustrates, in a block diagram, one embodiment of a website **300**. The website **300** may have a website **310** containing the content data provided by the website server **106**. The advertisement server **108** may provide an evolving advertisement unit **320** to be attached to the website **310** when displayed to a user. The evolving advertisement unit **320** has advertisement characteristics that change over time. The advertisement characteristics are stylistic features of the evolving advertisement unit **320** unrelated to the content of the advertisement. The advertisement characteristics of the evolving advertisement unit may include the advertising background, the advertising title text properties, the advertising description text properties, the advertising display uniform resource locator (URL), the sponsored link bar, the sponsored link text properties, special effects, and border description. The advertising characteristics may be initialized from configuration parameters, such as color, gradient, transparency, pattern, font, size, style, location, thickness, or other specific parameters.

[0029] The evolving advertisement unit **320** may act as a link to a vendor site **330** owned by the client purchasing the evolving advertisement unit **320**. The vendor site **330** may contain information leading to a physical location of the client or may allow the client to sell goods or services online. The vendor site **330** may have a user feedback input **340** to allow a user to critique or grade the effectiveness of the online advertisement. The user feedback input **340** may also be present directly on the evolving advertisement unit **320**.

[0030] The historical performance database **112** may maintain an advertisement profile of each of the evolving advertisement units **320** distributed by the advertising platform. The historical performance database **112** may also maintain a site profile for each of the websites **310** supported by the advertising platform to tailor the advertisement characteristics of the evolving advertisement unit **320** to the website **310** displaying it. For even greater accuracy, the advertising platform may maintain a user profile for any of the user terminals **104** that view the evolving advertisement units **320**. Such

records may allow the advertisement server **108** to tailor the advertising characteristics of the evolving advertisement unit **320** to the individual user.

[0031] FIG. 4 illustrates, in a block diagram, one embodiment of an advertisement profile **400**. The advertisement profile **400** may have an advertisement identifier (ID) **402** to associate the advertisement profile **400** with the evolving advertisement unit **320**. The advertisement profile **400** may have an advertisement content profile **404** describing the content being shown in the evolving advertisement unit **320**. The advertisement profile **400** may have an age field **406** describing the date that the evolving advertisement unit **320** was first attached to the website **310**. The age field **406** may be used to determine when to alter the evolving advertisement unit **320**, keeping an evolving advertisement unit fresh. The advertisement profile **400** may have one or more advertisement characteristic fields **408** describing stylistic features of the evolving advertisement unit **320**. The advertisement characteristic field **408** may be associated with one or more configuration constraint fields **410** describing any configuration constraints placed on the configuration parameters that may be used by the advertisement characteristics. These configuration constraints may be determined by the website administrator, the advertising platform, the client, or even the user terminal **104**. The advertisement characteristic field **408** may be associated with one or more initial configuration parameter (ICP) fields **412** indicating the configuration parameters that may be used in creating an initial form for the associated advertisement characteristic. An ICP field **412** may indicate a configuration parameter for an advertisement characteristic the first time the evolving advertisement unit **320** is displayed on the website **310**. The ICP field **412** may be based on the performance of that configuration parameter on other advertisement units **320** on that website **310**, the same advertisement unit on other websites **310**, or different advertisement units **320** on other websites **310**. The advertisement characteristic field **408** may be associated with an automatically generated configuration parameter (AGCP) **414** to indicate a new configuration parameter that the evolving advertisement unit may use to alter an associated advertisement characteristic field **408**. The advertisement characteristic field **408** may be altered multiple times by a new AGCP as the evolving advertisement unit **320** ages. The advertisement characteristic field **408** may be associated with a season field **416** to indicate if the advertisement characteristic has a seasonal characteristic, with certain configuration parameters to be used based upon the time of year. Seasonal characteristics are not limited to the traditional summer, fall, winter, spring seasons, but refers to any annual period that may affect an advertisement characteristic, such as the Christmas shopping season or baseball season. The AGCP field **414** may be associated with one or more advertisement performance metric fields **418** indicating a projected score for that advertisement performance metric using the AGCP based upon a test performance result by a test set of advertisement units. The advertisement performance metric field **418** may be associated with a weighting (WT) field **420**, allowing multiple performance metrics to be taken into account, while assigning a priority to each performance metric.

[0032] FIG. 5 illustrates, in a block diagram, one embodiment of a site profile **500**. The site profile **500** may have a site ID **502** to associate the site profile **500** with the website **310**. The site profile **500** may have a site content profile **504** describing the content being shown in the website **310**. The

site profile **500** may have one or more advertisement characteristic fields **506** describing stylistic features of any advertisement units **320** found on the website **310**. An advertisement characteristic field **506** may be associated with one or more site configuration parameter (SCP) fields **508** indicating configuration parameters for the advertisement characteristics that have historically worked for that website. The SCP field **508** may be associated with one or more advertisement performance metric fields **510** indicating a projected score for that advertisement performance metric using the SCP based upon previous advertisements on the website **310**. The advertisement performance metric field **510** may be associated with a WT field **512**, allowing multiple performance metrics to be taken into account, while assigning the priority of each performance metric.

[0033] FIG. 6 illustrates, in a block diagram, one embodiment of a user profile **600**. The user profile **600** may have a user ID **602** to associate the user profile **600** with the website **310**. The user profile **600** may have a user content profile **604** describing the content historically selected by the user, as well as any obtainable demographic information describing the user. The user profile **600** may have one or more advertisement characteristic fields **606** describing stylistic features of any advertisement units **320** historically favored by the user. An advertisement characteristic field **606** may be associated with one or more user configuration parameter (UCP) fields **608** indicating configuration parameters for the advertisement characteristics that have historically been favored by that user. The UCP field **608** may be associated with one or more advertisement performance metric fields **610** indicating a projected score for that advertisement performance metric using the UCP based upon previous advertisements viewed by that user. The advertisement performance metric field **610** may be associated with a WT field **612**, allowing multiple performance metrics to be taken into account, while assigning the priority of each performance metric.

[0034] FIG. 7 illustrates, in a flowchart, one embodiment of a method **700** for creating an evolving advertisement unit **320** with an initial configuration. The advertisement server **108** may assign a site profile **500** to a primary website **310** (Block **702**). The advertisement server **108** may assign a user profile **600** to a user viewing the primary website **310** (Block **704**). If the advertisement server **108** has received configuration constraints from an administrator (Block **706**), the advertisement server **108** may apply the configuration constraint to the appropriate advertisement characteristics of an evolving advertisement unit **320** (Block **708**). The advertisement server **108** may check an initial test performance result by a test set of advertisement units (Block **710**). The advertisement server **108** may determine ICPs based on the initial test performance results (Block **712**). The advertisement server **108** may create the evolving advertisement unit **320** with advertisement characteristics according to the ICPs (Block **714**). The advertisement server **108** may display the evolving advertisement unit **320** on a primary website **310** (Block **716**). The advertisement server **108** may initiate an advertisement characteristic age counter to measure the age of an advertisement characteristic (Block **718**). The age of the advertisement characteristic may be based on period of time since the advertisement characteristic was implemented or the number of views of the advertisement characteristic.

[0035] FIG. 8 illustrates, in a flowchart, one embodiment of a method **800** for altering an evolving advertisement unit **320**. The advertisement server **108** may display the evolving

advertisement unit **320** on a primary website **310** (Block **802**). The advertisement server **108** may use a trigger event to initiate a change to the evolving advertisement unit **320**. The trigger event may be an advertisement performance metric falling below a threshold rate, an advertisement characteristic reaching a threshold number of views, the expiration of a viewing period, or a seasonal change, such as the beginning of the Christmas shopping season. If the advertisement server **108** identifies a trigger event (Block **804**), the advertisement server **108** may read a user profile **600** of the user viewing the website **302** (Block **806**). The advertisement server **108** may read a site profile **500** for the website **302** (Block **808**). The advertisement server **108** may check test performance results by a test set of advertisement units that were displayed on a website **310** similar to the site profile **500** to a user terminal similar to the user profile **600** (Block **810**). If the advertisement server **108** has received configuration constraints from an administrator (Block **812**), the advertisement server **108** may apply the configuration constraints to the appropriate advertisement characteristics of an evolving advertisement unit **320** (Block **814**). The advertisement server **108** may check if any seasonal characteristics apply to the evolving advertisement unit **320** (Block **816**). The advertisement server **108** may create AGCPs based on the test performance results using machine learning, as well as the user profile **600**, the site profile **500**, any configuration constraints, and any seasonal characteristics (Block **818**). The advertisement server **108** may alter the evolving advertisement unit **320** automatically upon the trigger event by changing the advertisement characteristics to follow the AGCPs to optimize one or more advertisement performance metrics (Block **820**). The advertisement server **108** may display the evolving advertisement unit **320** on a primary website **310** (Block **822**). The advertisement server **108** may reset the advertisement characteristic age counter (Block **824**).

[0036] FIG. 9 illustrates, in a flowchart, one embodiment of a method **900** for creating a test performance result, described here as online machine learning. The test performance result may be an initial test performance result. The advertisement server **108** may display the test set of advertisement units **320** on multiple websites **310** over a similar period, executing a parallel test run (Block **902**). The advertisement server **108** may sort the test set of advertisement units by user profiles **600** for the users viewing the advertisement unit **320** (Block **904**). The advertisement server **108** may sort the test runs by the site profile **500** of the website **310** hosting the advertisement unit **320** (Block **906**). The advertisement server **108** may alter one or more configuration parameters for one or more advertisement characteristics for a subset of the test set, leaving the rest as a control group (Block **908**). The advertisement server **108** may collect explicit advertisement performance metrics for the test set of advertisement units (Block **910**). An explicit advertisement performance metric is based on actively seeking the affirmative opinion of a user viewing the advertisement unit **320**. The advertisement server **108** may determine implicit advertisement performance metrics for the test set of advertisement units (Block **912**). An implicit advertisement performance metric is a response to the advertisement unit **320** inferred from the actions of a user viewing the advertisement unit **320**. If the explicit advertisement performance metric or the implicit advertisement performance metric is above a pre-set threshold (Block **914**), then the change to the configuration parameters may be added to the test performance result (Block **916**).

[0037] Although the subject matter has been described in language specific to structural features and/or methodological acts, it is to be understood that the subject matter in the appended claims is not necessarily limited to the specific features or acts described above. Rather, the specific features and acts described above are disclosed as example forms for implementing the claims.

[0038] Embodiments within the scope of the present invention may also include non-transitory computer-readable storage media for carrying or having computer-executable instructions or data structures stored thereon. Such non-transitory computer-readable storage media may be any available media that can be accessed by a general purpose or special purpose computer. By way of example, and not limitation, such non-transitory computer-readable storage media can comprise RAM, ROM, EEPROM, CD-ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to carry or store desired program code means in the form of computer-executable instructions or data structures. Combinations of the above should also be included within the scope of the non-transitory computer-readable storage media.

[0039] Embodiments may also be practiced in distributed computing environments where tasks are performed by local and remote processing devices that are linked (either by hardwired links, wireless links, or by a combination thereof) through a communications network.

[0040] Computer-executable instructions include, for example, instructions and data which cause a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. Computer-executable instructions also include program modules that are executed by computers in stand-alone or network environments. Generally, program modules include routines, programs, objects, components, and data structures, etc. that perform particular tasks or implement particular abstract data types. Computer-executable instructions, associated data structures, and program modules represent examples of the program code means for executing steps of the methods disclosed herein. The particular sequence of such executable instructions or associated data structures represents examples of corresponding acts for implementing the functions described in such steps.

[0041] Although the above description may contain specific details, they should not be construed as limiting the claims in any way. Other configurations of the described embodiments are part of the scope of the disclosure. For example, the principles of the disclosure may be applied to each individual user where each user may individually deploy such a system. This enables each user to utilize the benefits of the disclosure even if any one of a large number of possible applications do not use the functionality described herein. Multiple instances of electronic devices each may process the content in various possible ways. Implementations are not necessarily in one system used by all end users. Accordingly, the appended claims and their legal equivalents should only define the invention, rather than any specific examples given.

We claim:

1. A machine-implemented method for automatically optimizing web advertising, comprising:
creating an evolving advertisement unit with an advertisement characteristic according to an initial configuration parameter;

displaying the evolving advertisement unit on a primary website;

altering the evolving advertisement unit automatically upon a trigger event by changing the advertisement characteristic to follow an automatically generated configuration parameter to optimize an advertisement performance metric.

2. The method of claim 1, further comprising:

determining the initial configuration parameter based on an initial test performance result by a test set of advertisement units.

3. The method of claim 1, further comprising:

creating the automatically generated configuration parameter based on a test performance result by a test set of advertisement units.

4. The method of claim 3, wherein the test performance result is based off a parallel test run on the test set of advertisement units.

5. The method of claim 1, further comprising:

assigning a site profile to the primary website;
creating the automatically generated configuration parameter based on the site profile.

6. The method of claim 1, further comprising:

assigning a user profile to a user viewing the primary website;

creating the automatically generated configuration parameter based on the user profile.

7. The method of claim 1, further comprising:

creating the automatically generated configuration parameter using machine learning.

8. The method of claim 1, further comprising:

creating the automatically generated configuration parameter based on a seasonal characteristic.

9. The method of claim 1, further comprising:

applying a configuration constraint on the automatically generated configuration parameter.

10. The method of claim 1, further comprising:

collecting an explicit advertisement performance metric.

11. The method of claim 1, further comprising:

determining an implicit advertisement performance metric.

12. A tangible machine-readable medium having a set of instructions detailing a method stored thereon that when executed by one or more processors cause the one or more processors to perform the method, the method comprising:

displaying an evolving advertisement unit with an advertisement characteristic according to an initial configuration parameter on a primary website; and

altering the evolving advertisement unit automatically upon a trigger event by changing the advertisement characteristic to follow an automatically generated configuration parameter to optimize an advertisement performance metric.

13. The tangible machine-readable medium of claim 12, wherein the method further comprises:

creating the automatically generated configuration parameter based on a parallel test run on a test set of advertisement units.

14. The tangible machine-readable medium of claim 12, wherein the method further comprises:

assigning a site profile to the primary website;
creating the automatically generated configuration parameter based on the site profile.

15. The tangible machine-readable medium of claim **12**, wherein the method further comprises:

- assigning a user profile to a user viewing the primary website;
- creating the automatically generated configuration parameter based on the user profile.

16. The tangible machine-readable medium of claim **12**, wherein the method further comprises:

- creating the automatically generated configuration parameter using machine learning.

17. The tangible machine-readable medium of claim **12**, wherein the method further comprises:

- applying a configuration constraint on the automatically generated configuration parameter.

18. An advertisement server that provides internet advertising, comprising:

- a data storage unit that stores an evolving advertisement unit with an advertisement characteristic according to an initial configuration parameter;

- a network interface that transmits the evolving advertisement unit as part of a primary website;

- a database interface that connects to a database storing a test performance result from a parallel test run on a test set of advertisement units; and

- a processor that alters the evolving advertisement unit automatically upon a trigger event by changing the advertisement characteristic to follow an automatically generated configuration parameter based on a test performance result to optimize an advertisement performance metric.

19. The advertisement server of claim **18**, wherein the network receives an explicit advertisement performance metric from a user.

20. The advertisement server of claim **18**, wherein the processor creates the automatically generated configuration parameter using machine learning.

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