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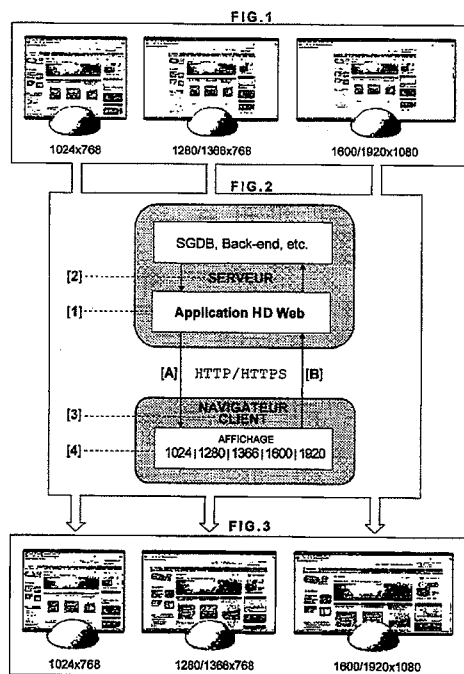
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(54) Title : SO-CALLED HD-WEB METHOD FOR HIGH-DEFINITION AND ALL-SCREEN COMPATIBLE INTERNET CONTENTS

(54) Titre : PROCEDE DIT HD-WEB POUR CONTENUS INTERNET COMPATIBLE HAUTE DÉFINITION ET TOUT ÉCRANS



(57) Abstract : The invention composed of a collection of technical methods forming an HD-Web™ application [1], for the use of proprietors hosting, on a server, contents such as a service or a website [2] who wish to ensure the perfect broadcasting and utilization of their contents regardless of the display sources and the sizes of screens on which they will be broadcast [4] in particular when dealing with high-definition HD screens: the invention greatly improving on these screens, the comfort and the experience of the user on account of web pages that hitherto do not utilize the whole display area available on large-size screens, or that are becoming ever smaller and difficult to read on screens with significant resolutions. The present invention being autonomous and operating in a transparent and nonintrusive manner on any internet site or service benefitting therefrom, thus guarantees the proprietor thereof that their contents will always be displayed perfectly regardless of the display sources and the types of screens on which they will be broadcast, while ensuring the certainty of compatibility and lasting utilization of their website or of their service regardless of upgrades to equipment and broadcasting standards in the future.

(57) Abrégé :

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3 Client browser
4 Display

[continued on next page]

Invention composée d'un ensemble de procédés techniques formant une application HD-Web™ [1], à l'usage de propriétaires hébergeant sur un serveur des contenus comme un service ou un site web [2], désireux de s'assurer de la parfaite diffusion et exploitation de leurs contenus quelles que soient les sources d'affichages et les tailles d'écrans sur lesquels ils seront diffusés [4], en particulier lorsqu'il s'agit d'écrans HD haute définition : l'invention améliorant grandement sur ces écrans, le confort et l'expérience utilisateur du fait de pages web n'exploitant pas à ce jour toute la surface d'affichage disponible sur des écrans de grandes tailles, ou devenant de plus en plus réduites et difficiles à lire sur des écrans de résolutions importantes. La présente invention étant autonome et fonctionnant de manière transparente et non intrusive sur n'importe quel service ou site Internet en bénéficiant, garantit ainsi à leur propriétaire que leurs contenus s'afficheront toujours parfaitement quels que soient les sources d'affichage et les types d'écrans sur lesquels ils seront diffusés, tout en leur assurant la certitude d'une compatibilité et d'une exploitation pérenne de leur site web ou de leur service quelle que soit l'évolution des équipements et des standards de diffusion dans le futur.

SO-CALLED HD-WEB METHOD FOR HIGH-DEFINITION AND ALL-SCREEN COMPATIBLE INTERNET CONTENTS

5 The present invention relates to a set of technical methods that enable the services and the websites that use it to make the content of their pages optimized when they are viewed on high definition screens, while ensuring their compatibility on standard screens of different sizes and of lower resolutions.

10

Since the set of these technical methods implemented forms a web application (it is neither software nor a program), hereinafter in this document we will be referring to this invention as *HD-webTM application*; We
15 will be employing the acronym *HD* for the term *High Definition* and we will be talking about the *HD-compatible*, that is to say High Definition compatible service and/or website.

20 The emergence of high definition and its appearance in household equipment with the acquisition of high definition screens which are considered to enhance visual comfort and the user experience when viewing a film, produces the reverse effect for the consultation
25 of websites which are becoming increasingly smaller and more difficult to view on HD screens (with, in addition, the appearance of large margins on the left and/or on the right of the screen greatly degrading the visual rendering thereof) and even difficult to read on
30 so-called *full-HD^{TM[i]}* screens because of images and characters that are becoming much too small.

ⁱ The term "*full HDTM*" or "1080p" designating a resolution of 1920 x 1080 and "*HD*" or "720p" a resolution at least equal to 1366 x 720 pixels being commercial terms, we will no longer draw this distinction hereinbelow, the first principle of this invention being to allow for compatibility of the websites regardless of the

With all the websites at the current time being optimized for a so-called standard resolution of 1024 × 768 pixels^[ii], their viewing on screens of higher
5 resolutions, whether they are *HD* or not, is therefore greatly penalized.

As figure 1 shows, this drawback appears from a screen resolution of 1280 × 1024 pixels, and the widespread
10 use of *HD* screens in future years will only reinforce the scale of this problem which is as yet still emerging.

The use of the *HD-web*TM technology now provides a
15 technical solution to this problem by enabling households owning recent screens (whether *HD* or full *HD*TM, to profit from high definition websites, while giving households not equipped with such screens the option to continue to view these same sites in a
20 standard resolution as they do currently, and all this, obviously, transparently and automatically without intervention either for the surfer or for the company publishing the site once the solution is put in place.

25 The websites that use this invention will therefore be compatible, that is to say optimized for display on all the screens and regardless of their resolutions (see figure 3); a technical feature that we summarize by the term *HD-compatible* website and that we used at the
30 start of this document.

screen definitions, so it therefore concerns all the screen sizes present on the market.

ⁱⁱ This standard resolution, based as it is on the width available for screens 1024 pixels wide, after deduction of the margins due to the possible presence of a vertical scroll bar on the right of the screen, is estimated on average at 980 pixels.

N.B.: It is essential to distinguish this invention from the function available on some software such as web browsers that makes it possible to enlarge or reduce the text, the images, or the pages of a website
5 (function commonly referred to by the term "zoom" or "magnifier")

This function in fact having nothing to do with the present invention neither in its results (the zoom
10 simply enlarging the pixels of the screen, provoking a blurred effect if the image is interpolated or a pixelation effect if it is not) nor in the technical methods that it uses: zoom being a functionality of the software or of the web browser, namely a so-called
15 "client" technology which cannot at any time be involved on the "server" side, that is to say on the broadcasting of the content in itself according to the screen on which it is used, unlike the present invention.

20

The method that makes the present invention unique and the principle of which is schematically represented in figure 2, shows how the *HD-webTM* application, via the browser, communicates in real time to the server what
25 content to send according to the resolution of the monitor where the service and/or the website is viewed.

This exclusive method opens up new and varied perspectives since, in addition to allowing the
30 broadcasting of *HD compatible* websites, this solution will also enable web services to broadcast a different content depending on the screen on which the latter is viewed; thus, for example, a surfer having an *HD* screen will be able to take advantage of video clips or images
35 in high definition and another having only a standard screen will watch these same clips in a more reduced definition (or simple thumbnails in the case of images), and all this transparently and automatically,

something impossible to obtain with a crude zoom function which will simply interpolate the image which is sent to it and will also require the intervention of the surfer (a click in a menu or on a browser button
5 for example) and, what is more, by its very principle, will be neither portable nor compatible since this functionality will depend on its presence or not on such or such a web browser, unlike our invention which is not dependent on the browser installed on the client
10 side.

Furthermore, the use of technical methods (that we will be detailing in the following pages) developed specifically in order to render our invention also not
15 dependent on the technical environment of the service and/or the website hosting it, will make the latter totally independent and non-intrusive (that is to say that it will not affect the source files of the service and/or of the website concerned) once put in place on
20 the server side.

For these reasons, in addition to being perfectly portable and compatible on the client side (that is to say regardless of the user's equipment: screen,
25 operating system or web browser^[iii]), our HD-webTM application will be equally so on the server side, thus

ⁱⁱⁱ Although in the context of high definition usage the presence of recent hardware is necessary, more thorough tests in older platforms and under different operating systems (WINDOWS-98®, WINDOWS-NT®, WINDOWS-2000®, WINDOWS-XP®, WINDOWS-VISTA®, WINDOWS-7®, MAC® OSX-PPC®/Intel® and linux) as well as on most of the web browsers on the market released between 2000 and 2010 (Internet Explorer®5/6/7/8/9, Netscape®4/5/6, Firefox®1/2/3, Opera®6/7/8/9/10/11, Safari®1/2/3/4/5, Google Chrome® and all other browsers based on the abovementioned engines) have shown that equipment dating several years in no way hampers the correct operation of this invention.

guaranteeing the service and/or the website hosting it future-proofed operation.

Before going into detail on all the technical methods
5 used in this invention, it is essential for us to
separate the technical methods that make up the
invention from the technical methods used to implement
and integrate the latter according to the
specifications of the service or of the website
10 concerned. We will thus be defining this set as being
made up of two distinct groups of technical methods:

1) The first group forming the set of the technical
methods common to the invention regardless of the
15 technical environment of the client, the service or the
website concerned, and forming what we will call the
core of the application.

2) The second group forming the set of ancillary
20 developments necessarily involved in the implementation
and/or the improvement of the integration of the
invention within the service or the website concerned
(technical environment, software or other application
already present) according to the specifications of the
25 client.

The technical methods of the second group vary
intrinsically according to the technical environment or
the specifications of the client, so we will be
30 describing here only the technical methods belonging to
the first group.

Because the aim of the invention is to redimension the
elements of a service or of a website according to the
35 resolution of the screen where the latter would be
viewed, the application of a multiplying coefficient to
these elements (to be determined for each screen
definition) is therefore necessary. Since the websites

are based on standard screens with a resolution of 1024x768 pixels, we will be taking this figure as base 1 in order to obtain the ratios to be applied for each screen resolution encountered on the market.

5

The table in figure 4 tells us the results obtained for the different definitions. Once these coefficients are determined, the application thereof to each element of the service or of the website according to the resolution renders the method possible, although complex and tedious, since it would then be necessary to apply these coefficients to each constituent element of the pages of the service or of the website concerned.

15

We therefore need to make this method automatic in its operation, but also in its installation, in order for its implementation to require no knowledge or technical intervention on the part of the client.

20

The objective being to make our *HD-web*TM application portable and non-intrusive regardless of the technical environment where the latter will be implemented, and do so in order to be able to offer the following services:

25

- An upgrading of the websites that do not support high definition (that is to say, for all those having been initially developed for a screen resolution of 1024x768 pixels) without the client having to redo all of his or her site.

30

- An upgrading of the services and of the websites that have not developed any solution making it possible to broadcast high definition contents and conventional contents coexisting efficiently within one and the same broadcasting platform, and to do so

35

without having to modify the already existing installation.

5 - The migration and/or the design of high-definition-compatible services or websites on all the technical environments regardless of the platform, the framework, the API or the language used by this service or this website.

10 - The migration and/or the design of high-definition-compatible services or websites, for clients that cannot or do not want to give access to the source files of their service or of their website for contractual, financial or confidentiality reasons.

15 The latter feature being crucial given that many clients are not the hosters of their own websites (common case when they have subcontracted the design and/or the maintenance thereof and are contractually
20 bound) or else when the services or the websites are managed by Content Management Systems, called CMS, which all use a method for updating and adding content which is specific to them.

25 This is why the following technical methods, as well as all those mentioned in this invention, have been developed specifically to address these issues, in order to make our HD-webTM application independent, portable and non-intrusive, regardless of the technical
30 environment of the service or of the website where the latter will be implemented.

35 All the technical methods duly developed for the present invention have been grouped together in three categories for better understanding:

1) The first category combining all the technical methods for selectively retrieving, on the client side,

the elements present in the pages of the service or of the website concerned (*step 1*), in order to store their attributes in memory - an attribute being a format property of an element - (*step 2*), before applying to them one of the multiplying coefficients of the table in figure 4 (*step 3*), and redimensioning their size according to the size of the screen on which the latter will be viewed (*step 4*), to finally replace them with elements that are identical but whose attributes have been defined for this new size (*step 5*).

2) The second category combining all the technical methods on the server side involved in the redimensioning of each element (*step 1*), according to the screen sizes defined previously by the client by a parametrizable method (*step 0*), then to combine the duly created elements and attributes in dedicated files and/or directories according to their element category and the screen size for which they are intended (*step 2*).

3) Finally, the third category combining the technical methods enabling the application located on the server side to communicate with the web browser located on the client side, via functions using Boolean values (*step 1*) grouping together each screen size in unique variables (*step 2*) which are themselves grouped together in a single initialization function (*step 3*).

This function will then be able to be called at any time to communicate, in real time, to the server, what files will have to be sent to the browser according to the screen size on which the latter are viewed, and do so in order for the web server to send only the files that correspond to that size, in order to optimize the loading speed of the pages of the service or of the website concerned.

Once these methods have been applied to all the attributes of the elements of the pages belonging to one and the same category, we can proceed in the same way for all the attributes of the elements of the other
5 categories that have been defined in the content of the pages of the service or of the website concerned.

Since the technical methods used vary slightly depending on the categories of elements to which the
10 latter are applied, rather than redetailing each of them as we have done previously, we will rather explain the generic method employed to modify all the attributes of the elements of all the categories that have been defined outside the content of the pages of
15 the service or of the website concerned.

These are technical methods that we will be grouping together in a fourth and last category and which will be responsible for browsing all the files for which the
20 attributes have been defined for a resolution of 1024x768 pixels (step 1), in order to apply to them the multiplying coefficients defined in the table of figure 4 (step 2), but this time by taking into account the precision differences between the browsers on the
25 market when these dimensions have been defined as an *em* quadrat (*em*) - an *em* being, unlike a pixel, a relative unit dependent on the font and on the precision of the browser using it (see figure 5).

30 Then, as we have done previously, the attributes of the elements newly defined in this way will be grouped together and generated, either in a single directory corresponding to them, or in one and the same directory after having been renamed (step 3) to then be sent by
35 the web server according to the screen resolution detected by our application (step 4), using the technical methods belonging to the third category.

Finally, the last step of this method (step 5) will dynamically delete, that is to say delete without touching the original files, all the attributes of the elements defined for a screen resolution of 1024 pixels wide as well as all the elements referring thereto, to replace them with instructions calling specific files stored on the server by our application and defined for the resolution of the screen on which the service or the website is currently viewed (step 6).

10

All these modifications occurring, once again, without there having been any need to touch the source files of the service or of the website hosting this solution.

15 Our *HD-web*TM application simply having to be uploaded to the host web server, or else to a remote dedicated web server in order to free the load of the service or of the website concerned which will then be able to benefit without any drop in performance from this invention, freeing it from the constraints linked to the different screen sizes present on the market and at the same time assuring it of a compatibility and future-proof operation, regardless of the future trend of the equipment and broadcasting standards.

25

CLAIMS

1. A method for interaction between a server broadcasting contents from the Internet, in particular a service or a website [2], and a client displaying these contents in a browser interface and on a screen, in particular a screen of large size or a high definition *HD* screen [3], characterized in that it deploys and dynamically modifies these contents in proportion to the size and definition of the screens on which they are displayed.

2. The method as claimed in claim 1, characterized in that it returns the definition of the screen used by said client to said server [A/B], and that the deployment and the modification of said contents are applied dynamically and in proportion to the definition returned by the application in real time of operations maintaining a constant ratio between the proportions of these contents and of the screens on which they are displayed.

3. The method as claimed in any one of the preceding claims, characterized in that it modifies said contents, and in particular the attributes of the elements of these contents - an attribute being a property of an element and an element being a property defining a type of content in a web page - by generating new attributes computed and specifically redefined for the size and the definition of the screens on which these contents will be displayed.

4. The method as claimed in any one of the preceding claims, characterized in that it generates said new attributes of said contents by replacing their old values with new values computed according to a multiplying coefficient modifying their properties

according to the size and the definition of the screens on which these contents will be displayed.

5. The method as claimed in any one of the preceding
5 claims, characterized in that it generates said new
attributes of said contents by replacing them with
attributes of contents which are themselves generated
according to properties specifically defined for the
size and the definition of the screens on which these
10 contents will be displayed.

6. The method as claimed in any one of the preceding
claims, characterized in that it is executed in real
time after the sending of said contents from said
15 server when it involves modifying them, in order for
the modification of said contents to be applied without
requiring them to be returned and asking said server
and said client to return them.

7. The method as claimed in claims 1 to 5,
characterized in that it is executed before the sending
of said contents from said server when it involves
replacing them, in order for the replacement of said
contents to be applied without requiring them to be
25 returned and asking said server and said client to
return them.

8. The method as claimed in any one of the preceding
claims, characterized in that it collects, stores and
30 generates in memory and in cache on said server and
with said client, said contents, and in particular the
attributes of the elements of said contents to be
modified and to be replaced, in order for the
modification and the replacement of these contents to
35 be done in real time during their broadcast,
independently of the transfer speed of the networks in
which these contents are broadcast.

9. The method as claimed in any one of the preceding claims, characterized in that its implementation works automatically and in real time independently of the user, of the system and of the program broadcasting and
5 displaying these contents.

10. A computer program product, Framework or
Librairie, allowing for the implementation of the
method, as claimed in any one of the preceding claims.

10

11. A system allowing for the implementation of the
method as claimed in any one of claims 1 to 9.