METHOD OF INDICATING LINKS TO EXTERNAL URLS

Technical Field

The invention relates to the field of World Wide Web communications and more particularly to a method for indicating that a link on a web page is to an external link.

Background Art

The World Wide Web is the distributed system of communication and information transfer over the Internet made possible by the widely supported hypertext transfer protocol (HTTP). Client side web browsers implement the client side of the HTTP protocol and utilize Uniform Resource Locators (URLs) to locate a specific resource on the World Wide Web. The syntax and semantics of URLs, the formalized information for location and access of resources on the Internet, is specified in RFC 1630, a document written by the URI working group of the Internet Engineering Task Force. at http://www.w3.org/Addressing/URL/Overview.html. The URL allows resource locations to be described by a simple string. URLs can point to resources on a local server or they can point to resources on an external server. In the following disclosure, an external link is a link whose URL has a domain name that differs from the URL used to retrieve the current document.

Web pages are written in HyperText Markup Language (HTML), the publishing language of the World Wide Web. The HTML 4.01 Specification, found at http://www.w3.org/TR/REC-html40/ defines the HyperText Markup Language (HTML). Web pages generally contain both internal links and external links. It is useful to indicate to the client that a link is an external link so the client will know that linking to that URL will require leaving the current server. In HTML pages, webmasters sometimes manually highlight external URLs by manually coding adornments such as images around links to external URLs as a visual warning to the user that they are leaving the current site. For example a common image used for this purpose is a small image of a globe to the right of the link. The image is presented as a visual clue to the user that the link leaves the current site. The webmasters also commonly have external links open in a new window. However it would be simpler to place the responsibility for providing such visual clues onto the client software, since the client software has enough information to determine this.

There is therefore a need for a method for using client software to provide a visual or other indication that a link on a web page is an external link.

Disclosure of Invention

The present invention therefore provides a method of indicating that a link on a web document accessed by a client using web browser software is to an external link, wherein said web document has an associated document object model, the method comprising the steps of:

i) identifying all the links in said web document by querying the document object model associated with the web document;

ii) for each link, comparing the web document's URL domain name to the link's URL domain; and

iii) if the web document's URL and the link's URL's domain names are different then providing an indication associated with the link that the link is external.

The invention further provides a computer program product and an article comprising a computer readable modulated carrier signal for carrying out the method.

Brief Description of Drawings

In drawings which disclose a preferred embodiment of the invention:

Fig. 1a, 1b and 1c are illustrations of computer screen displays illustrating the different ways in which links on a web page can be displayed.

Best Mode(s) For Carrying Out the Invention

The present embodiment provides a software method that takes the responsibility off of the Webmaster to identify external links and provide adornments for them. At runtime there is enough information to determine if a link's URL is external and all that is required is software that will act upon the available data. This software is embodied in a script using a scripting language such as ECMAScript that is loadable and runnable by the browser at runtime. A description of ECMAScript is set out at

http://www.ecma.ch/ecma1/stand/ecma-262.htm. There is a function in the said script that is registered with the HTML window's onLoad event handler by inclusion of the script in the HTML document. When the document has been loaded the said function will be called by the browser to start the process. The process consists of the following macro steps.

1 Identify all the anchor links by querying the Document Object Model (DOM).

2. For each anchor link find out how similar the document URL is to the anchor link's URL. If they are different in domain then adorn the link according to the user-defined actions in the script.

Document Object Model (DOM) Level 1 Specification is found at http://www.w3.org/TR/2000/WD-DOM-Level-1-20000929/. This specification defines the Document Object Model, a platform-and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure and style of documents. The Document Object Model provides a standard set of objects for representing HTML and XML documents, a standard model of how these objects can be combined, and a standard interface for accessing and manipulating them. Vendors can support the DOM as an interface to their proprietary data structures and APIs, and content authors can write to the standard DOM interfaces rather than product-specific APIs, thus increasing interoperability on the Web.

The types of visual indication or adornment which is used to indicate an external link are user defined according to the style of the web site. The same script containing the adornments may be shared across the whole web site. The adornment could be images placed in close proximity to the link, or the external link's properties could be modified, such as a change in its font or colour. A useful adornment would be to change the mouse cursor to a special icon when the cursor is hovering above an external link. For instance an icon depicting a hand superimposed with a global could be used for this purpose. Link properties could also be automatically set so that the link would be displayed in a new browser window upon activation of the link.

Auditory or tactile indications of an external link may also be used. For example, when the mouse cursor passes over the external link, a distinctive audible sound might be generated. Or when the mouse cursor passes over an external link, the mouse may be caused to vibrate.

Normally this method will be applied by comparing only the two domain names in the two URLs, i.e. zzz.yyy where yyy is the generic Top level domains such as .com, .org or .net, or a two letter country code, and xxx is the unique company or individual's name. For some country codes a third section of the domain is also included such as a .co, .com, .bc or the like as in the case of zzz.co.uk, or zzz.bc.ca. Such additional sections of the domain name are encompassed herein in the term "domain name". The comparison algorithm must be able to identify such strings to extend the comparison to all three or more sections of the domain name in such cases

Adornments may be applied differently for external links depending on the severity of the deviation from the current URL. Links within the same company can have one set of adornments while non-company links can have another. For example, as shown in Fig. 1a, a local link, having the same domain as the accessed document, say vancouver.can.ibm.com, is shown in a standard colour (say blue), whereas, as shown in Fig. 1b, a link which is within the same company domain but external to the accessed document and in a different sub-domain, say toronto.can.ibm.co m is shown in a different colour, say red. Further, as shown in Fig. 1c, an external link, say msn.com, is shown in association with an icon. Thus the invention can provide two or more levels of indicators to show varying degrees of similarity of the link to the URL of the accessed document.

When adorning links with images special care must be taken that the adornment is not added when the item that is being linked is already an image. Adding such an adornment could result in an unusual effect as images are often juxtaposed and adding an additional image would result in disturbing the collage. Adorning links with images should only occur for linked inline text. Such checks can be done programically by analyzing the child nodes of the link.

The above method accepts a DOM and returns an altered DOM consisting of adornments to external links. A variation of this can exist where the HTML document is pre-processed at design time rather than the DOM at runtime. The pre-processor would need to have the desired home domain of the document supplied to it, as this would not be available otherwise. Otherwise the process is the same except for modifying the HTML instead of the DOM.

The following is an example of HTML and its rendering in Internet Explorer 5.5 is shown in Fig.1. In Fig. 1b the script has changed the

external link's colour from blue to red and in Fig. 1c the link outside of IBM has an icon added dynamically.

```
<HTML>
<HEAD>
<SCRIPT arc="URL.js" language="javascript"></SCRIPT>
</HEAD>
<BODY>
<H1>Method of Linking to External URLs</H1>
<A href="http://n095.vancouver.can.ibm.com/test2.html"><img
src="erdo-logo.jpg">Local Link</A>
<BR>
<A href="http://w3.ibm.com"><img src="erdo-logo.jpg">external but within
IBM</A>
<BR>
<A href="http://www.yahoo.com"><img src="erdo-logo.jpg">external and
outside IBM</A>
</BODY>
</HTML>
```

The following pseudo-code illustrates a preferred embodiment of the method of programming the invention.

Pseudo Code

```
window.onload=init;  /* register with event handler */

function init() {
  for all link in document
      simularity = howSimilar(getDomainOfLink(link.href),
                              document.domain);
      if (simularity != SAME) {
        adornLink(link, simularity);
      }
  }
}

function adornLink(link, simularity) {/* sample. user defined */
  if (simularity == SAME_COMPANY) {
    link.style.cursor = "crosshair";
    link.style.color = "red";
```

```
        link.style.fontWeight = "bold";
      } else {
        link.style.cursor = "crosshair";
        link.style.color = "green";
        link.style.fontWeight = "bold";
        link.target = "_blank";
        if (linkEndsWithText(link)) {
          /* add an image */
          img = document.createElement("IMG");
          img.border = 0;
          img.src = "leave-ms.gif";
          img.alt = "Leave MSN";
          link.insertBefore(img, null);
        }
      }
    }
```

The present invention is described above as a computer-implemented method. It may also be embodied as a computer hardware apparatus, computer software code or a combination of same. The invention may also be embodied as a computer-readable storage medium embodying code for implementing the invention. Such storage medium may be magnetic or optical, hard or floppy disk, CD-ROM, firmware or other storage media. The invention may also be embodied on a computer readable modulated carrier signal.

As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

CLAIMS

1. A method of indicating that a link on a web document accessed by a client using web browser software is to an external link, wherein said web document has an associated document object model, the method comprising the steps of:

i) identifying all the links in said web document by querying said document object model associated with said web document;

ii) for each link, comparing the web document's URL domain name to said link's URL domain name; and

iii) if the web document's URL and the link's URL domain names are different then providing an indication associated with said link that the link is external.

2. The method of claim 1 wherein said indication comprises one or more of the following:

a visual indication;

a change in colour of said link;

a change in font of said link;

adding an icon in proximity to said link;

a change in the mouse cursor when the mouse cursor passes over the link;

displaying said link in a new browser window upon activation of said link;

an audible indication when the mouse cursor passes over the link;

a tactile indication when the mouse cursor passes over the link; and

a vibration when the mouse cursor passes over the link.

3. The method of anyone of claims 1 to 2 further comprising the steps of :

iv) for each link, comparing the web document's URL sub-domain to said link's URL sub-domain; and

iii) if the web document's URL and the link's URL sub-doains are different but the domain names are the same, then providing an indication associated with said link that the link is internal but in a different sub-domain.

4. A computer program product for indicating that a link on a web document accessed by a client using web browser software is to an external link, wherein said web document has an associated document object model, said computer program product comprising:

a computer usable medium having computer readable program code means embodied in said medium for: i) identifying all the links in said web document by querying said document object model associated with said web document; ii) for each link, comparing the web document's URL domain to said link's URL domain; and iii) if the web document's URL and the link's URL are different in domain then providing an indication associated with said link that the link is external.

5. The computer program product of claim 4 wherein said indication comprises one or more of the following:

a visual indication;

a change in colour of said link;

a change in font of said link;

adding an icon in proximity to said link;

a change in the mouse cursor when the mouse cursor passes over the link;

is an audible indication when the mouse cursor passes over the link;

a tactile indication when the mouse cursor passes over the link; and

a vibration when the mouse cursor passes over the link.

6. An article comprising:

a computer readable modulated carrier signal;

means embedded in said signal for indicating that a link on a web document accessed by a client using web browser software is to an external link, wherein said web document has an associated document object model, said means comprising means for i) identifying all the links in said web document by querying said document object model associated with said web document; ii) for each link, comparing the web document's URL domain to said link's URL domain; and iii) if the web document's URL and the link's URL are different in domain then providing an indication associated with said link that the link is external.

7. The article of claim 6 wherein said indication comprises one or more of the following:

a visual indication;

a change in colour of said link;

comprises a change in font of said link;

adding an icon in proximity to said link;

a change in the mouse cursor when the mouse cursor passes over the link;

an audible indication when the mouse cursor passes over the link;

a tactile indication when the mouse cursor passes over the link; and

a vibration when the mouse cursor passes over the link.