

(21) Application No 0129541.9

(22) Date of Filing 10.12.2001

(71) Applicant(s)

Sony United Kingdom Limited
(Incorporated in the United Kingdom)
The Heights, Brooklands, WEYBRIDGE,
KT13 0XW, United Kingdom

(72) Inventor(s)

Andrew Collins
Jonathan Morley
Charles Applegate
Allan Arthurs

(74) Agent and/or Address for Service

J A Kemp & Co.
14 South Square, Gray's Inn, LONDON,
WC1R 5JJ, United Kingdom

(51) INT CL⁷
G06F 17/30

(52) UK CL (Edition V)
H4T TCHA T122

(56) Documents Cited

EP 0889421 A1	WO 2002/007013 A2
WO 2002/005089 A1	WO 2001/035056 A1
US 5983267 A	US 5806071 A

(58) Field of Search

UK CL (Edition T) **H4T TCHA**
INT CL⁷ **G06F 17/30**
Other: **Online databases: WPI, EPODOC, JAPIO**

(54) Abstract Title

Providing information and presentation template data for a carousel

(57) An apparatus and method of providing data for a carousel from which iTV pages may be obtained including defining a plurality of information templates, each information template specifying content for an iTV page, defining a plurality of presentation templates, each presentation template specifying the presentational appearance for an iTV page, assigning a presentation template to an information template, and modifying the information template as required for presentation by the presentation template and outputting, for a carousel, data representing the presentation template and the modified information template, an iTV page being obtained from the carousel by displaying the content specified by the modified information template with the presentational appearance specified by the presentation template.

Fig.1.

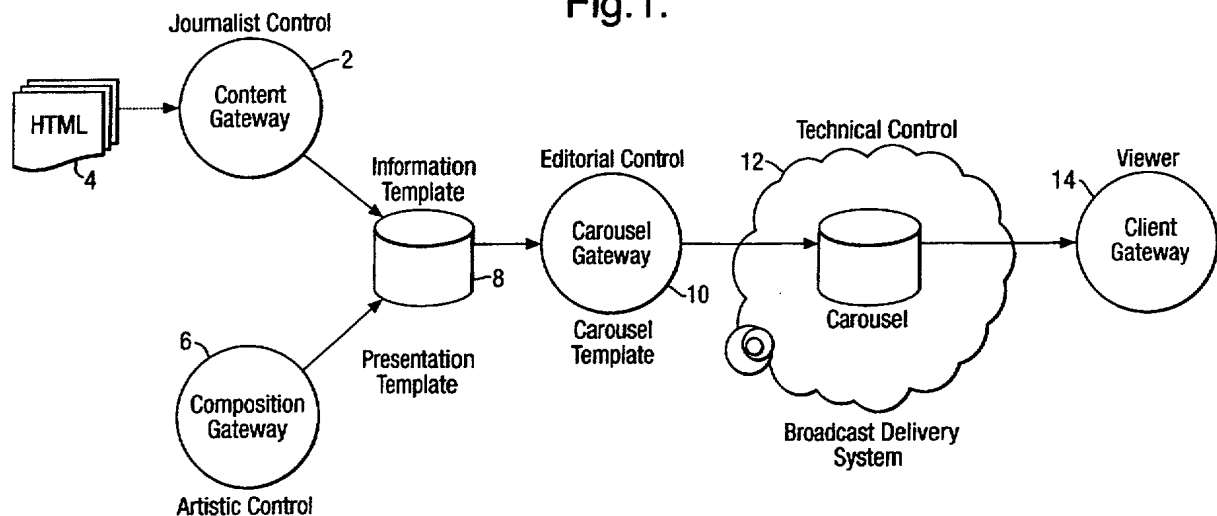


Fig. 1.

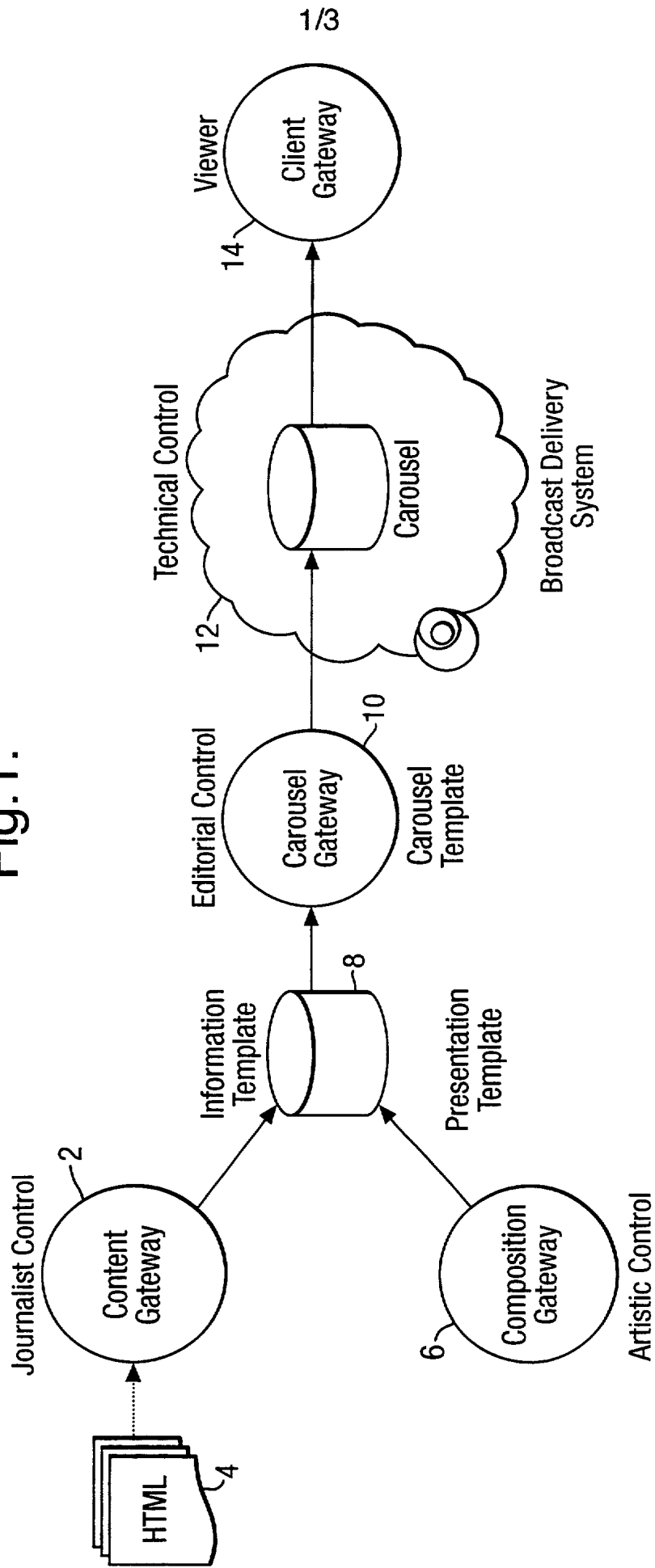


Fig.2.

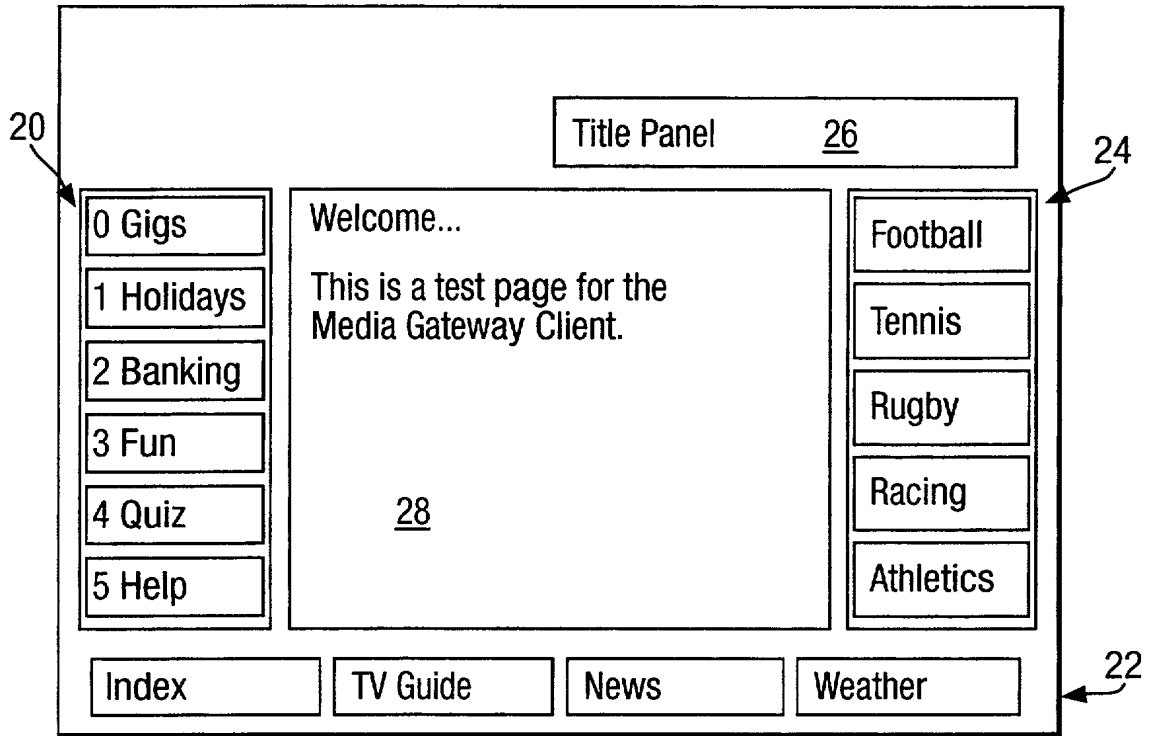


Fig.3.

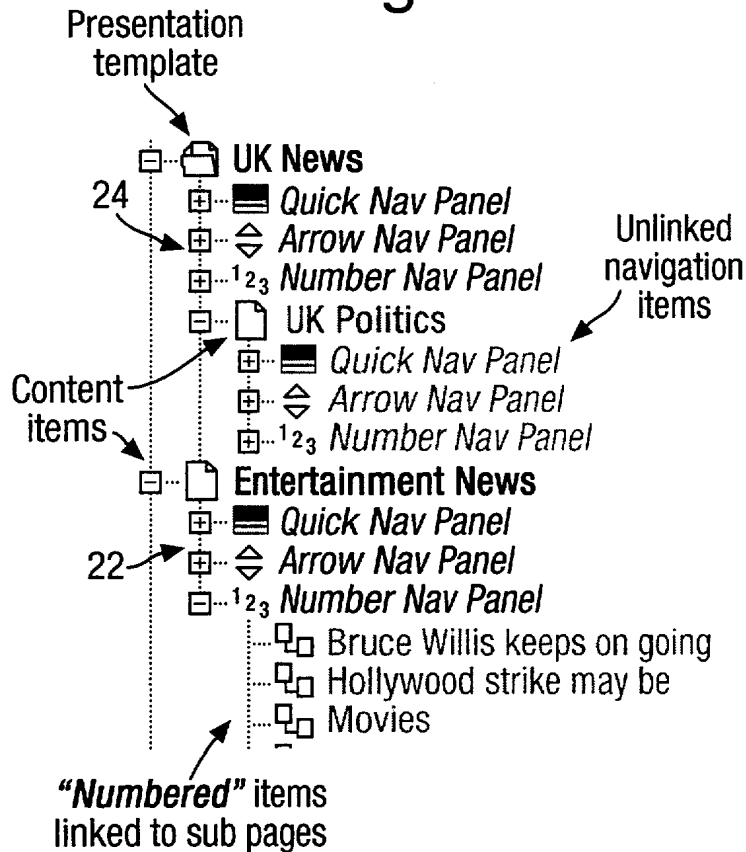
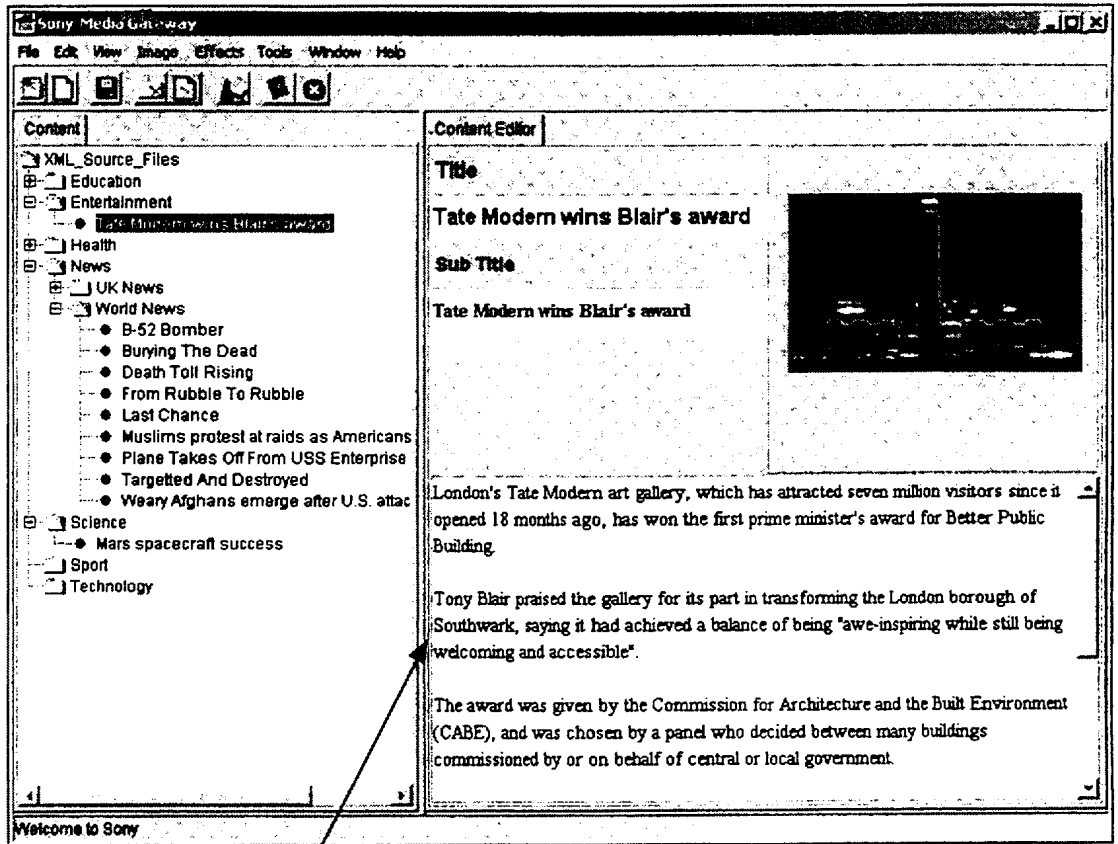
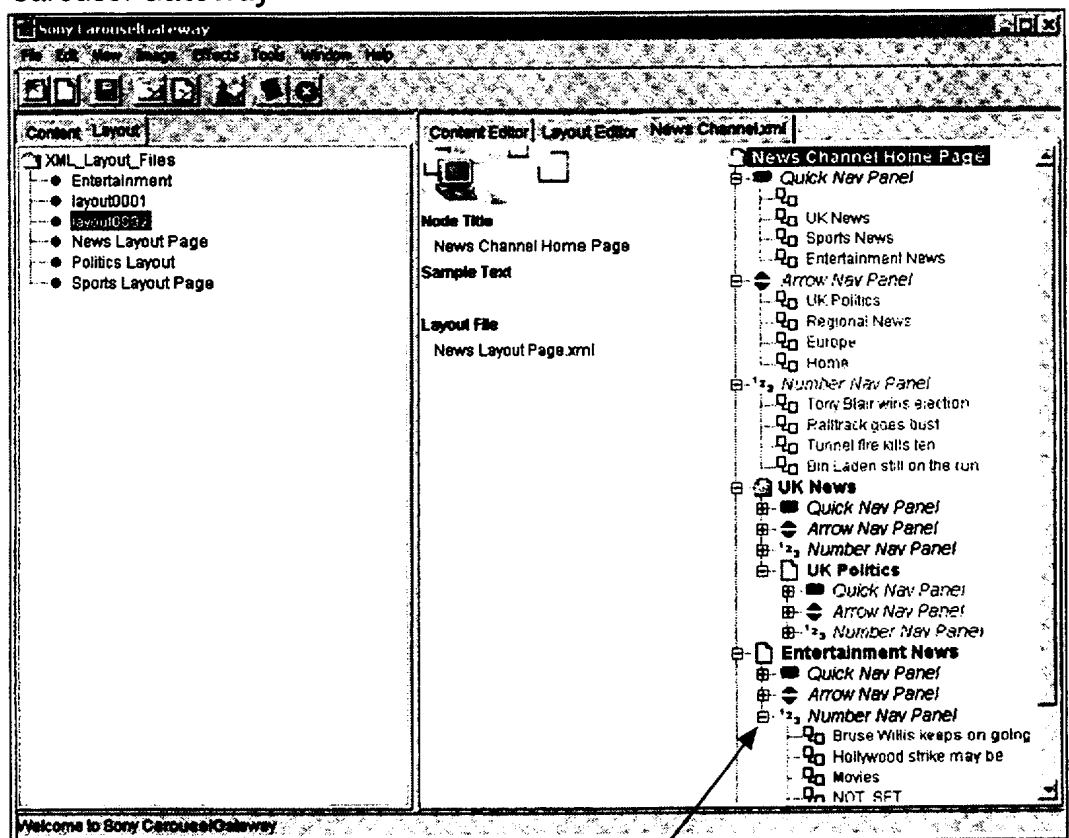


Fig.4. Content Gateway



Content authored in presentation neutral manner

Fig.5. Carousel Gateway



Page links define carousel navigation structure

APPARATUS AND METHOD FOR PROVIDING
DATA FOR A CAROUSEL

The present invention relates to an apparatus and method for providing data
5 for a carousel, in particular a carousel from which interactive television pages may be
constructed by a client receiver.

It has become well known in recent years to provide broadcast systems, such
as DVB, with interactive television (iTV) pages on a carousel. Details of broadcast
and reception of such pages using carousels are well known for a variety of systems.

10 Although the technical considerations of broadcasting and receiving the data
are well established, there are still considerable problems in constructing the required
services. In particular, considerable effort is required in preparing appropriate data
for displaying a particular page and, whenever that page is amended, that work must
be repeated.

15 Although greater flexibility can be built into the system by installing
appropriate applications in the client receivers, the memory and processing power
available to client receivers is extremely limited.

It is an object of the present invention to provide data for a carousel which
allows flexibility in the construction of the interactive services without causing
20 undue burden on the service creators or the client receiver.

According to the present invention, there is provided a method of providing
data for a carousel from which iTV pages may be obtained, the method including
defining a plurality of information templates, each information template
specifying content for an iTV page;

25 defining a plurality of presentation templates, each presentation template
specifying the presentational appearance for an iTV page;

assigning a presentation template to an information template; and
modifying the information template as required for presentation by the
presentation template and outputting, for a carousel, data representing the
presentation template and the modified information template, an iTV page being
30 obtained from the carousel by displaying the content specified by the modified

information template with the presentational appearance specified by the presentation template.

According to the present invention, there is also provided an apparatus for providing data for a carousel from which iTV pages are made available, the apparatus
5 including:

a content provider apparatus having a user interface by which a plurality of information templates may be defined, the information templates specifying content for iTV pages;

a composition provider apparatus having a user interface by which a plurality
10 of presentation templates may be defined, the presentation templates specifying presentational appearance for iTV pages;

an editor having a user interface by which a presentation template may be associated with an information template; and

a processor for modifying said information template in accordance with the
15 requirements of the associated presentation template and for outputting, for a carousel, data representing the presentation template and the modified information template, an iTV page being obtained from the carousel by displaying the content specified by the modified information template with the presentation appearance specified by the presentation template.

20 In this way, the information or content of an iTV page may be determined separately to a number of different composition or presentations for iTV pages. This allows the roles of creation to be separated. Furthermore, it allows considerable variety to be introduced into the iTV pages without undue burden on either the creators or the client receiver.

25 The user of the editor is able to choose freely how content will appear to the client by choosing from the selection of presentation templates.

Preferably, data defines a predetermined set of variable presentation features for iTV pages in the form of a presentation framework, each presentational feature having a respective plurality of states, and a presentation template is defined on the
30 basis of states defined by the user interface for the presentation template.

In this way, the operator of the composition gateway or provider apparatus has artistic control and can create a presentation template for use by an editor.

Preferably, information templates are defined having tags identifying different respective content portions and presentation templates are defined having
5 corresponding tags identifying representation areas of an iTV page so that, from the respective tags, the layout of respective content portions may be defined for an iTV page.

This provides a mechanism by which the client receiver may apply the required presentational features to the respective content portions of the associated
10 information template. Processing requirements for the client receiver are relatively small, despite the available flexibility.

Preferably, the user/editor defines links for information templates identifying other information templates, the links and tags identifying respective links being provided in the corresponding modified information templates and corresponding
15 tags associated with representations of operating keys being defined in the presentation templates such that, for the resulting iTV page, operation of an operating key of a client receiver causes movement to another information template according to the link identified by the tag associated with the operating key.

In this way, the links which are introduced by the user/editor are displayed in
20 the manner defined by the chosen presentation template and the client receiver easily identifies the required links.

Preferably, when the editor defines a link for a first information template to a second information template, the second information template is associated with the presentation template of the first information template unless the user associates the
25 second information template with a different presentation template.

In this way, it becomes straightforward for the user/editor to link pages in a cascaded fashion. Furthermore, since often such cascaded pages will be required to have the same appearance, associating those pages with the same presentation template simplifies processing and reduces the amount of data required for broadcast.

30 The information templates are modified according to the nature of the associated presentation template in a manner to format the data of the information

templates suitably and minimise the processing required by the client receiver. For instance, the information templates may be modified by inserting appropriate line and page breaks in text such that the text fits into areas defined by corresponding presentation templates and/or by scaling images such that the images fit into areas
5 defined by the corresponding presentation templates.

It should be appreciated that the invention could also be embodied as code components for execution on a computer and as a computer readable storage medium having recorded thereon such code components. Similarly, the present invention may be embodied in a broadcast or information system and as a signal representing
10 the modified content of the information template.

The invention will be more clearly understood from the following description, given by way of example only, with reference to the accompanying drawings, in which:

Figure 1 illustrates a broadcast system embodying the present invention;

15 Figure 2 illustrates an example of a graphical representation of a presentation template;

Figure 3 illustrates a selected cascade of templates;

Figure 4 illustrates the user interface of a content gateway; and

Figure 5 illustrates a user interface of a carousel gateway.

20 The following description relates to the provision of interactive television (iTV) pages on a carousel for broadcast to client receivers or gateways. Details of broadcast and reception of such pages using carousels are well known for a variety of broadcast and information systems. Various commercial information services, such as sports, entertainment listings and public service information may be provided in
25 this way. According to the embodiments described below, it is possible to specify the presentation and technical configuration of applications for, for instance, DVB-MHP services.

It has been considered to provide information templates defining the content of an iTV page in a predetermined manner such that an application running on a
30 client receiver can arrange the content to take a predetermined appearance on the iTV page. For instance, the client receiver may run an application for a particular

broadcast service provider which puts the title, summary and main body of the content in predetermined positions, together with predetermined logos and "Quick-Nav" colour buttons.

Although this is a very effective system, since the carousels only broadcast
5 the content, it places considerable processing burden on the client receivers and is limited in flexibility of appearance. In particular, it is difficult to change the appearance of the pages provided to the user. In this regard, it may be desired to arrange the appearance of the pages differently for different subject-matter or at different times of year. For instance, at Christmas time, it may be desirable to
10 present iTV pages having seasonal icons such as holly leaves.

The present invention provides an improvement on this system.

As illustrated in Figure 1, a content gateway 2 is provided. This is directly equivalent to the discussions above. By means of this gateway, a user is given journalistic control to determine the content of an iTV page. The gateway includes a
15 user interface and may be in the form of a personal computer. The user may create his/her own content, for instance entering articles with titles and various sections and possibly also images, whether still or moving. Alternatively, data for the content may be taken manually or automatically from external sources such as HTML pages or databases 4. The content of a particular page is defined as an information
20 template.

Unlike the system described above, an additional gateway 6 is also provided. This composition gateway 6 also includes a user interface and may similarly take the form of a personal computer. This gateway allows artistic control and allows a user (possibly different to that operating the content gateway 2) to create the overall
25 appearance of an iTV page. The creator may have a type of journalistic content in mind and will define in general terms where on the page the title and various sections will appear, the sizes of those sections, etc. Any other aspects of the appearance may also be defined, for instance the background colour or pattern, any additional logos or icons and the positions and appearances of any link symbols, for instance numbered
30 buttons, left-right arrow keys, up-down arrow keys and Quick-Nav colour button

keys corresponding to the keys of a client receiver's control, such as a TV remote control.

It is proposed that the composition gateway may provide the user with a presentation framework which includes all of the variable features of appearance.

5 The user may then set particular values for those variables so as to define a particular presentation template.

Thus, while the content gateway 2 enables a user to determine the content of a particular page, the composition gateway 6 allows a user to create an appearance for a page which may be applied to any respective content as defined by the content
10 gateway 2.

The resulting information templates from the content gateway 2 and presentation templates from the composition gateway 6 are stored in a database 8 for instance, a relational database or flat file data store.

As illustrated, a carousel gateway 10 is provided with access to the content of
15 the database 8. The carousel gateway 10 provides editorial control.

Like the content gateway 2 and composition gateway 6, the carousel gateway 10 is provided with a user interface and may take the form of a personal computer. The carousel gateway provides an editor by which presentation templates may be assigned to respective information templates. In this way, the user of the editor has
20 control to choose a desired presentational appearance for particular content and to change this appearance as required easily by choosing a different presentation template. The apparatus has clear significant advantages in allowing three different users with different abilities, to create the content, the presentation and the final edit. The users may be remote from one another with gateways distributed over a network.
25 However, it should be understood that all three gateways could be provided together with a single user interface.

Having assigned a particular presentation template to an information template, the resulting data is provided to the carousel 12 of a broadcast delivery system. However, it is important to note that, before being placed on the carousel,
30 the information template is modified according to the presentation template with which it has been assigned. In particular, the information template is provided on the

carousel 12 in a modified form which is suitable for combining with its presentation template by a client receiver 14 using minimum processing. In particular, the content of the information template is processed so as to be of an appropriate format to fit directly into the presentation template. For instance, if a body of text in the

5 information template is too large to fit into an area of the page assigned to it by the presentation template, page breaks are inserted at the appropriate points of the text. Thus, when the client gateway or receiver 14 receives the modified information template, it is not necessary to calculate how much text will fit into the respective display area of the page. The text between page breaks can be inserted directly into

10 the presentation template, keys, such as the left-right arrow keys, being used to move between the portions of the text separated by the page breaks.

In order to allow association between the information templates and presentation templates, the templates are provided with tags or meta data relating to various aspects or portions of the content. Thus, content added in the content

15 gateway 2 for the title of a particular page will have a particular tag indicating that it is a title and the presentation template will have a corresponding tag indicating the particular portion of the display page meant for the title. In this way, the client gateway or receiver 14 identifies each of the respective content portions and inserts them into the page as required by the presentation template.

20 Similarly, the user/editor operating the carousel gateway 10 will typically associate other iTV pages with particular keys of a client receiver control such that operation of a key takes the user to the respective associated page. As mentioned above, the presentation template provides representations of these keys, such as numbered keys, up-down arrow keys and Quick-Nav keys. When the user/editor

25 associates keys with particular pages, reference to those particular pages will be stored in the modified information template and associated, for instance by tags, to the respective keys of the presentation template. Furthermore, appropriate key words may also be associated with the respective pages and keys. In this way, the client gateway or receiver 14 may easily display the key word with the appropriate key of

30 the presentation template in the iTV page and also associate the respective displayed

keys with the stored pages for when the corresponding actual keys of the receiver control are operated.

Carousel templates may also be provided by the carousel gateway 10 for defining the structure of the carousels. These are technical signal parameters for
5 optimised caching.

Thus, the use of presentation and carousel templates allow control of the layout display and technical delivery details. The separation of information template and presentation template data allows the service essence to be managed separately from the target application. Creation of the target application requires careful
10 consideration of the device parameters and display properties. Crafting this application is the most costly and resource expensive portion of creating an interactive service proposition. Using a neutral content representation, a navigation and handling layer can be built as a set of components or software development kit that can be used along with a server-side management system. The client application
15 programming interface (API) can be used to assist the development of attractive new applications without disrupting the work flow and management architecture on the head-end side.

A major consideration in the delivery of interactive services, particularly in bandwidth scarce DTT (Digital Terrestrial Television) is optimisation of the carousel
20 structure. In a preferred embodiment, the apparatus described above supports a sophisticated XML template for the description of the carousel structure. The efficient generation of this template based on packing heuristics and knowledge of receiver caching strategies allows performance improvements in the delivery of the service offering.

25 To allow stylistic freshness, promotional or seasonal emphasis and changes in branding for different vendors, the presentation template layer is used to map the essence in the information template into the desired artistic layout.

The separation of display and information allows rapid design adjustment, where the presentation template can take the form of a "skin" applied to a core
30 service. The apparatus of the present invention may apply a presentation template to each information template node within a service offering. The presentation template

defines the location, colour, font or graphic associated with a particular "panel", eg. title panel. The information template contains the textual or image content for a particular panel. Construction of a service entails building a carousel structure that consists of a set of information template and presentation template mappings. The association of a presentation template to an information template provides the basis for applying automated layout rules and constraints to message line length and wrapping where required. As explained above, the apparatus performs as much processing as possible on the server to reduce the processing burden on the client application.

10 Typical TV information service offerings have in the order of 500 to 3,000 pages. This creates a significant effort in maintaining the integrity of links throughout the service and consistency in the user navigation experience.

It is proposed to provide three inter-page navigation methods directly related to the control keys of the client receiver, for instance the remote control keys for Quick-Nav, numbered and list. In addition, a method of intra-page navigation may be provided for large textual items. Figure 2 shows as a graphical representation all of these methods applied to a basic presentation template. The mechanisms provided constrain the viewer and service designer to a single linkage method away from a particular page. The lack of "focus" or state based mechanisms greatly simplifies service comprehension and construction. In particular, "focus" based systems require highlighting or "focus" for selected features and movement of this highlighting or "focus" to consecutive features with actuation of up/down operation keys and the like. Similarly, state based mechanisms are required to remember the position of the feature selected last. As will be made clear below, this may be avoided by providing direct correspondence between particular operation keys, such as the number keys or Quick-Nav keys, and features of the displayed page. Hence, the processing requirements at the user/client gateway are reduced.

Using the composition gateway, a user is able to create a presentation appearance having any desired format. Figure 2 illustrates a particular format. This presentation template is indicated with text labels inserted into the keys by the editor, but without any content from an information template.

On the left, six number keys 20 are provided corresponding to numbers 0 to 5 on a client control. By operating one of these keys on the client control, the corresponding page will be selected.

Similarly, on the bottom, four Quick-Nav keys 22 are provided. These have the four colours of the Quick-Nav colour keys of the operating control of a client receiver.

On the right, a list 24 of five other topics are provided, each item in the list corresponding to a link to another page. Individual items of this list 24 may be selected using the up-down arrow keys of the operating control of a client receiver.

For completeness, it is also noted that in the illustrated presentation template, a title area 26 is provided on the upper right side for title information from an information template and a central area 28 is provided for the main body text from an information template. As mentioned above, if the body of text from the information template is too large for the text area 28, page breaks are inserted in the text. The left-right arrow keys of the operating control of the client receiver may be used to turn through a set of pages in this area. Similarly, long titles may be wrapped onto two lines.

The carousel organisation constructed in the apparatus is built by choosing a presentation template which defines a node with a set of links as shown in Figure 3.

Adding nodes with the desired presentation templates expands the service structure. As the presentation template only defines which nodes are possible, the information template at each node maintains the link from one information template to another. This allows a presentation template to be applied to groups of information nodes. Figure 3 shows a single presentation template whose style cascades to the other sub nodes. In other words, since the information templates of the sub nodes are not defined with different presentation templates, they automatically take the style of the presentation template of the node from which they cascade.

The separation of journalistic content and artistic presentation maintained in the information and presentation templates naturally maps to the role and work flow relationships in building and maintaining information services. Although these roles

are often interlinked in the interactive television industry today, as the need to maintain larger and more complex information services grows, the need to coordinate multiple activities for a single service will increase, mirroring the situation in the early development of web services. This apparatus applies the technical separation
5 made with presentation and information templates to facilitate the natural role separation of journalistic and artistic activities.

As explained above with reference to Figure 1, the content gateway and composition gateway provide appropriate tools for each user. The content gateway allows a journalist to acquire, create and edit content items, whereas the composition
10 gateway provides a graphical tool for layout design.

A view of an example content gateway is illustrated in Figure 4.

The two components are brought together under editorial control by the carousel gateway, an example of which is illustrated in Figure 5. This allows an editor to select prepared content and presentation items and blend them into a service
15 offering. In the illustrated example, templates may be drag and dropped into desired positions in the navigation structure as indicated on the far right.

CLAIMS

1. An apparatus for providing data for a carousel from which iTV pages are made available, the apparatus including:

5 a content provider apparatus having a user interface by which a plurality of information templates may be defined, the information templates specifying content for iTV pages;

a composition provider apparatus having a user interface by which a plurality of presentation templates may be defined, the presentation templates specifying
10 presentational appearance for iTV pages;

an editor having a user interface by which a presentation template may be associated with an information template; and

a processor for modifying said information template in accordance with the requirements of the associated presentation template and for outputting, for a
15 carousel, data representing the presentation template and the modified information template, an iTV page being obtained from the carousel by displaying the content specified by the modified information template with the presentation appearance specified by the presentation template.

2. An apparatus according to claim 1 wherein the composition provider
20 apparatus includes:

a memory containing data defining a predetermined set of variable presentational features for iTV pages in the form of a presentation framework, each presentational feature having a respective plurality of states; and

a processor for defining a presentation template on the basis of states defined
25 by the user interface for the presentation template.

3. An apparatus according to claim 1 or 2 wherein the content provider apparatus defines information templates having tags identifying different respective content portions and the composition provider apparatus defines presentation templates having corresponding tags identifying representation areas of an iTV page
30 so that, from the respective tags, the layout of respective content portions may be defined for an iTV page.

4. An apparatus according to claim 1, 2 or 3 wherein the editor defines links for information templates identifying other information templates, the processor provides, in the corresponding modified information templates, the links and tags identifying respective links and the composition provider apparatus defines
5 presentation templates having corresponding tags associated with representations of operating keys such that, for the resulting iTV page, operation of an operating key of a client receiver causes movement to another information template according to the link identified by the tag associated with the operating key.

5. An apparatus according to claim 4 wherein, when the editor defines a
10 link for a first information template to a second information template, said second information template is associated with the presentation template of said first information template unless a user of the editor associates the second information template with a different presentation template.

6. An apparatus according to any preceding claim wherein said processor
15 modifies information templates by inserting appropriate line and page breaks in text such that the text fits into areas defined by corresponding presentation templates.

7. An apparatus according to any preceding claim wherein said processor modifies information templates by scaling images such that the images fit into areas defined by the corresponding presentation templates.

20 8. An apparatus according to any preceding claim wherein at least one of the content provider apparatus, the composition provider apparatus and the editor is connected to another of the content provider apparatus, the composition provider apparatus and the editor over a network.

9. A method of providing data for a carousel from which iTV pages may
25 be obtained, the method including

defining a plurality of information templates, each information template specifying content for an iTV page;

defining a plurality of presentation templates, each presentation template specifying the presentational appearance for an iTV page;

30 assigning a presentation template to an information template; and

modifying the information template as required for presentation by the presentation template and outputting, for a carousel, data representing the presentation template and the modified information template, an iTV page being obtained from the carousel by displaying the content specified by the modified
5 information template with the presentational appearance specified by the presentation template.

10. A method according to claim 9 including:
providing data defining a predetermined set of variable presentational features for iTV pages in the form of a presentation framework, each presentational feature
10 having a respective plurality of states; and
defining a presentation template on the basis of states defined for the presentation template.

11. A method according to claim 9 or 10 including:
defining information templates having tags identifying different respective
15 content portions and presentation templates having corresponding tags identifying representation areas of an iTV page so that, from the respective tags, the layout of respective content portions may be defined for an iTV page.

12. A method according to claim 9, 10 or 11 including:
defining links for information templates identifying other information
20 templates, providing in the corresponding modified information templates, the links and tags identifying respective links and defining presentation templates having corresponding tags associated with representations of operating keys such that, for the resulting iTV page, operation of an operating key of a client receiver causes movement to another information template according to the link identified by the tag
25 associated with the operating key.

13. A method according to claim 12 wherein, when a link as defined for a first information template to a second information template, said second information template is associated with the presentation template of said first information template unless a user associates the second information template with a different
30 presentation template.

14. A method according to any one of claims 9 to 13 including modifying information templates by inserting appropriate line and page breaks in text such that the text fits into areas defined by corresponding presentation templates.

15. A method according to any one of claims 9 to 14 including modifying information templates by scaling images such that the images fit into areas defined by the corresponding presentation templates.

16. A broadcast system including an apparatus according to any one of claims 1 to 8 or for conducting a method according to any one of claims 9 to 15.

17. An information system for supplying information including an apparatus according to any one of claims 1 to 8 or for conducting a method according to any one of claims 9 to 15.

18. A signal representing the modified content of an information template derived from an associated presentation template according to an apparatus according to any one of claims 1 to 8 or a method according to any one of claims 9 to 15.

19. An apparatus for providing data for a carousel constructed and arranged substantially as hereinbefore described with reference to and as illustrated by the accompanying drawings.

20. A method of providing data for a carousel substantially as hereinbefore described with reference to and as illustrated by the accompanying drawings.

21. A computer readable storage medium having recorded thereon code components that, when loaded on a computer and executed will cause that computer to operate according to any one of the preceding claims.

22. A computer program having code components that, when loaded on a computer and executed will cause that computer to operate according to any one of claims 1 to 21.

23. A system constructed and arranged substantially as hereinbefore described with reference to and as illustrated by the accompanying drawings.

24. A signal representing the modified content of an information template substantially as hereinbefore described with reference to and as illustrated by the accompanying drawings.



INVESTOR IN PEOPLE

Application No: GB 0129541.9
Claims searched: 1, 9, 21, 24

Examiner: Sue Willcox
Date of search: 10 June 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): H4F FGH; H4T TCHA

Int Cl (Ed.7): G06F 17/30

Other: Online databases: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	EP 0889421 A1 YAHOO Inc - see abstract	1, 9, 21, 24 at least
A	WO 02/07013 A2 SHOTTON et al	
A	WO 02/05089 A1 CANON KK	1, 9, 21, 24 at least
X	WO 01/35056 A1 INTERCONTINENTAL TRAVEL SERVICES Inc - see abstract & pp 9 - 10	
A	US 5983267 SHKLAR et al	
A	US 5806071 BALDERRAMA et al	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.