A facility for generating an advertising message is described. The facility extracts visual content from a model web page. The facility then constructs an advertising message that contains the extracted visual content.
FIG. 1
begin

301 receive user input identifying model page

302 identify assets employed in model page

303 retrieve identified assets that are external to page

304 for each supported advertising message configuration

305 appropriately size and store assets

306 construct XML definition of advertising message employing sized assets

307 parse XML definition to obtain XML area

308 use tree to construct advertising message

309 next advertising message configuration

310 display preview of advertising message(s)

311 enable user to modify advertising messages

312 receive targeting, duration, and billing information

313 activate advertising messages

end

FIG. 3
FIG. 4
begin
  501
  use model web page URL to identify listing ID in listing table
  502
  select rows of parsing instructions table having identified listing ID
  503
  for each selected row
  504
  extract feature from model web page source in accordance with row
  505
  next row
end

FIG. 5
<table>
<thead>
<tr>
<th>listing ID</th>
<th>target site</th>
<th>product category</th>
<th>version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>cars.com</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

**FIG. 6**
<table>
<thead>
<tr>
<th>Listing ID</th>
<th>Property Name</th>
<th>Container Class</th>
<th>Container Attribute</th>
<th>Count</th>
<th>Property Name_val</th>
<th>Container Class</th>
<th>Container Attribute</th>
<th>Count</th>
<th>Property Name_val</th>
</tr>
</thead>
<tbody>
<tr>
<td>711</td>
<td>member_name</td>
<td>span</td>
<td>title</td>
<td>1</td>
<td>span</td>
<td>span</td>
<td>title</td>
<td>1</td>
<td>span</td>
</tr>
<tr>
<td>712</td>
<td>location</td>
<td>span</td>
<td>price</td>
<td>1</td>
<td>span</td>
<td>span</td>
<td>photo</td>
<td>1</td>
<td>header_color</td>
</tr>
<tr>
<td>713</td>
<td>price</td>
<td>span</td>
<td>img</td>
<td>3</td>
<td>img</td>
<td>background_color</td>
<td>title_font_color</td>
<td>1</td>
<td>body_font_color</td>
</tr>
<tr>
<td>714</td>
<td>header_color</td>
<td>background_color</td>
<td>title_font_color</td>
<td>1</td>
<td>background_color</td>
<td>title_font_color</td>
<td>body_font_color</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>715</td>
<td>title_font_color</td>
<td>body_font_color</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>716</td>
<td>body_font_color</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>717</td>
<td>background_color</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>718</td>
<td>title_font_color</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>719</td>
<td>body_font_color</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Parsings**
- parsing_instructions_table
- search_expression
- ignore_case

**Expressions**
- In(*).ln va
- http://images.cars.com/thumbnail/DWJ[/]r.jpg
Promote your Honda Odyssey EX-L
Promote your Vehicle across Cars.com and locally or nationally, and to up to 70 million unique users a month.

- Audience: Target people in United States
- Click Price: $1.00
- Daily Budget: $10.00
- Duration: Run my ad continuously starting today

815
First Name
Last Name
Country
Street Address
City
State
Zip Code
Credit Card Type
Card Number
Security Code
Expiration Date

832
By clicking the “Order Now” button, I agree to the iPromote Advertising Terms and Conditions including my obligation to comply with the iPromote Advertising Guidelines.

841
Place order
Skip

FIG. 8
AUTOMATIC GENERATION OF ELECTRONIC ADVERTISING MESSAGES

TECHNICAL FIELD

[0001] The described technology is directed to the field of automatic generation of electronic advertising messages, and more particularly, to the field of online advertising.

BACKGROUND

[0002] The worldwide web ("the web") permits companies and individuals to electronically publish content in the form of web pages that can be retrieved and displayed using a browser program running on a client computer system. Such "publishers" often sell to advertisers opportunities to present advertising messages together with their published content.

[0003] For example, an advertiser who is a music publisher may purchase opportunities to present an advertising message promoting a new music CD published by the publisher. The advertising message may be "rich" in a variety of ways. They may, for example, include text identifying the title of the CD and the responsible artist in a style that is visually compatible with an appealing background pattern and/or color, a series of multiple photos of the artist, a link to a web page on which the user can listen to the artist's music and purchase the CD, etc.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] FIG. 1 is a high-level data flow diagram showing data flow within a typical arrangement of components used to provide the facility.

[0005] FIG. 2 is a block diagram showing some of the components typically incorporated in at least some of the computer systems and other devices on which the facility executes.

[0006] FIG. 3 is a flow diagram that shows steps typically performed by the facility in order to automatically generate one or more advertising messages.

[0007] FIG. 4 is a display diagram showing a sample page containing a control that the user may activate in order to generate advertising messages based upon the sample page.

[0008] FIG. 5 is a flow diagram showing steps performed by the facility in some embodiments in order to identify assets employed in the model page.

[0009] FIG. 6 is a table diagram showing sample contents of a listing table used by some embodiments of the facility to map from groups of model web pages to a listing ID specifying a set of parsing instructions to use to parse model web pages of the group.

[0010] FIG. 7 is a table diagram showing sample contents of a parsing instructions table used by the facility in some embodiments to specify a set of parsing instructions to use to parse a model web page.

[0011] FIG. 8 is a display diagram showing a sample preview display presented by the facility.

[0012] FIG. 9 is a display diagram showing a typical display presented by the facility to enable the user to modify advertising messages generated by the facility.

DETAILED DESCRIPTION

[0013] The inventors have recognized that the kind of rich advertising messages described above often require specialized expertise and significant effort to generate. The inventors have further recognized that these substantial requirements for effectively generating rich advertising messages tend to limit the availability of such rich advertising messages to a relatively small number of sophisticated, well-funded advertisers who are in a position to satisfy those requirements. The inventors have further recognized that, if less expertise and effort was required to effectively generate rich advertising message, rich advertising messages would become available to a much wider population of advertisers.

[0014] A software facility for automatically generating electronic advertising messages ("the facility") is described. The facility uses an existing web page—sometimes referred to as the "model web page"—as a basis for automatically generating an advertising message, such as a display advertising message. For example, the facility may use as the model web page the web page to which the advertising message will be linked, the advertiser's home page, or another page having both the content and the look and feel desired for the generated advertising message.

[0015] The facility extracts elements such as background and text colors, textual content, and rich media from the model web page and populated into the advertising message. In some embodiments, the extraction is fully automatic. In some embodiments, the facility guides the user through selecting in the page the elements to be extracted. In some embodiments, the facility presents a user interface that the user may use to modify the advertising message generated by the facility.

[0016] In some embodiments, in connection with generating the advertising message, the facility enables its user to arrange to have the generated advertising message presented by one or more publishers.

[0017] By automatically generating advertising messages in some or all of the ways described above, the facility enables a user without specialized expertise to quickly and straightforwardly generate an effective rich advertising message, making rich advertising messages available to a much wider population of advertisers.

[0018] FIG. 1 is a high-level data flow diagram showing data flow within a typical arrangement of components used to provide the facility. A number of web client computer systems 110 that are under user control generate and send page view requests 231 to one or more logical web servers 100 via a network such as the Internet 120. Within the web server, these requests may either all be routed to a single web server computer system, or may be loaded-balanced among a number of web server computer systems. The web server typically replies to each with a served page 132. Web servers 100 may include web servers operated by publishers of web pages that present advertising messages, are linked to from advertising messages, or both. Web servers 100 may also include one or more web servers implementing aspects of the facility.

[0019] While various embodiments are described in terms of the environment described above, those skilled in the art will appreciate that the facility may be implemented in a variety of other environments including a single, monolithic computer system, as well as various other combinations of computer systems or similar devices connected in various ways. In various embodiments, a variety of computing systems or other different client devices may be used in place of the web client computer systems, such as mobile phones, personal digital assistants, televisions and associated video sources, cameras, etc.

[0020] FIG. 2 is a block diagram showing some of the components typically incorporated in at least some of the
The facility may execute on one or more computer systems and other devices on which the facility executes. These computer systems and devices 200 may include one or more central processing units ("CPUs") 201 for executing computer programs; a computer memory 202 for storing programs and data while they are being used; a persistent storage device 203, such as a hard drive for persistently storing programs and data; a computer-readable media drive 204, such as a CD-ROM drive, for reading programs and data stored on a computer-readable medium; and a network connection 205 for connecting the computer system to other computer systems, such as via the Internet. While computer systems configured as described above are typically used to support the operation of the facility, those skilled in the art will appreciate that the facility may be implemented using devices of various types and configurations, and having various components.

[0021] FIG. 3 is a flow diagram that shows steps typically performed by the facility in order to automatically generate one or more advertising messages. In step 301, the facility receives user input identifying a model page upon which to base the generated advertising messages. The input user typically identifies the model page by specifying its URL, and can be provided by the user in various ways. In some embodiments, the facility serves a web page (not shown) to the user, and asks the user to type or paste the URL of the model page into a model page URL field. In some embodiments, the operator of the facility works with one or more publishers to cause an advertising message generation control to be incorporated in a number of different potential model pages.

[0022] FIG. 4 is a display diagram showing a sample page containing a control that the user may activate in order to generate advertising messages based upon the sample page. The sample page 400 has a variety of contents, including the name 401 of an auto dealer selling a car; text 402 identifying the car; the listing price 403 for the car; and the city 404 in which the auto dealer is located. The model page also includes a number of thumbnail images 411-414, any of which the user can select to display at a larger size in space 410. The facility includes a number of colors, including the color of a logo 421, the color of the background 422, the color of the background of the selected tab 423, and the color of text such as text 414. In some embodiments, the extraction performed by the facility in step 301 extracts all of the above-discussed visual features. In a variety of embodiments, the facility extracts various other combinations of features contained by the page.

[0023] The page also contains control 450 that the user may activate in order to generate advertising messages for this page. In some embodiments, this control is included only in instances of the page served to a user who is the "owner" of the car, in this case a user associated with the auto dealer that is selling the car. In some embodiments, activation of this control causes the user's browser to send a request or other communication to a server on which aspects of the facility are executing. This communication contains the URL of the page, or some other basis for identifying the page such as a page ID.

[0024] Returning to FIG. 3, in step 302, the facility identifies assets employed in the model page, such as those described above in connection with FIG. 4. In some cases, this involves copying text, fonts, or colors that appear in the HTML code for the model page. In some cases, it involves copying references to external resources that are incorporated in the page, such as the URLs for each of the full-size versions of images 411-414, video or audio files, flash animations, etc. In some embodiments, the facility performs step 302 by retrieving a copy of the web page using its URL, and parsing the web page to extract tags, tag attributes, tag values, and other content expected to be relevant to the page.

[0025] FIG. 5 is a flow diagram showing steps performed by the facility in some embodiments in order to identify assets employed in the model page. In step 501, the facility uses the URL of the model web page to identify any listing table a listing ID to which the model web page corresponds. In step 502, the facility performs step 302 by retrieving a copy of the web page using its URL, and parsing the web page to extract tags, tag attributes, tag values, and other content expected to be relevant to the page.

[0026] FIG. 6 is a table diagram showing sample contents of a listing table used by some embodiments of the facility to map from groups of model web pages to a listing ID specifying a set of parsing instructions to use to parse model web pages of the group. The listing table 600 is made up of rows, such as row 611, each corresponding to one of the groups of model web pages. Each row is divided into the following columns: a listing ID column 601; a target site column 602 identifying the domain of web pages in this group; a product category identifying the category of item that is described by the Web pages in this group; and a version number that indicates a particular version of parsing instructions constructed for this group of web pages. With respect to the sample model web page, the facility uses the listing table to determine that listing ID one should be used, based upon the URL of the model web page being in the cars.com domain, the model web page corresponding to product category 11 for automobiles, and version number 1 being the largest version for that combination of target site and product category in the listing table.

[0027] Returning to FIG. 5, in step 502, the facility selects the rows of the parsing instructions table having a listing ID identified in step 501.

[0028] FIG. 7 is a table diagram showing sample contents of a parsing instructions table used by the facility in some embodiments to specify a set of parsing instructions to use to parse a model web page. The parsing instructions table 700 is made up of rows, such as rows 711-719, each corresponding to the parsing instruction for one property to be extracted from the model web page. Each row is divided into the following columns: a listing ID column 701 in which the facility matches the listing ID identified in step 501; a property name column 702 specifying a name attribute to the feature to be extracted from the model web page; a count column 703 indicating the maximum number of matching features to extract from the model web page for the property; a container element column 704 specifying a type of tag to be matched for the property; a container class column 705 specifying a particular class of the container element to be matched; a container attribute column 706 specifying a particular attribute of the matching tag whose value is to be copied; a search expression column 707 specifying a regular expression to be matched by the copied text; and it ignore case column 708 specifying whether the search expression in column 707 is to be treated as case insensitive. Typically, the rows of the parsing instructions table corresponding to a particular listing are generated by a human agent based upon a review of the HTML source for a sample of pages published by a publisher.

[0029] In steps 503-505, the facility loops through each row of the parsing instructions table selected in step 502. In step 504, the facility extracts one or more features from the HTML source for the model web page in accordance with the parsing instructions contained in the row. In step 505, if additional selected rows of the parsing instructions table remain to be processed, then the facility continues in step 503 to process the next selected row, else these steps conclude. In some embodiments (not shown), the facility similarly applies the
parsing instructions to pages linked to from the model web page. In some embodiments, links are only followed for this purpose if they identify a URL in the same domain as the model web page. In some embodiments (not shown), the facility similarly applies the parsing instructions recursively in this manner, up to a predetermined maximum depth, such as three.

[0030] The application of the sample contents shown in the parsing instructions table 700 is discussed below in connection with the HTML source for the sample model web page shown below in Table 1.

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. &lt;DOCTYPE html PUBLIC &quot;-//W3C//DTD XHTML 1.0 Transitional//EN&quot;</td>
</tr>
<tr>
<td>2. &quot;<a href="http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd%22%3E">http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd&quot;&gt;</a></td>
</tr>
<tr>
<td>3. &lt;html xmlns=&quot;http://www.w3.org/1999/xhtml&quot;&gt;</td>
</tr>
<tr>
<td>4. &lt;!-- Memberdata.zip:934/01 --&gt;</td>
</tr>
<tr>
<td>5. &lt;!-- endif: _MemberPhone.jsp --&gt;</td>
</tr>
<tr>
<td>6. MemberPhone=&quot;866-277-8981&quot;</td>
</tr>
<tr>
<td>7. isTollFree=&quot;true&quot;</td>
</tr>
<tr>
<td>8. sessionScope:useTollFree=false</td>
</tr>
<tr>
<td>9. --&gt;</td>
</tr>
<tr>
<td>10. &lt;head&gt;</td>
</tr>
<tr>
<td>11. &lt;title&gt;2006 Honda Odyssey EX-L&lt;/title&gt;</td>
</tr>
<tr>
<td>12. &lt;meta name=&quot;description&quot; content=&quot;&quot;/&gt;</td>
</tr>
<tr>
<td>13. &lt;meta name=&quot;keywords&quot; content=&quot;&quot;&gt;</td>
</tr>
<tr>
<td>14. &lt;header style=&quot;color:0x562;&quot; /&gt;</td>
</tr>
<tr>
<td>15. &lt;background_color=&quot;0x0f7070&quot;/&gt;</td>
</tr>
<tr>
<td>16. &lt;title_font_color=&quot;0x9f812c&quot;/&gt;</td>
</tr>
<tr>
<td>17. &lt;body_font_color=&quot;0x03888888&quot;/&gt;</td>
</tr>
<tr>
<td>18. &lt;img class=&quot;photo_1&quot; name=&quot;tnImg0&quot; id=&quot;tnImg0&quot; src=&quot;http://images.cars.com/thumbnail/DMU/25289/11517.jpg&quot; alt=&quot;&quot; onerror=&quot;document.getElementById(tn1).style.display='none';&quot;/&gt;</td>
</tr>
<tr>
<td>19. &lt;img class=&quot;photo_2&quot; name=&quot;tnImg1&quot; id=&quot;tnImg1&quot; src=&quot;http://images.cars.com/thumbnail/DMU/25289/11517.jpg&quot; alt=&quot;&quot; onerror=&quot;document.getElementById(tn2).style.display='none';&quot;/&gt;</td>
</tr>
<tr>
<td>20. &lt;img class=&quot;photo_3&quot; name=&quot;tnImg2&quot; id=&quot;tnImg2&quot; src=&quot;http://images.cars.com/thumbnail/DMU/25289/11517.jpg&quot; alt=&quot;&quot; onerror=&quot;document.getElementById(tn3).style.display='none';&quot;/&gt;</td>
</tr>
<tr>
<td>21. &lt;div&gt;</td>
</tr>
<tr>
<td>22. 2006 Honda Odyssey EX-L: &lt;span class=&quot;Price&quot;&gt;$27,967&lt;/span&gt; &lt;span class=&quot;msFlag&quot; style=&quot;text-indent:1rem&quot;/&gt;</td>
</tr>
<tr>
<td>23. &lt;/div&gt;</td>
</tr>
<tr>
<td>24. Toyota of Santa Maria &lt;span class=&quot;data&quot;&gt;Toyota of Santa Maria&lt;/span&gt;</td>
</tr>
<tr>
<td>25. function clearValue(fld) {</td>
</tr>
<tr>
<td>26. if(fld.value.indexOf(&quot;Enter Your Message Here&quot;)! = -1)</td>
</tr>
</tbody>
</table>
| 27. field.value = "";
| 28. field.style.color = "#336633";
| 29. div id="aboutSellerBox" class="Dealer"> |
| 30. "$27,967" |
| 31. div class="sellerAddress" |
| 32. div class="dataPoint" |
| 33. span class="member_name">Toyota of Santa Maria</span> |
| 34. <div> |
| 35. <div class="dataPoint"> |
| 36. <span class="phone">866-277-8981</span> |
| 38. </div> |
| 39. <div class="address"> |
| 40. <span class="location">700 East Betteravia Road</span> |
| 41. Santa Maria |
| 42. CA |
| 43. </span> |
| 44. </body> |
| 45. </html> |

[0031] To process row 711 of the parsing instructions table, the facility searches the HTML source for the first-occurring span tag having the class member_name, which it finds in line 33. Because row 711 does not specify a particular attribute of the span tag whose value is to be copied, the facility copies the content of the tag, "Toyota of Santa Maria." To process row 712 of the parsing instructions table, the facility searches the HTML source for the first-occurring title tag, which it finds in line 11. The facility copies the content of the tag, "2006 Honda Odyssey EX-L." To process rows 713, the facility searches for the first-occurring span tag having the class location, which it finds in line 40. In accordance with the search expression specified in row 713, the facility copies the text between the first and second new-line character in the content of the tag, i.e., "Santa Maria." To process row 714, the facility searches for the first-occurring span tag having the class price which it finds in line 22, and copies the content of the tag, "$27,967." To process row 715, the facility searches for the first-occurring three img tags whose src attribute has a value matching the search expression specified in row 715. These occurrences are in lines 18, 19, and 20, from each of which the facility copies the URL text. To process row 716,
the facility searches for the first-occurring header_color tag which it finds in line 14, and copies the value of the val
attribute, “#4a3a39”. To process row 717, the facility
searches for the first-occurring background_color tag which
it finds in line 15, and copies the value of the val attribute,
“#f9fafe”. To process row 718, the facility searches for the
first-occurring title_font_color tag which it finds in line 16,
and copies the value of the val attribute, “#f58112c”. To
process row 719, the facility searches for the first-occurring
body_font_color tag which it finds in line 17, and copies the
value of the val attribute, “#00888888”.

[0032] In various embodiments, the facility uses a wide
variety of regular expression schemes to specify the search
expressions contained in column 707, including but not limited
to those used by the Microsoft Visual Basic scripting
language and the PHP hypertext processor. In some embodi-
ments, the grammar used by the facility has one or more of
the following characteristics:

- Vertical bar (|) is used to separate alternatives. For
  example, http://[https://] can match “http://” or “https://”.

- Parentheses are used to define the scope and pre-
  cedence of operators. For example, grey|grey and
grey|gray are equivalent patterns which both describe
the set of “gray” and “grey”.

- The character, contained in brackets [ ] means “not”. In these examples, [ ] means “match all char-
  acters that are NOT a double quote”.

- A quantifier after a token (such as a character) or
  group specifies how often that pattern is allowed to
  occur.

- The question mark quantifier indicates there is
  zero or one of the preceding element. For example,
color|'' matches both “color” and “colour”.

- The asterisk quantifier indicates there are zero or
  more of the preceding element. For example, ab*c
  matches “abc”, “abc”, “abbc”, “abbbc”, and so on.

- The plus-sign quantifier indicates that one or
  more of the elements preceding it must exist. In these
  examples, [ ]+ means that there must exist one or
  more characters in this spot that is not the double-quote character.

[0040] Additional examples of search expression pattern
matching follow. The examples assume that the HTML
source for the model web page is that shown below in Table 2.

<table>
<thead>
<tr>
<th>TABLE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. img src=&quot;<a href="http://www.images.com/images/user/small/14773237b783nxgj34.jpg">http://www.images.com/images/user/small/14773237b783nxgj34.jpg</a>&quot;</td>
</tr>
<tr>
<td>2. img src=&quot;<a href="http://www.images.com/images/user/small/14773237b783nxgj34.jpg">http://www.images.com/images/user/small/14773237b783nxgj34.jpg</a>&quot;</td>
</tr>
<tr>
<td>3. img src=&quot;<a href="http://www.images.com/images/user/medium/546875348745.jpg">http://www.images.com/images/user/medium/546875348745.jpg</a>&quot;</td>
</tr>
<tr>
<td>4. img src=&quot;<a href="http://www.images.com/images/user/medium/aksfufiSJSIVK.jpg">http://www.images.com/images/user/medium/aksfufiSJSIVK.jpg</a>&quot;</td>
</tr>
<tr>
<td>5. img src=&quot;<a href="https://www.images.com/images/user/large/aksfufiSJSIVK.jpg">https://www.images.com/images/user/large/aksfufiSJSIVK.jpg</a>&quot;</td>
</tr>
<tr>
<td>6. img src=&quot;<a href="https://www.images.com/images/user/large/1sxvartighi83248498.gif">https://www.images.com/images/user/large/1sxvartighi83248498.gif</a>&quot;</td>
</tr>
</tbody>
</table>

[0041] A first example is a search expression that returns
only .jpg images of any size:

(http://[https://www.images.com/images/user/]
(small|medium|large)/["+].jpg)

[0042] This search expression returns the URLs in lines 1,
3, and 5. A second example is a search expression that returns
only medium-sized .jpg images:

(http://[https://www.images.com/images/user/medium/["+].jpg)

[0043] This search expression returns the URL in line 3. A
third example is a search expression that returns only non-
secure (http:) .jpg and .gif images of any size:

(http://www.images.com/images/user/
(small|medium|large)/[^]+-(jpg|gif))

[0044] This search expression returns the URLs in lines 1,
2, and 3.

[0045] In some embodiments, the operator of the facility
makes arrangements with one or more web publishers under
which the web publishers make available a direct interface
that may be called by the facility to directly retrieve informa-
tion about the assets employed in any page published by the
publisher. In such embodiments, step 302 involves sending a
request to the publisher’s interface that identifies the model
page, such as by providing a URL or page ID for the page.
The publisher responds with a response that contains the assets
to be incorporated in the generated advertising message
that makes it unnecessary to parse the HTML source for the model
page in order to obtain this information.

[0046] In some embodiments, the publisher includes
source for the advertising message generation control in the
model web page that, when the control is activated, causes the
browser to post to a server executing portions of the facility
information identifying the assets to be incorporated in the
generated advertising message. Here too, it is unnecessary for
the facility to parse the HTML source for the model page in
order to obtain this information.

[0047] In step 303, the facility retrieves assets identified
in step 302 that are external to the page, such as images, video
and audio streams, animations, etc.

[0048] In some embodiments, the facility generates mul-
tiple different advertising messages in response to each user
request. These different advertising messages, referred to as
“advertising message configurations,” can correspond to vari-
ous advertising message dimensions, media types, maximum
or target data sizes and/or data rates, etc. For example, the
Interactive Advertising Bureau provides specifications for
different standard advertising message types, such as at www.
lab.net/ab_products_and_industry_services/1421/1443/
1473/81563 and www.lab.net/ab_products_and_industry_-
services/1421/1443/1452. Those skilled in the art will
appreciate that various other advertising message configura-
tions may be supported by the facility.
The dealer name extracted from line 24 of Table 1 is included on line 4 of Table 3. The title text extracted from line 11 of Table 1 is included at line 7 of Table 3. The dealer location extracted from line 42 of Table 1 is included at line 10 of Table 3. The price extracted from line 22 of Table 1 is included at line 11 of Table 3. The image URLs extracted from lines 18-20 of Table 1 are included at lines 14-16 of Table 3. The color values extracted from lines 14-17 of Table 1 are included at lines 18-21 of Table 3. In step 307, the facility parses the XML definition constructed in step 306 to obtain an XML tree. In step 308, the facility uses the tree obtained in step 307 to construct the advertising message. In some embodiments, in step 306, the facility constructs a Macromedia Flash file having the SWF file extension. The constructed Flash file contains a reference to the XML tree that causes an action receipt included in the Flash file to load the XML tree and use it as a basis for presenting the advertising message. In some embodiments, the facility includes in the generated advertising message a link that viewers of the advertising message can activate to display the model web page, or another web page specified by the user. In step 309, if additional advertising message configurations remain to be processed, then the facility continues in step 304 to process the next advertising message configuration, else the facility continues in step 310.

In step 310, the facility displays a preview of one or more of the generated advertising messages. In step 311, the facility enables the user to modify the generated advertising messages.

FIG. 9 is a display diagram showing a typical display presented by the facility when the user activates the change advertising message control shown in FIG. 8. The user interface presents a copy 910 of the generated advertising message. The advertising message is accompanied by play and pause controls 911 and 912, respectively, that the user can use to play and pause time-index materials associated with the advertising message, such as image slide shows, video/audio sequences, animations, etc. Panel 920 represents different types of modifications that the user may make to the advertising message. The user may select any of controls 931-934 to select different visual effects to be applied to the advertising message, including panning, image carousel, video scanning, etc. The user may also drag to spaces 941-943 any images that the user wishes to have incorporated in the advertising message. The user may drag to these spots any of the images 944-947 shown on the left side of the display. The user may also select tab 948 in order to display video clips that can be dragged to the spots for inclusion in the advertising message, or tab 949 to display audio clips that can be included in the advertising message by dragging them to an audio spot 944. Further, the user can activate control 950 in order to...
directly upload media of virtually any type for inclusion in the advertising message. The display further includes text fields 951, 953, 955, and 957 whose contents the user may edit for inclusion in the advertising message. Each text field is accompanied by a show check box 952, 954, 956, and 958 that the user may check or uncheck to determine whether the corresponding text will appear in the advertising message. The display further includes four colors 961-964 used in the advertising message. The user may select any of those in order to change it. In some embodiments, the user can type a new color value after selecting one of the colors. In some embodiments, when the user selects a color, the facility presents a color picker user interface that the user may navigate in order to select a new color value for the selected color (not shown). After the user has made desired modifications, the user selects a save changes control 971. If the user wishes to revert to the originally-generated advertising message, the user can select the cancel control 972 to return to the display shown in FIG. 8 without making any changes.

Returning to FIG. 3, in step 312, the facility receives information from the user about targeting the advertising message, specifying its duration, and providing billing information. In step 313, the facility activates the advertising messages in accordance with the information specified by the user. After step 313, these steps conclude.

Those skilled in the art will appreciate that the steps shown in FIG. 3 may be altered in a variety of ways. For example, the order of the steps may be rearranged; substeps may be performed in parallel; shown steps may be omitted, or other steps may be included; etc.

Returning to FIG. 8, the display 800 includes a control 821 usable by the user to specify a geographic region to which the advertising message is to be targeted. In various embodiments (not shown), the facility permits the user to specify a variety of other types of targeting, including behavioral targeting, profile-based targeting, and specific publisher or publisher group targeting. The display also contains an indication 822 of the cost to the advertiser each time a user clicks through the generated advertising message. The display further includes a control 823 that the user may use in order to specify a daily budget for the advertising message. Typically, when the daily budget is reached during a particular day, the advertising message is not presented again until the next day. The display also includes a control 824 that the user can use to specify a duration for presenting the advertising message. The display also includes controls for specifying billing information used to pay for presenting the advertising message, including address information 831, credit card information 832, and an indication 833 of whether the billing information should be saved as a basis for presenting future advertising messages. After the user is satisfied with the information that the user has specified in connection with the generated advertising message, the user selects control 841 in order to activate the advertising message. If the user has decided against activating the advertising message, the user can select a skip control 842.

In some embodiments, the facility provides a mechanism for the user to download the generated and/or modified advertising messages and associated resources. In some embodiments, the facility provides a mechanism for providing the generated and/or modified advertising messages directly from the facility to a third-party advertising agency or ad serving service provider.

It will be appreciated by those skilled in the art that the above-described facility may be straightforwardly adapted or extended in various ways. For example, the facility may generate advertising messages from model pages having a wide variety of file types and/or formats. The facility may extract a wide variety of kinds of content from the model page, and be used in conjunction with a variety of user interfaces for modifying and/or activating generated advertising messages. While the foregoing description makes reference to particular embodiments, the scope of the invention is defined solely by the claims that follow and the elements recited therein.

We claim:

1. A method in a computing system for generating an advertising message, comprising:
   - receiving a URL corresponding to a web page;
   - without any user input:
     - retrieving a copy of the web page;
     - matching patterns in the retrieved copy of the web page to identify in the retrieved copy of the web page information specifying visual features of the web page;
     - constructing a plurality of advertising messages each incorporating at least a portion of the visual features of the web page specified by the identified information.
   - providing a user interface usable by a user to modify at least one of the constructed advertising messages.

2. The method of claim 1, further comprising:
   - previewing at least one of the constructed advertising messages;

3. The method of claim 1, further comprising launching an advertising campaign for presenting at least one of the constructed advertising messages on publisher web pages.

4. A method in a computing system for generating an advertising message, comprising:
   - extracting visual content from a model web page;
   - constructing an advertising message that contains the extracted visual content.

5. The method of claim 4, further comprising extracting audio content from the model web page, and wherein the constructed advertising message contains the extracted audio content.

6. The method of claim 4 wherein the extracted visual content comprises text in a particular format.

7. The method of claim 4 wherein the extracted visual content comprises text in a particular color.

8. The method of claim 4 wherein the extracted visual content comprises a particular background color.

9. The method of claim 4 wherein the extracted visual content comprises an image.

10. The method of claim 4 wherein the extracted visual content comprises a video sequence.

11. The method of claim 4 wherein the extracted visual content comprises a plurality of images, and wherein the constructed advertising message contains a control for navigating among the extracted plurality of images.

12. The method of claim 4 wherein the constructed advertising message contains a link to the model web page.

13. The method of claim 4, further comprising receiving user input user identifying the model web page,
In response to receiving user input identifying the model web page, without receiving any further user input.

14. The method of claim 4 wherein the extracting comprises:
    parsing HTML source for the model web page to identify
    tags each matching one of a set of sought tag types; and
    for each of the identified tags, adding an asset to the con-
    structed advertising message that corresponds to the
    identified tag.

15. The method of claim 4 wherein the extracting comprises:
    parsing HTML source for the model web page to identify
    strings matching one of a set of sought regular
    expressions; and
    for each of the identified string, adding an asset to the
    constructed advertising message that corresponds to the
    identified string.

16. The method of claim 4, further comprising extracting
    visual content from one or more pages linked to from the
    model web page, and wherein the constructed advertising
    message contains the visual content extracted from the pages
    linked to from the model web page.

17. The method of claim 4 wherein the extracting comprises:
    sending a visual content request to a publisher of the model
    web page; and
    receiving from the publisher a visual content response
    containing the extracted visual content.

18. The method of claim 4, further comprising receiving
    user input generated by a user's operation of a control on the
    model web page for constructing an advertising message that
    is based on the model web page, and wherein the extracting is performed in response to the
    user input generated by the user's operation of the control.

19. The method of claim 4, further comprising receiving
    input from a user selecting the visual content to be extracted
    from the model web page.

20. The method of claim 4, further comprising receiving
    user input specifying payment information to be used to pay
    for presentation of the constructed advertising message.

21. The method of claim 4, further comprising presenting
    the constructed advertising message among content published
    by a publisher.

22. A computing system for generating an advertising mes-
    sage, comprising:
    an extraction subsystem that extracts content from a model
    web page; and
    an advertising message construction subsystem that con-
    structs an advertising message containing the extracted
    content.

23. A computer-readable medium whose contents cause a
    computing system to perform a method for generating an
    advertising message, the method comprising:
    extracting visual content from a model web page; and
    constructing an advertising message that includes the
    extracted visual content.

24. The computer-readable medium of claim 23 wherein the
    method further comprises:
    presenting the constructed advertising message to a user,
    together with a control for modifying the constructed
    advertising message;
    receiving user input manipulating the displayed control;
    and
    modifying the constructed advertising message in accor-
    dance with the received user input.

25. The computer-readable medium of claim 24 wherein
    the presented control comprises both a drop target region and
    a gallery of media elements, any of which may be dragged to
    the drop target region in order to incorporate the media
    element in the modified constructed advertising message.

26. One or more computer memories collectively contain-
    ing an advertising message data structure, comprising informa-
    tion specifying the display of an advertising message com-
    prising visual content extracted from a model web page, such
    that the contents of the data structure may be used to display
    the advertising message.

27. A data transmission network conveying an advertising
    message data structure, comprising information specifying
    the display of an advertising message comprising visual con-
    tent extracted from a model web page, such that the contents
    of the data structure may be used to display the advertising
    message.

28. One or more computer memories collectively contain-
    ing a web page data structure, comprising information speci-
    fying the display of a web page, the web page containing a
    control that may be activated by user in order to auto-
    matically generate an advertising message that is modeled on
    the web page.

29. A data transmission network conveying a web page
    data structure, comprising information specifying the display
    of a web page, the web page containing a control that may
    be activated by a user in order to automatically generate an
    advertising message that is modeled on the web page.

30. A method in a computing system for facilitating the
    generation of an advertising message, comprising:
    receiving from an advertising message generation service a
    visual content request identifying a published web page;
    retrieving from a store of information used to publish web
    pages including the identified web page visual content of
    the identified web page; and
    returning the retrieved visual content to the advertising
    message generation service in response to the visual
    content request.

31. One or more computer memories collectively contain-
    ing a web page parsing instructions table data structure cor-
    responding to a group of web pages, comprising a plurality of
    entries, each entry comprising information specifying at
    least one of a container element, a container class, a container
    attribute, and a search expression identifying a property to be
    extracted from a web page among the group of web pages,
    such that the contents of the data structure may be used to
    extract from a web page among a group of web pages the
    properties identified by the entries.

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