(54) Title: CONTENT PROVISION
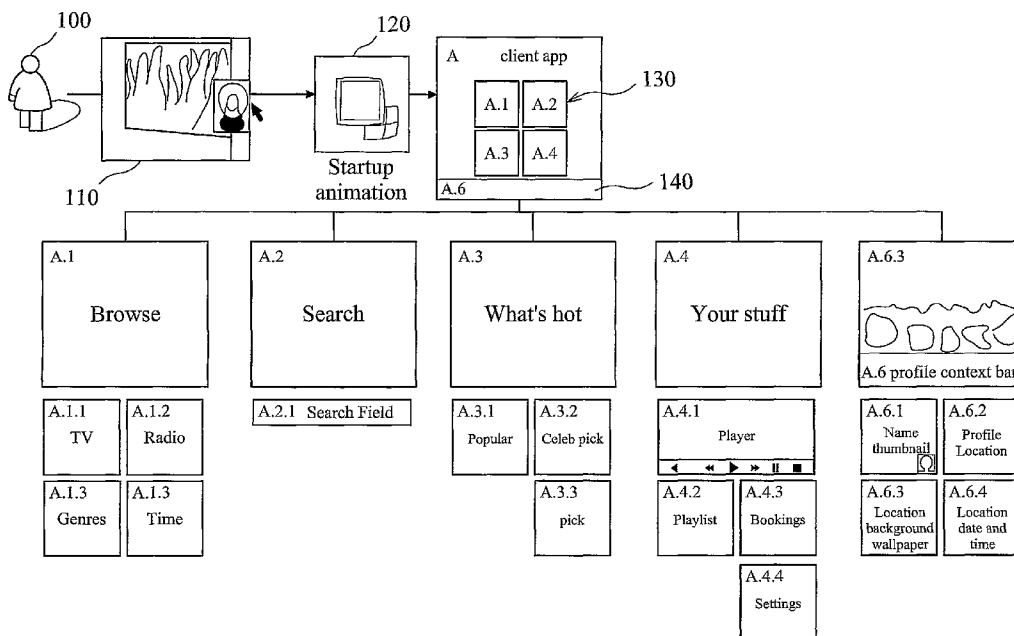
(57) Abstract: A graphical user interface for a computer program, the interface comprising an array of main panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted to expand as a pointing device highlights a pane, the expansion of said pane relative to the other panes wherein the panes remain in register with one another at the vertex as a pane expands.

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# CONTENT PROVISION

## INTRODUCTION

The present invention relates in general to, graphical user interfaces, an apparatus, methods of use a graphical user interface, a method of displaying search results to a
5 user, and a system. In particular the invention relates to graphical user interfaces, an apparatus, methods of use a graphical user interface, a method of displaying search results to a user, and a system suitable for providing content to a user.

## BACKGROUND OF THE INVENTION

It is common to provide a graphical user interface for user interaction with computer
10 systems. Such an interface provides to the user presentation of information about the computer and its components and associated systems and data, both hardware and software. By use of graphical objects such as windows, icons, toolbars, control boxes and control buttons, the user is shown what software modules are available for selection and execution. One common aspect of computer interfaces is the directory tree
15 structure, which provides a structure for organising information (e.g. software applications or computer files) which have related subject matter or common themes as nodes or limbs of a directory tree. The information is thus organised into a set of directories and sub-directories. This powerful tool provides an intuitive representation of logical groupings and relationships between such logical groupings of multiple pieces of
20 information. Within the directory tree structure, a user can select and manipulate pieces of information (e.g. files, or weblinks) represented by nodes or limbs within the tree using a mouse, keyboard, trackball, pointer, remote control cursor or other user-operated input device. User selection via a mouse can be accomplished by 'pointing and clicking' on a selectable feature on the computer display.

25 While the directory tree structure is very useful, it is not the best solution for many applications. Interfaces for consumer home use, such as navigation interfaces for interactive media players, should ideally be wholly user friendly and intuitive, as users of such systems may have a very limited knowledge and understanding of computer operation. In addition, such interfaces should be fully visual, constantly providing as
30 much relevant graphical information to the user as possible, without requiring any complex navigation or user selection strategy. In this regard conventional directory tree structures are far from ideal, as they generally require controls which allow a given subdirectory to be expanded into view, or conversely to be hidden or collapsed from view, and this requires careful selective navigation by the user. In addition, the usual approach
35 necessitates careful manipulation by the user to scroll through items of a selected subdirectory. Further, in the conventional directory tree approach, all items within a particular target subdirectory are displayed with equal emphasis, even though the majority may be irrelevant to a current task or content sought.

SUMMARY OF THE INVENTION

The present invention, then, relates in general to a graphical user interface for a computer system, and in particular an interface for interaction by a user for operating a digital content viewer such as an interactive media player, providing navigation and display functionality. The interface is configured to simultaneously display multiple pieces of information to a viewer, the information organised in a hierarchical structure and displayed for intuitive navigation by a user. The hierarchical structure of the information comprises multiple pieces of information at each of a plurality of information levels.

APPARATUS INTERFACE:

According to one aspect of the invention, there is provided an apparatus having a display screen and a user controllable pointing device for enabling a user to control the apparatus by the manipulation of the pointing device on the display screen, the apparatus comprising means for displaying on the display screen an array of panes in register with one another at a vertex corresponding to the area (or region) in which all the panes meet, each of the panes providing a user with means for accessing particular functionality of the apparatus, means for detecting the presence of the pointing device over a pane, and means for expanding a pane relative to the other panes in response to the detection of the pointing device over a pane, wherein the panes remain in register with one another at the vertex as a pane expands.

Thus, the apparatus provides for a particularly optimised use of display space whilst maximising the information available to a user at any one time. Furthermore, maintaining the panes in register as one pane expands advantageously means that the expanding pane does not overlap the content of the other panes as the expansion and contractions occur.

Preferably the expanding means is adapted to contract the other panes as one pane expands. This further enhances the optimised use of the display area.

The expanding means is preferably adapted to move a pane towards the centre of the display screen as a pane is expanded. Advantageously this provides content of current interest to a user at more convenient location.

The expanding means is preferably adapted to move the vertex along a diagonal line towards an outer edge of the display screen. The expanding means may be adapted to move the vertex at an angle of 45 degrees.

The movement toward the edge of the screen advantageously relegates panes of less current interest to peripheral areas of vision. The movement along a diagonal (and in particular a 45 degree diagonal) provides a visually smooth transition which allows a user to track content in multiple planes as they move.

Preferably the expanding means is adapted to move the vertex substantially along an "x" centred substantially in the middle of the display screen as the presence of the pointing device is detected over successive panes.

The panes preferably expand and move/centralise around a square positioned approximately in the centre of the display screen, the size of the square preferably being proportional to a factor of between 1.2 and 2 times the size of an unexpanded pane, and preferably being proportional to a factor of 1.6 times the size of an unexpanded pane.

5     Such movement and such factors are particularly beneficial for providing smooth transitions between the various visual states without significantly compromising the user's ability to track the content of different panes as they expand/move/contract.

At least a "square number" of panes are preferably provided. Preferably, for example 4, 6, 8, 9, 12, 16 or 25 panes may be provided. This allows for an advantageous

10    arrangement of such panes in a square grid, which is particularly beneficial for allowing a user to find relevant content quickly.

The display means may be adapted to prevent the panes from overlapping with one another at any time, thereby beneficially ensuring content of the panes remains available.

The expanding means is preferably adapted to continue to expand a pane in response to

15    the continued detection by the detecting means of the pointing device over the pane until the pane reaches a specified maximum size. A smooth gradual expansion in this manner is particularly advantageous over an instantaneous shift from one visual state to another (e.g. contracted to fully expanded), for example, if a user accidentally moves the mouse pointer over a different pane from the one they are currently viewing.

20    The maximum size may be between 1.2 and 2 times the size of an unexpanded pane, and preferably 1.6 times the size of an unexpanded pane.

Preferably the apparatus further comprises means for enabling a user to select a pane using the pointing device, wherein the detecting means is preferably adapted to detect the selection of a pane by the pointing device. The expanding means may be adapted to

25    expand the pane to a maximum size in response to the selection.

The maximum size may be at least 1.6 times the size of an unexpanded pane, and preferably results in the selected pane occupying substantially all of the available display screen real estate.

The display means is preferably adapted to move the panes over which the pointing

30    device has not been detected towards an outer periphery of the display screen as a pane is expanded.

Preferably the apparatus further comprises means for animating the panes. The animating means may be adapted to reduce animation of those panes over which the pointing device has not been detected.

35    The display means may be adapted to adjust the opacity of the panes in dependence on whether or not the pointing device has been detected over a pane and may further be adapted to increase the opacity of a pane over which the pointing device is detected.

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The display means is preferably adapted to maintain the relative positions of the panes to one another.

The panes are preferably in the form of rectangles or squares.

The display means may be adapted to display a plurality of sub-panes within each (main) pane, wherein the detecting means and the expanding means are preferably adapted to expand and contract the sub-panes in substantially the same manner as the (main) panes in response to the movement of the pointing device over the sub-panes.

A "square number" of sub-panes are preferably provided within each (main) pane. The display means may be adapted to provide visual indicia in addition to the sub-panes within each (main) pane for providing access to further panes or sub-panes.

The display means may be adapted to display the panes on a graphical background. The apparatus may further comprise means for enabling a user to select the graphical background.

Preferably at least one pane provides a user with means for accessing audiovisual content items. At least one pane may provide a user with means for playing audiovisual content items. At least one pane may provide a user with means for controlling and/or organising audiovisual content items.

'SQUARE' OPTION ARRAY:

According to a further form of the invention, there is provided a method of providing content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure, wherein a plurality of content options are displayed to the user as a substantially rectangular tiled array of content indicia each occupying a substantially rectangular screen area.

Preferably, interaction with a particular one of said content indicia by the user by way of said control device causes the screen area occupied by the interacted content indicium to expand on said display device in a way that maintains its position in said array relative to the other content option indicia.

Preferably interaction with a particular one of said content indicia by the user by way of said control device causes the space occupied by a plurality of other content indicia to be replaced in dependence on the interacted content indicium. The plurality of other content indicia may move to occupy an area peripheral to the occupied space or may simply be replaced. Any content indicia located in a region which is not occupied may be replaced by other content indicia, or may simply remain unchanged.

The space may be occupied by a media player, content related to said interacted content indicium, and/or a larger version of the interacted content indicium.

Preferably, said content indicia occupy respectively discrete and non-overlapping screen areas, irrespective of whether or not the user is interacting with any one of them.

In addition, interaction with a particular one of said content indicia by the user by way of said control device may:

5          cause said screen area to move to a relatively central area on said display device; and/or

          cause said other ones of the content indicia to contract on said display device.

The rectangular screen areas occupied by the respective content indicia may be square. Further, the rectangular tiled array of content indicia may also be square.

10   Preferably, the number of content indicia in the tiled array is a square (4, 9, 16, 25, etc).

In accordance with this form of the invention, a simple navigation structure is presented to the user. Interaction with (e.g., by passing a cursor over, or by clicking on) a particular content indicium results in the screen area occupied by that indicium expanding and, preferably, centralising within the display or at least moving nearer to the centre of the

15   display. The remaining indicia are thus displayed with relatively lower emphasis to the user, but the relative and familiar positions of the content indicia is maintained, making it very simple for the user to locate and interact with another content indicium. In the case of a tiled array of four display areas, each presenting an alternative content indicium, the common vertex of the four areas may be maintained, even though this point will travel

20   around the display as the user interacts with different indicia and the respective screen areas occupied by those indicia expand and contract and, optionally, move towards and away from a relatively central area of the display. This point provides a simple and constant reference for the user to use for navigation. Even when the user 'drills down' into content options, e.g. by selecting sub-options available within a particular one of the

25   four display area with which he or she is interacting (and being provided with corresponding further content indicia for further navigation), the other three original options may remain in register with one another and directly accessible on the display.

As used herein, the term "mouse-over" is to be understood to mean any form of hovering over a graphical user interface item with any pointing device such as a mouse.

30   Similarly, as used herein, the term "mouse-down" is to be understood to mean any form of selection of a graphical user interface item with a pointing device such as a mouse.

Preferably, the common vertex moves along a substantially diagonal line from the centre of the screen (when the interface is in initial state) to a point towards an outer edge of the screen as a particular display area expands.

35   More preferably, the vertex is constrained to track an "x" as each display area is expanded and/or contracted.

In a case where there are more than 4 display areas, and hence more than one vertex, each vertex will be constrained to track and "x" as each display area is expanded and/or contracted. Thus, if an outer display area is expanded the vertices will move on parallel line towards an outer edge of the screen, and if an inner display area is expanded, the vertices will move in opposite directions towards an outer edge of the screen.

This navigation structure can be repeated within each content option, as sub-options can be similarly presented to the user as a rectangular tiled array of content indicia each occupying a rectangular screen area. If there are more content options to be available to the user than there are screen areas within the tiled array, then one of the screen areas may provide access to further content options.

The rectangular form of the screen areas comprising content indicia is particularly suited to accessing image or video content. For example, in the case of video content, the user may navigate to a content indicium representing a required video, and selection of that video can then initiate playback (e.g. of a preview or sample clip) within that rectangular screen area.

According to a further form of the invention, there is provided an interactive graphical user interface for display of content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure with a plurality of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at each selection option, all of the selection options available under that selection option are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, such that for any selection option the user is able to simultaneously view all of the selection options available under that selection option.

FRACTAL CONTENT DISPLAY:

According to a further form of the invention, there is provided a method of providing content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure with a plurality of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at each selection option, all of the selection options available under that selection option are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, such that for any selection option the user is able to simultaneously view all of the selection options available under that selection option.

Preferably, all or at least a plurality of selection options from the previous level and/or the base level are simultaneously displayed to the user.

In this way, through a succession of levels of the directory structure, each level comprising a number of selection options and each selection option linking to a further plurality of selection options in the next level, the user can readily navigate from one level to the next, as none of the linked selection options are hidden from the screen or need to

5      be accessed through further manipulation (such as through scrolling features). This considerably enhances the user experience.

According to a further form of the invention, there is provided an interactive graphical user interface for display of content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or

10     hierarchical structure with a plurality of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at each selection option, all of the selection options available under that selection option are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen

15     areas, such that for any selection option the user is able to simultaneously view all of the selection options available under that selection option.

FRACTAL CONCEPT:

According to a yet further form of the invention, there is provided a method of providing content data for navigation and selection on a display device by a user using a control

20     device, the content data organised into a directory or hierarchical structure with a number of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at a first level in the directory or hierarchical structure, all the available selection options available are simultaneously displayed to the user as corresponding

25     content access indicia in respective ones of a plurality of screen areas, and wherein, on selection of a particular selection option and thereby proceeding to a second level in the directory structure, said other selection options in the first level remain displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas.

30     Preferably, content access indicia representing said further plurality of selection options linked from a particular selection option are simultaneously displayed as discrete and non-overlapping screen sub-areas within the screen area of said particular selection option.

In this way, not only can the different selection options at one level all be displayed to the

35     user, but when a selection option links to further selection options in the next level, these further options can be simultaneously displayed as separate (navigable and selectable) screen areas within the screen area corresponding to the particular selection option. In a preferred embodiment, this functionality is only enabled when the screen area has expanded due to interaction or selection by the user.

This can be regarded as a 'fractal' directory display pattern, as each 'parent' content access indicia of an array of such indicia can in turn comprise an array of 'child' content access indicia, each displayed as a sub-area within the screen area of the 'parent' indicia. This enables the user to simultaneously view multiple options at a plurality of different

5      levels within the directory structure, without having to navigate (i.e. to 'move') from one level to the next (and thus lose the direct accessibility of other options in the level from which the user has had to move. When the user interacts with a sub-area, this can in turn expand – and, optionally, move to a relatively central area – within the 'parent' screen area.

10     In any of the forms of the invention defined herein, in a preferred option, said plurality of screen areas are displayed to the user as discrete and non-overlapping screen areas.

Preferably, the graphical user interface is in operable communication with a computing device containing a computer programme comprising programme modules executable by the computing device.

15     The content access indicium can be any appropriate graphical information (or combination of pieces of graphical information) to indicate to the user what content is available in that selection option. It may include, for example, screen icons, screen controls, thumbnails, text, dialogue boxes, search screens, images (or slideshow successions of images), video players, audio players, etc.

20     In all embodiments the screen areas may be any suitable shape. In one embodiment, the screen areas are rectangular, and preferably square.

Preferably, interaction with a particular one of said screen areas by the user by way of said control device causes said screen area to expand on said display device and, optionally, all other said screen areas to contract on said display device. This important

25     feature may be provided independently. Preferably, the contraction only occurs when a particular screen area is selected rather than just hovered over.

This expansion and optional corresponding contraction is realised such that all of the control access indicia of other available selection options are still available on the display device, preferably as discrete and non-overlapping screen areas.

30     For example, if the user moves a mouse pointer (which item includes similar devices) over a particular content access indicium, the screen area of that indicium expands to enhance the display of the information contained within that indicium. Just by way of example, the linear dimensions of a screen area may expand to roughly 1.6 times, say 1.5 to 1.75 times, (the so-called 'golden ratio') on interaction by the user.

35     Preferably, as the mouse pointer continues to hover over a particular content access indicium the screen area of the indicium continues to expand until it reaches a maximum size. More preferably, as the mouse pointer is moved off a content access indicium that content access indicium returns to its initial size.

Preferably, if a user clicks on a particular content access indicium that content access indicium expands to its full size.

In addition, interaction with said screen area may cause said screen area to move to a relatively central area on said display device.

5   Preferably, selection by the user of said particular one screen area by way of said control device (e.g. by clicking on a mouse button) causes said screen area to expand yet further on said display device to a maximum size.

In addition, selection by the user of said screen area may cause said screen area to move to a relatively more central area on said display device.

10  According to a further form of the invention, there is provided an interactive graphical user interface for display of content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure with a number of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further

15  plurality of selection options in the next level, wherein, at a first level in the directory or hierarchical structure, all the available selection options available are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, and wherein, on selection of a particular selection option and thereby proceeding to a second level in the directory structure, said other selection

20  options in the first level remain displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas.

SEARCH RESULTS DISPLAY:

According to a further form of the invention, there is provided a computer-based method of displaying search results to a user wishing to access available data content,

25  comprising the steps of:

        providing to the user a means of inputting search terms;

        receiving from the user one or more search terms;

        conducting a search in accordance with the received search term(s);

        displaying to the user a prescribed search results screen area, containing

30  discrete graphical indicia representing all of the search results returned.

Preferably, said method further includes:

        receiving one or more additional search terms from the user;

        using said one or more additional search terms to refine the search results;

displaying to the user the refined search results by displaying discrete graphical indicia representing all the refined search results within the prescribed search results screen area.

Preferably the size of said indicia is determined in dependence on the number of search results returned. Said results may be dynamically reduced as said search term is typed. The size of said indicia may increase as the number of search results returned reduce.

Preferably, the indicia representing the search results are substantially equally sized within the prescribed search results screen area, and the graphical indicia substantially completely occupy said prescribed search results screen area.

In this way, throughout a particular search, as further search terms are submitted by the user the prescribed search results screen area may be substantially completely filled with graphical indicia representing all search results returned. As the search results are filtered (refined) through submission of additional terms, the number of results will generally reduce. There is therefore a corresponding increase in the size of the respective representative discrete graphical indicia.

This provides a very simple and intuitive feedback functionality to the user of the progress of a search, as the user receives a direct visual impression of the number of results returned in response to a search term, by way of the number of indicia contained within the search results screen area (and, accordingly, the size of each indicium).

Preferably, interaction by a user-controlled control device with a graphical indicium representing a particular item of data content provides that item of data content to be delivered to or accessible by the user.

By way of example, the user can simply click on a particular indicium (such as a thumbnail image) to directly access the relevant content, e.g. to initiate playback of video content represented by the image.

According to a further form of the invention, there is provided a graphical user interface for displaying search results to a user wishing to access available data content, the interface comprising:

means for inputting search terms;

means for receiving from the user one or more search terms;

means for conducting a search in accordance with the received search term(s);

means for displaying to the user a prescribed search results screen area, containing discrete graphical indicia representing all of the search results returned.

BUDDY LIST CONCEPT:

In accordance with a further aspect of the invention, there is provided a graphical user interface for a computer program which allows a user to access content items, the graphical user interface comprising means for displaying particular content items, means

5   for forwarding particular content items to selected other users, and a list of users to which the content may be forwarded represented in the form of a graphic icons each corresponding to another user and each being selectable by the user thereby to forward a particular displayed content item to one or more of the other users.

Preferably said list is displayed in a position dependent on the location of the content item

10  to be transmitted.

Preferably, each content item is provided with an icon, the selection of which opens the list of users.

Preferably, the list is superimposed over the graphical user interface.

More preferably, the list is superimposed over the graphical user interface in a position

15  dependent on the location of the content item being viewed.  More preferably, the list is superimposed over the graphical user interface in a position which is proximate to the content item.

Preferably, the content item is forwarded to the other user by "dragging and dropping" the content item onto the graphical icon corresponding to the other user.

20  Preferably, the graphic icons are in the form of images of the other users.

Preferably, the list is animated.

More preferably, the list is arranged in a substantially circular form which is adapted to rotate when a user hovers a pointing device over the list.

Preferably, the list is represented as a graphical card index, each card of which shows an

25  image corresponding to another user.  More preferably, the pages of the card index flip over as a user hovers a pointing device over the card index.

More preferably, the list is in the form of an animated carousel of images (which is sometimes referred to as a Rolodex<sup>TM</sup>).

In accordance with a further aspect of the invention, there is provided a method of

30  providing content for a computer program which allows a user to access content items, the graphical user interface comprising means for displaying particular content items, means for forwarding particular content items to selected other users, and a list of users to which the content may be forwarded represented in the form of a graphic icons each corresponding to another user and each being selectable by the user thereby to forward

35  a particular displayed content item to one or more of the other users.

INTERFACE FOR A SYSTEM:

According to a further aspect of the invention there is provided a system for providing content to a user the system comprising: a user interface for providing visual indications of conditions prevailing in said system, wherein said conditions comprise the availability of said content; and wherein said interface comprises: means for generating a display (preferably a display generation module) in dependence on said conditions, said display comprising an array of panes in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes providing a user with means for accessing a particular functionality of said interface to locate said content; means for detecting the presence of the pointing device over a pane (preferably an input analysis module); and means for changing the size of a pane relative to the other panes (preferably a dynamic display module) in response to said detection; wherein the panes remain in register with one another at the vertex as a pane expands.

FURTHER ASPECTS:

According to another aspect of the invention, there is provided a graphical user interface for a computer program, the interface comprising an array of main panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted to expand relative to the other panes as a pointing device highlights a pane, wherein the panes remain in register with one another at the vertex as a pane expands.

Preferably the expansion is accompanied by a corresponding contraction of the other panes.

Preferably, as a highlighted pane expands it moves towards the centre of a display screen on which the program is executed.

Preferably, as the highlighted pane expands, the vertex moves along a diagonal line towards an outer edge of a display screen on which the program is executed. More preferably, the vertex moves at an angle of 45 degrees.

More preferably, as successive main panes are highlighted the vertex moves along an "x" centred in the middle of the screen.

Preferably, at least a square number of main panes are provided. More preferably, 4, 6, 8, 9 or 12 main panes are provided. In a case where 4 panes are provided there is a single vertex. In a case where more than 4 panes are provided there are multiple vertices.

Preferably, the main panes do not overlap with one another at any time.

Preferably, a plurality of sub-panes are provided within each main pane which exhibit substantially the same behaviour as the main panes. More preferably, each main pane is

provided with an array of sub-panes which expand, contract and/or centralise in a substantially similar fashion to the main panes. Hence, the interface is in a sense "fractal" in nature.

Preferably, so long as the pointing device continues to highlight (hover over) a pane, the
5      pane will continue to expand until it reaches a specified maximum size.

Preferably, if a particular pane is selected (by clicking on it) the pane will immediately expand to a full screen size. More preferably, when a pane has been selected, the other panes are shifted to the outer periphery of the display, and the selected pane takes up most of the screen real estate.

10     Preferably, each of the main panes exhibits a certain amount of animation prior to being selected. More preferably, following selection the panes which have not been selected exhibit reduced animation.

Preferably, following selection of one of the main panes the panes which have not been selected exhibit reduced opacity. More preferably, following selection, the selected pane
15     will exhibit increased opacity.

Preferably, the relative positions of the panes to one another do not change.

Preferably, the graphical user interface could be applied to any graphical menu, for example, for a media player and/or a content viewer. In one embodiment the interface may provide a catch-up TV/radio application or a video on-demand or near on-demand
20     application. The graphical user interface is also particularly suitable for use on mobile devices such a mobile telephones. Preferably, this is accessed by selecting a particular sub-pane within the one of the main panes. When selected this opens a calendar viewer which allows a user to select particular days in the past and then to access a selection of content that had been broadcast on those days, or to select a future day and to select
25     content to be downloaded after broadcast (i.e. a booking system).

Preferably, the user interface operates in a fractal-like manner – i.e. wherein the movement of a pointing device causes the expansion, contraction and/or centralisation of panes or sub-panes in a currently selected pane, and the main pane, while intermediate panes are shown in a tree structure.

30     Preferably, the tree structure displays a set of cascaded windows all of which terminate on the same lower edge of the main pane (unlike a known cascade of windows) so as not to obscure the other main panes.

Preferably, animations such as slide shows etc. may be shown in the one or more of the main panes prior to selecting a particular main pane. More preferably, once you select a
35     main pane the other panes move to the edges of the selected main pane and are then relatively inactive (although they do "float" about slightly).

Preferably, the interface could have more than four main panes – so long as the number of panes is chose so as to allow the screen to be displayed with a selected main pane in the centre, and with the other panes positioned around the edges of the selected main pane. For example, you could easily have 6, 8, 9 or 12 main panes, which would allow

5    the un-selected panes to be positioned around the main selected pane in a simple and relatively easy to view fashion.

Preferably, the panes are in the form of rectangles or squares. Alternatively, the panes are in the form of other geometric shapes, such as triangles.

Preferably, a "square number" of sub-panes are provided within each main pane.

10   Preferably if the number of panes or sub panes is not a square number a pane or sub-pane is provided which provides access to further panes or sub-panes

Preferably, the panes are provided on a graphical background. More preferably, the background graphic may be selected by a user.

Preferably, the main panes expand and move/centralise around a square in the centre of

15   the screen, the size of which is proportional to a factor of 1.6 times the size of an unexpanded main pane.

Preferably, the panes expand to 1.6 times their size when hovered over.

Preferably, each content item which may be viewed using the user interface provides a "send to a friend" icon. When this is selected an animated selection of images

20   corresponding to a list of friends or buddies is superimposed over the user interface and it is possible to "drag and drop" the selected content item onto a particular image to effect the transmission of the content to the friend.

According to another aspect of the invention, there is provided a method for providing content to a user, the method comprising: providing a graphical user interface for a

25   computer program, the interface comprising an array of main panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted to expand as a pointing device highlights a pane, wherein the panes remain in register with one another at the vertex as the pane expands.

30   According to another aspect of the invention, there is provided a computer program product for providing content to a user, the product including a graphical user interface for, the interface comprising an array of main panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted

35   to expand as a pointing device highlights a pane, wherein the panes remain in register with one another at the vertex as the pane expands.

The invention also provides in any aspect not only a method, a graphical user interface and an interactive content guide, but also a computer program and a computer program product for carrying out any of the methods described herein and/or for embodying any of the apparatus features described herein, and a computer readable medium having stored

5    thereon a program for carrying out any of the methods described herein and/or for embodying any of the apparatus features described herein.

The invention also provides a signal embodying a computer program for carrying out any of the methods described herein and/or for embodying any of the apparatus features described herein, a method of transmitting such a signal, and a computer product having

10   an operating system which supports a computer program for carrying out any of the methods described herein and/or for embodying any of the apparatus features described herein.

The invention extends to methods and/or apparatus substantially as herein described with reference to the accompanying drawings.

15   Any feature in one aspect of the invention may be applied to other aspects of the invention, in any appropriate combination. In particular, method aspects may be applied to apparatus aspects, and vice versa.

Furthermore, features implemented in hardware may generally be implemented in software, and vice versa. Any reference to software and hardware features herein should

20   be construed accordingly.

A reference to a method of providing of content may be interchanged with a reference to a method of use of a (preferably interactive) graphical user interface for display of content.

DESCRIPTION OF THE DRAWINGS

25   The invention will now be described, by way of example only, with reference to the attached figures, in which:

Figure 1 is a simplified high level functional diagram illustrating operation and functionality of an embodiment of an interface of the invention;

Figure 2 is a sequence of images illustrating stages in a start-up sequence for the

30   interface of Figure 1;

Figure 3 is a simplified functional level diagram illustrating operation and functionality of a 'Your Stuff' aspect of the interface of Figure 1;

Figure 4 is an exemplary screen shot illustrating the functionality represented in Figure 3;

Figure 5 is a simplified functional level diagram illustrating operation and functionality of

35   a 'Search' aspect of the interface of Figure 1;

Figure 6 is an exemplary screen shot illustrating the functionality represented in Figure 5;

Figure 7 is a simplified functional level diagram further illustrating operation and functionality of the aspect represented in Figure 5;

Figure 8 is an exemplary screen shot illustrating the functionality represented in Figure 7;

5     Figure 9 is a simplified functional level diagram illustrating operation and functionality of a 'Browse' aspect of the interface of Figure 1;

Figure 10 is an exemplary screen shot illustrating the functionality represented in Figure 9;

Figure 11 is a simplified functional level diagram further illustrating operation and
10    functionality of the aspect represented in Figure 9;

Figure 12 is an exemplary screen shot illustrating the functionality represented in Figure 11;

Figure 13 is a simplified functional level diagram still further illustrating operation and functionality of the aspect represented in Figure 9;

15    Figure 14 is an exemplary screen shot illustrating the functionality represented in Figure 13;

Figure 15 is a simplified functional level diagram still further illustrating operation and functionality of the aspect represented in Figure 9;

Figure 16 is an exemplary screen shot illustrating the functionality represented in Figure
20    15;

Figure 17 is a simplified functional level diagram still further illustrating operation and functionality of the aspect represented in Figure 9;

Figure 18 is an exemplary screen shot illustrating the functionality represented in Figure 17;

25    Figure 19 is a simplified functional level diagram still further illustrating operation and functionality of the aspect represented in Figure 9;

Figure 20 is an exemplary screen shot illustrating the functionality represented in Figure 19;

Figure 21 is a simplified functional level diagram still further illustrating operation and
30    functionality of the aspect represented in Figure 9;

Figures 22 to 30 are screenshots illustrating additional/alternative functional aspects of the interface of Figure 1;

Figure 31 shows a functional block diagram of a system embodying an aspect of the invention.

By way of an example implementation, described below with reference to Figures 1 to 31 is an interactive media player graphical user interface allowing a user to access television
5    and radio accessible over a digital communications channel. The facility illustrated includes a 'catch-up' TV/radio application described in WO2005/125200, whose content is hereby incorporated by reference, providing viewers with the opportunity to use an interactive website to catch up on TV and radio programmes that they may have missed for a prescribed time (e.g. up to seven days) after they have been broadcast, using the
10   internet to download programmes to their home computers. The system uses peer to peer distribution technology (P2P) to distribute the programme content. Digital Rights Management (DRM) software incorporated into the system provides that at the prescribed time after the programme transmission date the programme file expires and users will no longer be able to access it, as well as preventing users from saving or
15   sharing the files.

This example, then, involves a system accessible by way of a user's general-purpose computer, whereby navigation and selection of content is carried out by use of the computer mouse controls. However, it will be realised that the invention may be implemented by way of any suitable display device and control device. For example, the
20   display device and control device may be integrated into a touchscreen system. Suitable control devices include joysticks, trackwheels, pointers, remote controls, etc. The interface of the invention may be used for navigating and accessing any form of data content, and examples include games menus, digital camera and video camera controls, DVD and STB viewing and control options, and digital photograph, audio and video
25   collections.

The interface of the invention is highly behavioural. As Figure 1 illustrates, at the top level, it involves just four directories or options; Browse, Search, What's Hot and Your Stuff. On accessing the system at step 110 (by clicking on a startup icon) the application opens and a startup animation 120 (Figure 2) runs, until the application display takes
30   over the entire screen estate (or alternatively can run over an existing desktop alongside other applications). Through the startup animation, the user 100 is presented with a display of four square sub-panes or quadrants (A.1-A.4) which together make up one big square 130 in the rest/default position of the display. The animation provides that the four quadrants rapidly appear on the screen from the horizon, initially small in size and
35   with zero opacity, until they reach their rest position with hundred percent opacity. A user-defined application wallpaper can appear in the display background.

Each quadrant represents one of the key building blocks of the application, respectively Browse (A.1), Search (A.2), What's Hot (A.3) and Your Stuff (A.4). A profile context bar 140 (A.6) is also provided at a suitable location, for example at the bottom edge of the
40   display screen.

18

The user navigates the top level quadrants by moving the mouse and passing a mouse pointer over any one of them and clicking on a single item to go directly to that item, or clicking on a second level of a quadrant to access each of the sub-sections. A similar navigation structure is provided at every level within the application. The navigation is
5    only four levels deep at maximum.

The application is built on the following structure:

<Familytype: e.g.: Quadrant 1, 2, 3, 4>

        <parent 1.1> + <promoted child objects on this level>

            <parent 1.1.1 > + <promoted child objects on this level>

10                  <parent 1.1.1.1> + <child objects part of a series>

The quadrants react dynamically to user interaction by way of mouse movement and change size accordingly. As the mouse pointer passes over any quadrant, it expands in size dynamically from its rest position. If the mouse pointer remains over that quadrant, it continues to expand until it reaches a prescribed maximum size. As that quadrant
15   increases in size, the other three quadrants undergo a commensurate decrease in size to make way for the screen estate taken up by the moused quadrant. Each peripheral quadrant thus becomes relatively compact and moves towards the edges of the overall display. However, it is important to realise that all quadrants remain available for mouse selection (in a single click), no matter how deep the user may be in the navigation within
20   a particular other quadrant. For example, if the user is in Browse>Genres>Comedy> The Office (see the sample screenshot of Figure 16) and decides to move to Search, he or she simply navigates over and clicks on the Search quadrant to the bottom right of the screen. The Browse quadrant then contracts to become more compact, and moves to the left hand edge of the screen, continuing to display in its compact form the state where
25   the user previously was (i.e. Browse>Genres>Comedy>The Office).

If the user clicks within a particular quadrant, the selected quadrant is presented to the user in a prescribed manner indicating its selection. For example, the quadrants may move around the display screen so that the selected quadrant arrives in a particular position, whilst the remaining three quadrants become yet more compact and take a yet
30   more peripheral position on the display. Importantly, the user can still readily access any of the other quadrants by one click of the mouse on the compacted peripheral quadrants. In other words, the user does not lose access to any quadrants in the level to which they have browsed. Once the user has selected a particular quadrant in which to navigate, he or she can then go directly to a single content item. In a preferred form, the main
35   directories Browse, Search, What's Hot and Your Stuff are always presented to the user in the same relative orientation, as the figures illustrate

This navigation structure is represented in the functional level diagram of Figure 3 and exemplified in the screenshot of Figure 4. In this example, the user's mouse is hovering

over the Your Stuff quadrant, which comprises a media player area A.4.1, a playlist area A.4.2, a bookings area A.4.3, and a settings area A.4.4. A video is playing in the player area, being the video most recently played by the application. The rules and behaviours that govern the Your Stuff navigation are as follows:

5    **A.4.1 A/V Player.** The player has no controls displayed whilst the video is playing, but on rolling the mouse over this area the controls Play, Fwd, Rwd and Volume appear superimposed on the player, for use by the user. If the user double clicks on a playing video, it switches to full screen.

**A.4.2 Playlist.** The playlist comprises a library where all of the users downloaded files
10   are stored. A file download progress indicator appears within the playlist area.

**A.4.3 Bookings.** This comprises an area in which any user bookings for future series are displayed.

**A.4.4 Settings.** This comprises an area in which the user can manipulate settings for the application.

15   In Figure 3, certain global behaviours 210, 220, 230, 240 of the application are illustrated as follows:

**Global behaviour 1.** In a first global behaviour 210, all quadrants (which may also be referred to as containers) are slowly pulsing (continuously expanding and contracting) and moving in space, the square aspect ratio being maintained.

20   **Global behaviour 2.** In a second global behaviour 220, on mousing (moving an onscreen pointer) over any one container (quadrant), the container expands in size. As the expanding container grows the other containers shrink. If any animation occurs within an expanded container, the remaining smaller containers stop pulsing.

**Global behaviour 3.** In a third global behaviour 230, The profile context bar (A.6)
25   appears on startup and then disappears at the bottom of the screen. When the user moves the pointer back to the bottom edge of the screen, the context bar reappears.

**Global behaviour 4.** In a fourth global behaviour 240, as the user mouses over thumbnails within a particular container, the focus line has a pulsating border around that object. The cursor becomes a finger, to indicate that it is an active area.

30   The interface provides a facility whereby a user may search for a content item and navigate directly and simply to the required result. This functionality is provided by a search field area A.2.1, and operation thereof is represented in the functional level diagram of Figure 5, and exemplified in the screenshot of Figure 6.

The user selects the Search quadrant A.2, and brings the cursor to the search field A.2.1
35   within this quadrant. The user then begins typing text into the field. As illustrated in Figure 6, a plurality of images appears, all corresponding to the search term entered. In

the example, the letter 'B' has returned a great many TV and radio programs (144 in total), all of which are represented by the large number of tiled icons or thumbnails in the expanded search quadrant. Hence, the user does not need to scroll down a results list to find the desired result, as all records returned by the search are shown. The greater the

5      number of items corresponding to the search term, the smaller the size of each icon or thumbnail. As the user continues to enter text, the search results are further refined by narrowing down the number of returns.

The result of this 'search results sorting behaviour' is shown in Figure 7 at 270 and is further exemplified in the screen shot of Figure 8. The search string "Bleak house" has

10     returned the most recent episode of the relevant TV series. On mousing over this area, and in accordance with the global behaviour discussed above, the area expands, the next most relevant search results ("Black Adder", "Blackpool Tower", etc.) are relegated to compacted peripheral areas 270, and the user is presented with a player and options for selection, such as booking the series or downloading it.

15     Turning to the Browse quadrant A.1 and its navigation, the operation thereof is represented in the functional level diagram of Figure 9 and exemplified in the screenshot of Figure 10.   Browse quadrant A.1 comprises four sub-areas TV, Radio, Genres and Time, respectively A.1.1 to A.1.4.

Further, within the Browse functionality, the operation of a user browsing for available

20     comedy content is represented in the functional level diagrams of Figures 11, 13 and 15 and exemplified in the screenshots of Figures 12, 14 and 16.

For example, in operation, if the user wishes to use the Browse functionality to navigate to the comedy series 'The Office' (Browse>Genres>Comedy>The Office) the user may initially select the browse quadrant (A.1). As shown in Figures 9 and 10, within the

25     Browse quadrant (A.1) the user is presented with an area comprising four sub-options: TV, Radio, Genres and Time. The user then, in operation, selects the sub-option Genres to bring up a sub-area comprising nine further sub-options (Browse>Genres) as shown Figure 12.   On selection of the desired sub-option within the Genres sub-area (the Comedy icon 1210) (Browse>Genres>Comedy) a further sub-area 'Comedy' comprising

30     nine further comedy selection sub-options is displayed allowing the user to select a 'The Office' sub-option (Browse>Genres>Comedy>The Office).

This can be regarded as a 'fractal' directory display pattern, as each 'parent' content access indicia of an array of such indicia can in turn comprise an array of 'child' content access indicia, each displayed as a sub-area within the screen area of the 'parent' indicia.

35     As seen in Figures 15 and 16, on selection of 'The Office' sub-option, the 'Comedy' sub-area is modified to provide a media player section 1510, which is displayed over the four spaces previously occupied by a two by two grid of the previous selection thumbnails. A peripheral selection of five 'episode' thumbnails is provided in the remaining five spaces, representing different episodes (in this case of 'The Office') which the user may wish to

40     play on a media player in the media player section 1510.

As illustrated, each of these sub-areas is a square comprising a three by three grid of square thumbnails. In addition, the display is dynamic; the thumbnails fade in and out and are presented as slide shows of top level promotions for that individual sub-section. If the user clicks on any of the thumbnails, they are able to access that particular content object
5     directly and are presented with the related options (Download, Share, Play preview, Book Series), as shown in the media player section 1510 of Figure 16.

Transition 'morphs' from one section to the next can be realised by the related content thumbnails – that now make up the selected sub-section – flying in from the edges of the screen taking their place in the sub-area array.   If the user decides to select another
10    episode within this view, the previously selected episode returns to its original thumbnail size and the newly selected episode opens up and displays its related options.

It will be noted that the tree structure represented by the higher level tabs Browse, Genres (in the upper left hand corner of the Comedy quadrant shown in Figure 16) is not a traditional 'windows-type' cascade but, in accordance with the common presentation
15    structure of the media player, none of the screen areas extends beyond the lower right hand corner of the Browse quadrant, so as not to obscure the other top level quadrants.

The provision of the cascade such that each level remains available represents a further global behaviour 250 of the interface. It will be appreciated that this further global behaviour 250 is equally applicable to the other quadrants.

20    As will be appreciated, the user is provided with a very simple and effective 'WYSIWYG' (What You See Is What You Get) visual navigation reference of exactly where they are in the content hierarchy, and is able to navigate directly to a content option or to go step-by-step visiting successive levels within a sub-section.  The user is also able to readily trace back their steps in a single click of the mouse. This navigation behaviour is common
25    across the whole application, giving an easy rhythm and familiarity which the user very quickly masters.

Selection of the Time quadrant A.1.3, within the browse quadrant, brings up a calendar which allows a user to select particular days in the past and then access a selection of content that was broadcast on those days, or to select a future day and to select content
30    to be downloaded after broadcast (a booking system).

It will be noted that the application of the invention could of course employ more than four top-level selection areas or quadrants.  For example, 6, 8 or 9 top-level selection areas may be used (preferably shaped and dimensioned so as to fit into the relevant quadrant), which would allow the un-selected areas to be easily positioned around a particular
35    selected area.

Figures 17 to 21 relate to a 'buddy list' functionality, allowing the user to effect selection of one or more individuals on a 'buddy list' (contact list) and to transmit selected content to the selected contact(s). When the user selects 'Send to a friend', the application brings up an animated rotating circle 280 of images of contacts or friends (see Figure 18), and

the user can drag and drop a representation of the content 260 he or she wishes to send onto a particular image 262 in order to effect the transmission of the content. Figure 21 illustrates the selected contact (User 2) receiving a notification of transmission from the user (User 1) on their media interface.

5     The circle 280 is configured to hover over the user interface and to rotate in response to the user moving a mouse pointer over the list. It will be appreciated that rotation may slow down as each image moves beneath the focus of the mouse pointer.

The list centred at a screen location away from the expanded container such that the list does not significantly obscure the content of the container and in particular the content
10    selected for sending to another user. If necessary, part of the contact list may be located off the edge of the visible screen area to ensure optimum use of the visible screen estate.

The 'buddy list' functionality may alternatively or additionally provide for a contact list having the appearance of an animated carousel of images (or Rolodex™), as seen in Figure 30, which appears to rotate in response to a user's mouse actions, for example,
15    hovering the mouse pointer over a particular part of the list/image. Thus, the image of one contact may be brought into the foreground, whilst another image is moved into the background. The carousel appearance is particularly advantageous because it further optimises the use of screen real estate thereby maximising the available visible area. Other compact forms of the contact list could also be used, for example, a 'flip-over' index
20    card system in which each 'index card' carries an image of a contact in the user's contact list. A choice of such appearances may be provided by the interface according to user preference.

Three particular examples of the operation of the user interface are now provided:

Function 1: Navigating between sections i.e. quadrants

25    **Pre-requisites:**

1.  User clicks on a program startup icon.

2.  The application opens and either takes over the entire screen estate or runs on an existing desktop, alongside other applications. The four quadrants rapidly appear on the screen from the horizon expanding from a relatively small size to a
30    rest position and size. At the same time the opacity of the quadrants increases from zero to one hundred percent.

3.  The user logs in and the user defined application wallpaper is provided as the backdrop.

**How:**

1.  The user rolls the cursor (mouse pointer) over any quadrant. The quadrant starts growing in size outwards from its position within the 4 squares, for example as seen in Figures 3, 4, 9 and 10.

2.  The other quadrants start decreasing proportionately in size.

5  3.  The user clicks within the large quadrant. The selected quadrant comes towards the user, behaving in the manner of a giant wheel, with one square coming to the foreground, while others go to the bottom into the background. The other three quadrants become more compact and move off the screen depending on their position within the four quadrants, for example as seen in Figures 11 and 12.

10  **Advantages:**

1.  The user can always access any of the other key sections (quadrants) by one click on the compact quadrants to the side of the screen.

2.  The user doesn't lose any sub-levels they have browsed to within a quadrant as the application still retains and displays their current sub-level even if the user
15  chooses to navigate to another top level quadrant. For example, when the user is in Browse > Genres > Comedy > The Office, and decides to click on the Search Quadrant, the Browse quadrant becomes compact and moves to the edge. Nevertheless, the browse quadrant continues to display, in its compact state, the stage of browsing the user had previously reached (Browse > Genres > Comedy
20  > The Office).

Function 2: Navigating to a single content item

**Pre-requisites:**

1.  The user has selected a quadrant to navigate within. See Function 1

**How:**

25  • The user selects a sub-section within the main quadrant, for example, Browse > Genres> Comedy as shown in Figures 11 and 12.

• The user navigates to this  sub-level by clicking on any of the main sub-sections within a main quadrant. For example, if the user is within 'Browse', they are presented with four sub-section choices: TV, Radio, Genres and Time.

30  • Each sub-section choice is displayed as a square based around a three by three grid of smaller square thumbnails. The display is, however, dynamic. The thumbnails fade in and out, acting like a slide show of top level promotions for the individual sub-section. Furthermore, at any point in time, one of the small thumbnails may expand to become a larger thumbnail, as part of the slideshow
35  behaviour, before returning to its original size. The larger thumbnail takes up a

corresponding section of the grid, for example, a two by two section, a two by three section, or even the full three by three grid. Such behaviour is illustrated in the screen shots of Figures 24 to 27; in particular in the thumbnails representing the sub-sections of the browse quadrant.

- The user may click directly on any of the displayed thumbnails to navigate to the associated content object directly. On selection of the content object they are presented with the related options (for example, Download, Share, Play preview, Book Series or the like). Alternatively, the user can click anywhere on the sub-section title overlay of the key four sub-section choices, for example TV, Radio, Genres and Time, to be taken to the root level of that particular sub-section.

- On clicking on the sub-section title, the top level parent quadrant recedes to the background with 20 percent opacity and the sub-section that user has selected comes on top of the parent with 80 percent opacity. This transition or 'morph' happens like a wipe. The related content thumbnails required for making up the selected sub-section fly in from the edges of the screen and take their place as a new grid of squares, maintaining the three by three ratio, thereby giving rise to the fractal like behaviour as discussed earlier. For example, in Figures 11 and 12, Genres is shown comprising top level genres as follows:

Genres >

> Kids
> Drama
> Sport
> Comedy
> Music
> Learning
> Lifestyle
> News
> A to Z (of all genres)

- Each thumbnail representing each of the genres also exhibits the same slideshow behaviour discussed above with reference to the top-level sub-section choices. In Figure 12, each genre is exhibits a single promotion taking up the complete square grid (in this case four by four or two by two). For example, in the case of comedy, there is an Ali-G promotion thumbnail exhibited which, after a predetermined time (e.g. 5 seconds), returns to being a smaller square thumbnail allowing the user to see four square thumbnail promotions within the comedy sub-section until another promotion takes over all four squares (for a two by two grid).

- In Figure 16 the user navigational journey is Browse > Genres> Comedy> The Office. In this embodiment the navigation never goes deeper than four levels

down. It will be appreciated, however, that the information architecture may be constructed to allow the user can go down more levels.

- If the user selects 'The Office' on the top level of Comedy, by clicking on a 'The Office' thumbnail, the complete series of 'The Office' that are available for download in a seven day catch-up (including both previous and future episodes) appears on a 'The Office' level. The default latest episode available for download appears in a media player section of the screen with all its related options (Download, Share, Play preview, Book Series), as seen in the Figure 16.

- If the user decides to select another episode within this view, the previously selected episode goes back to its original thumbnail size, and the selected episode opens up, and displays the related options, from its current position.

**Advantages:**

1. The user gets a WYSIWYG (What You See Is What You Get) visual navigation reference of where they are in the information hierarchy due to an 'onion skinning' type approach.

2. The user can either navigate directly to a content promotion or alternatively go step by step visiting each level within a sub-section. They can also trace back their steps in a single click.

3. The navigation behaviour is substantially the same everywhere (for example, the way the content thumbnails fly onto the container, the receding of the containers, the slideshow behaviour, etc.). This gives rise to an easy rhythm and a familiarity of what to expect each time the user clicks on a level down or on a promoted content thumbnail within a sub-section. This considerably enhances the speed with which a user becomes familiar with the interface and reduces the time taken to find content of interest.

Function 3: Searching for an item and getting to the relevant result

**Pre-requisite:**

1. The user selects the Search quadrant.

2. The user brings the cursor (mouse pointer) focus to the search field.

3. The user starts typing within the search field.

**How:**

1. Initially the user starts by typing a single character, which may be the first character of a longer search term. As soon as the character is typed related content results (represented by associated thumbnails), having  a keyword,

metadata, title and/or the like beginning with the typed character, start filling up the screen as shown in Figure 6.

2. As the user types in a second character of a longer search term, the previous results reduce dynamically depending on the new character, and the associated thumbnails increase in size to give greater clarity of what the represented content is.

3. This search behaviour continues until the user completes the keyword(s) (search term(s)). The search results which are made up of related content thumbnails keep decreasing dynamically in dependence on their relevance to the keyword(s) being typed by the user as illustrated in the screen shot of Figure 8.

4. At any time during the search process, if the user clicks on any thumbnail, it (or the associated content and/or user options) expands to take up the screen estate of four thumbnails (as seen in Figure 8), the rest of the thumbnails retaining their size and position.

**Advantages:**

1. The user gets a WYSIWYG way of understanding what the most relevant search results are because they are encouraged by the application to keep typing their keyword, until the term makes sense. Hence, if there are typos or very common words (for example, 'and', 'the', 'A' etc) the system displays numerous small indistinguishable thumbnails. Each thumbnail only becomes bigger in size, to illustrate the associated content with greater clarity, when the user continues typing and/or completes the keyword/search term.

Figure 31 shows a system embodying the invention generally at 300. The system comprises a content server 302, a user interface 304 and a user display device 306.

The content server 302 is configured for the storage and transmission of content (and related information), via the user interface 304, to the user display device 306. The content server may be implemented in any suitable manner and may comprise a single computer based server having an appropriate content database, or may comprise a more complex distributed/undistributed server system comprising a plurality of computer devices, discrete storage, and/or the like.

The user interface 304 is configured for providing efficient access to content available in the content server via the user's display device. The user interface comprises a display generation module 310, a content transmission module 312, a display output module 314, and an input analysis module 316.

The display generation module 310 is configured for generating and controlling a display comprising a plurality of quadrants as generally described previously. In accordance with this the display generation module comprises a plurality of dynamic display modules/sub-

modules 322, 324, 326, 328, and a contact (or 'buddy') list generation module/sub-module 330.

Each dynamic display sub-module is configured for controlling the functionality, content, appearance, location and dynamic behaviour of an associated quadrant and, in

5    particular, the expansion and/or contraction of each quadrant in response to feedback 332 from a user's pointing device 334. Thus, the dynamic display sub-modules operate together as part of the display generation module, in cooperation, to optimise use of the available visible screen estate.

The display generation module (and the associated sub-modules) also cooperate to

10   provide signals to a user (for example suitable for visual display) about the availability and status of content within the system and associated information. The status and/or associated information may, for example, include: download status; details of when the associated content was/will be made available; when the content expired/will expire; popularity (e.g. number and/or frequency of download); other similar content (e.g. within

15   the same genre, episodes in the same series, content popular with other users making the same download); and/or any other similar information.

The contact list generation sub-module 330 is configured for interacting with a user contact list database 340 to produce a contact list having an appearance as generally described previously. The sub-module 330 also co-operates with the dynamic display

20   sub-modules 322 to 328 to dynamically move the position of the list relative to the quadrant display, as the quadrant display changes, to further optimise the use of the visible screen estate

The display output module 314 is configured to output the generated display to the user display device 306. If necessary, the output module 314 converts the generated display

25   (and contact list if required) into a format according to the capabilities of the device such as screen size, aspect ratio, resolution, colour availability etc. Feedback from the user's pointing device is analysed by the input analysis module 316 to assess the location of the pointer relative to the generated display. Output from the analysis module 316 is used by the display generation module to dynamically control the generated display according to

30   pointer location as generally described previously.

The content transmission module 312 is configured for providing selected content to the user, and/or to another user 350 in the user's contact list.

Further aspects of the user interface are described with reference to Figures 22 – 30.

The following is a non-exhaustive list of a number of preferred variants and/or features of

35   the invention:

•   It is possible to access, play, share, book and/or download content at different levels within the interface, either by drilling down to a particular category, or by

28

accessing a particular content item directly, for example, from a promotional slide show.

- The main panes form a grid with a centre point (or vertex), and the panes are in register with one another around this centre point (or vertex).

5  - On mouse-down the screen estate is optimised for the selected pane.

- In a variant, on mouse-over a pane does not expand to the full size it would expand to on mouse-down.

- On mouse-down the other panes exhibit reduced animation.

- In the browse sub-menu, on mouse-over the current size is retained, since it has
10     already reached its maximum size.

- The user interface provides a user, at any point in time, with an overview of where they are.

- In contrast to other guides this guide is not bound by time, since any content item can be included in the "genre" category.

15  - In a variant, the vertex of the panes remains centred on mouse-over, but moves at a 45-degree angle on mouse-down.

- The text in the upper panes switches to the lower portion of the pane when the upper pane is shifted to the top edge of the screen.

- Preferably, the panes or rectangles are oriented with their sides parallel with the
20     respective sides of the display.

- Preferably, the opacity of a pane increases once it becomes active, and vice versa.

- Prior to mouse-over all the panes exhibit animation; with mouse-over, at least one pane, if not all, animate; on mouse-down only the selected pane animates.

25  - Panes might be rectangles or preferably squares, but could also be other geometric shapes, so long as they are substantially in register, so that one of the vertices of each of the shapes meets at a respective centre point.

- At all levels in the graphical user interface there is direct access to content items (for playing, download, sharing and booking).

30  - The startup icon may be configured for dynamic behaviour on mouseover and/or mouseclick (mousedown). For example, the icon preferably grows gradually on

mouseover. Alternatively or additionally the icon preferably bounces, before launching the application, on mouseclick.

- Preferably, the interface is configured to obtain the latest download status information for example the number and nature of new downloads available.

5  - When, on startup, the rapid growth of the containers (quadrants) from small to big (emerging from horizon) and the associated increase in opacity from zero to 100 percent is complete the containers may enter a 'rest' condition in which the containers continue to move gently in the manner of a wind-mobile

- The vertex at which the corners of the containers meet is preferably aligned to 10  centre. On mouseover a particular container, the container preferably grows directionally from centre to outward whilst the others grow proportionately smaller.

- Preferably there is no border around each sub-section choice e.g. TV, Radio, Genre Time. There may, however be a space between each thumbnail, for example a 1 pixel space.

15  - The font size used in the titles and/or other text within the quadrants is expandable within predefined limits. Preferably, for example, the font size is limited to a maximum of 19 points and a minimum of 12 points.

- The title appearing in the top left of each container (in the glass effect panes) is preferably located 15 pixels in from both top and left edges. The font may be any 20  suitable font, for example, Gill Sans Bold or the like.

- In the search quadrant, the search field may be located centrally (horizontally or vertically) and may expand dynamically as the container expands.

- When a sub-section is selected, for example by moving a mouse pointer over an associated thumbnail (or group of thumbnails), a selection border preferably 25  appears around the thumbnail/thumbnail group. The selection border may be any suitable thickness and colour for highlighting the selection, for example a 3 pixel wide blue border. A possible appropriate colour may be defined in computer terms as: Red=9; Green=145; Blue=223. This colour provides a particular good distinction for highlighting the selection against any of several backgrounds.

30  - Preferably, when the contents of a container are expanded and the remaining quadrants extend partially off the visible screen area (as seen in Figure 16) the interface maintains an alignment such that the title of the container is always readable.

- When specific content is selected and displayed in a media player section of a 35  quadrant, the media player showing the content may be 'detachable' from the rest

of the interface for movement and/or operation independent of the interface. A plurality of such players may be run substantially simultaneously. When detached from the interface a close button ('X' on Figure 29) may be provided to allow the user to shut the media player down.

5    It will be understood that the present invention has been described above purely by way of example, and modifications of detail can be made within the scope of the invention.

Each feature disclosed in the description, and (where appropriate) the claims and drawings may be provided independently or in any appropriate combination.

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# Claims

1.   A graphical user interface for a computer program, the interface comprising an array of (preferably main) panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted to expand as a pointing device highlights a pane, wherein the panes remain in register with one another at the vertex as a pane expands.

2.   An interface as claimed in Claim 1 wherein said expansion is accompanied by a corresponding contraction of the other panes.

3.   An interface as claimed in Claim 1 or 2 wherein as a highlighted pane expands it moves towards the centre of a display screen on which the program is executed.

4.   An interface as claimed in Claim 1, 2 or 3 wherein as the highlighted pane expands, the vertex moves along a diagonal line towards an outer edge of a display screen on which the program is executed.

5.   An interface as claimed in Claim 4 wherein the vertex moves at an angle of 45 degrees.

6.   An interface as claimed in any preceding claim wherein as successive main panes are highlighted the vertex moves along an "x" centred in the middle of the screen.

7.   An interface as claimed in any preceding claim wherein a square number of main panes are provided.

8.   An interface as claimed in any of Claims 1 to 6 wherein 4, 6, 8, 9 or 12 main panes are provided.

9.   An interface as claimed in any preceding claim wherein the main panes do not overlap with one another at any time.

10.  An interface as claimed in any preceding claim wherein a plurality of sub-panes are provided within each main pane which exhibit substantially the same behaviour as the main panes.

11.  An interface as claimed in any preceding claim wherein each main pane is provided with an array of sub-panes which expand, contract and/or centralise in a substantially similar fashion to the main panes.

12.     An interface as claimed in any preceding claim wherein while the pointing device continues to highlight a pane, the pane continues to expand until it reaches a specified maximum size.

13.     An interface as claimed in Claim 12 wherein if a particular pane is selected the pane will immediately expand to the maximum size.

14.     An interface as claimed in Claim 13 wherein when a pane has been selected, the other panes are shifted to the outer periphery of the display, and the selected pane takes up most of the screen real estate.

15.     An interface as claimed in Claim 13 or 14 wherein each of the main panes are animated prior to being selected.

16.     An interface as claimed in Claim 15 wherein following selection the panes which have not been selected exhibit reduced animation.

17.     An interface as claimed in any of Claims 13 to 16 wherein following selection of one of the main panes the panes which have not been selected exhibit reduced opacity.

18.     An interface as claimed in any of Claims 13 to 17 wherein the selected pane exhibits increased opacity.

19.     An interface as claimed in any preceding claim wherein the relative positions of the panes to one another do not change.

20.     An interface as claimed in any preceding claim wherein the interface is applied to a graphical menu, for example, for a media player and/or a content viewer.

21.     An interface as claimed in Claim 20 wherein the menu is accessed by selecting a particular sub-pane within the one of the main panes.

22.     An interface as claimed in Claim 21 wherein when selected the menu opens a calendar viewer which allows a user to select particular days in the past and then to access a selection of content that had been broadcast on those days, or to select a future day and to select content to be downloaded after broadcast (i.e. a booking system).

23.     An interface as claimed in any preceding claim wherein the user interface operates in a fractal-like manner, preferably wherein the movement of a pointing device causes the expansion, contraction and/or centralisation of panes or sub-

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panes in a currently selected pane, and the main pane, while intermediate panes are shown in a tree structure.

24. An interface as claimed in Claim 23 wherein the tree structure displays a set of cascaded windows all of which terminate on the same lower edge of the main pane (unlike a known cascade of windows) so as not to obscure the other main panes.

25. An interface as claimed in any preceding claim wherein animations such as slide shows are shown in the one or more of the main panes prior to selecting a particular main pane.

26. An interface as claimed in Claim 25 wherein once a main pane is selected the other panes move to the edges of the selected main pane and are preferably relatively inactive (for example, floating about slightly).

27. An interface as claimed in any preceding claim wherein the number of panes allow the screen to be displayed with a selected main pane in the centre, and with the other panes positioned around the edges of the selected main pane, for example 6, 8, 9 or 12 main panes.

28. An interface as claimed in any preceding claim wherein the panes are in the form of rectangles or squares.

29. An interface as claimed in any preceding claim wherein a "square number" of sub-panes are provided within each main pane.

30. An interface as claimed in any preceding claim wherein a pane or sub-pane is provided which provides access to further panes or sub-panes

31. An interface as claimed in any preceding claim wherein the panes are provided on a graphical background.

32. An interface as claimed in Claim 31 wherein the background graphic is selectable by a user.

33. An interface as claimed in any preceding claim wherein the main panes expand and move/centralise around a square in the centre of the screen.

34. An interface as claimed in Claim 33 wherein the size of the square is proportional to a factor of 1.6 times the size of an unexpanded main pane.

35. An interface as claimed in any preceding claim wherein the panes expand to 1.6 times their size when hovered over.

36. An interface as claimed in any preceding claim wherein each content item which may be viewed using the user interface provides a "send to a friend" icon.

5   37. An interface as claimed in Claim 36 wherein when the "send to a friend" icon is selected an animated selection of images corresponding to a list of friends or buddies is superimposed over the user interface and it is possible to "drag and drop" the selected content item onto a particular image to effect the transmission of the content to the friend.

10   38. A method for providing content to a user, the method comprising: providing a graphical user interface for a computer program, the interface comprising an array of (preferably main) panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being
15   adapted to expand as a pointing device highlights a pane, wherein the panes remain in register with one another at the vertex as the pane expands.

39. A method as claimed in Claim 38 wherein said expansion is accompanied by a corresponding contraction of the other panes.

40. A method as claimed in Claim 38 or 39 wherein as a highlighted pane expands it
20   moves towards the centre of a display screen on which the program is executed.

41. A method as claimed in Claim 38, 39 or 40 wherein as the highlighted pane expands, the vertex moves along a diagonal line towards an outer edge of a display screen on which the program is executed.

42. A method as claimed in Claim 41 wherein the vertex moves at an angle of 45
25   degrees.

43. A method as claimed in any of Claims 38 to 42 wherein as successive main panes are highlighted the vertex moves along an "x" centred in the middle of the screen.

44. A method as claimed in any of Claims 38 to 43 wherein a square number of
30   main panes are provided.

45. A method as claimed in any of Claims 38 to 43 wherein 4, 6, 8, 9 or 12 main panes are provided.

46.    A method as claimed in any of Claims 38 to 45 wherein the main panes do not overlap with one another at any time.

47.    A method as claimed in any of Claims 38 to 46 wherein a plurality of sub-panes are provided within each main pane which exhibit substantially the same behaviour as the main panes.

48.    A method as claimed in any of Claims 38 to 47 wherein each main pane is provided with an array of sub-panes which expand, contract and/or centralise in a substantially similar fashion to the main panes.

49.    A method as claimed in any of Claims 38 to 48 wherein while the pointing device continues to highlight a pane, the pane continues to expand until it reaches a specified maximum size.

50.    A method as claimed in Claim 49 wherein if a particular pane is selected the pane will immediately expand to the maximum size.

51.    A method as claimed in Claim 50 wherein when a pane has been selected, the other panes are shifted to the outer periphery of the display, and the selected pane takes up most of the screen real estate.

52.    A method as claimed in Claim 50 or 51 wherein each of the main panes are animated prior to being selected.

53.    A method as claimed in Claim 52 wherein following selection the panes which have not been selected exhibit reduced animation.

54.    A method as claimed in any of Claims 50 to 53 wherein following selection of one of the main panes the panes which have not been selected exhibit reduced opacity.

55.    A method as claimed in any of Claims 50 to 54 wherein the selected pane exhibits increased opacity.

56.    A method as claimed in any of Claims 38 to 55 wherein the relative positions of the panes to one another do not change.

57.    A method as claimed in any of Claims 38 to 56 wherein the interface is applied to a graphical menu, for example, for a media player and/or a content viewer.

58.    A method as claimed in Claim 57 wherein the menu is accessed by selecting a particular sub-pane within the one of the main panes.

59.    A method as claimed in Claim 58 wherein when selected the menu opens a calendar viewer which allows a user to select particular days in the past and then to access a selection of content that had been broadcast on those days, or to select a future day and to select content to be downloaded after broadcast (i.e. a booking system).

60.    A method as claimed in any of Claims 38 to 59 wherein the user interface operates in a fractal-like manner, preferably wherein the movement of a pointing device causes the expansion, contraction and/or centralisation of panes or sub-panes in a currently selected pane, and the main pane, while intermediate panes are shown in a tree structure.

61.    A method as claimed in Claim 60 wherein the tree structure displays a set of cascaded windows all of which terminate on the same lower edge of the main pane (unlike a known cascade of windows) so as not to obscure the other main panes.

62.    A method as claimed in any of Claims 38 to 61 wherein animations such as slide shows are shown in the one or more of the main panes prior to selecting a particular main pane.

63.    A method as claimed in Claim 62 wherein once a main pane is selected the other panes move to the edges of the selected main pane and are preferably relatively inactive (for example, floating about slightly).

64.    A method as claimed in any of Claims 38 to 63 wherein the number of panes allow the screen to be displayed with a selected main pane in the centre, and with the other panes positioned around the edges of the selected main pane, for example 6, 8, 9 or 12 main panes.

65.    A method as claimed in any of Claims 38 to 64 wherein the panes are in the form of rectangles or squares.

66.    A method as claimed in any of Claims 38 to 65 wherein a "square number" of sub-panes are provided within each main pane.

67.    A method as claimed in any of Claims 38 to 66 wherein a pane or sub-pane is provided which provides access to further panes or sub-panes

68. A method as claimed in any of Claims 38 to 67 wherein the panes are provided on a graphical background.

69. A method as claimed in Claim 68 wherein the background graphic is selectable by a user.

5 70. A method as claimed in any of Claims 38 to 69 wherein the main panes expand and move/centralise around a square in the centre of the screen.

71. A method as claimed in Claim 70 wherein the size of the square is proportional to a factor of 1.6 times the size of an unexpanded main pane.

72. A method as claimed in any of Claims 38 to 71 wherein the panes expand to 1.6
10 times their size when hovered over.

73. A method as claimed in any of Claims 38 to 72 wherein each content item which may be viewed using the user interface provides a "send to a friend" icon.

74. A method as claimed in Claim 73 wherein when the "send to a friend" icon is selected an animated selection of images corresponding to a list of friends or
15 buddies is superimposed over the user interface and it is possible to "drag and drop" the selected content item onto a particular image to effect the transmission of the content to the friend.

75. A computer program product for providing content to a user, the product including a graphical user interface, the interface comprising an array of (preferably main)
20 panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted to expand as a pointing device highlights a pane, wherein the panes remain in register with one another at the vertex as the pane expands.

25 76. A computer program product as claimed in Claim 75 wherein said expansion is accompanied by a corresponding contraction of the other panes.

77. A computer program product as claimed in Claim 75 or 76 wherein as a highlighted pane expands it moves towards the centre of a display screen on which the program is executed.

30 78. A computer program product as claimed in Claim 75, 76 or 77 wherein as the highlighted pane expands, the vertex moves along a diagonal line towards an outer edge of a display screen on which the program is executed.

79.    A computer program product as claimed in Claim 78 wherein the vertex moves at an angle of 45 degrees.

80.    A computer program product as claimed in any of Claims 75 to 79 wherein as successive main panes are highlighted the vertex moves along an "x" centred in the middle of the screen.

81.    A computer program product as claimed in any of Claims 75 to 80 wherein a square number of main panes are provided.

82.    A computer program product as claimed in any of Claims 75 to 80 wherein 4, 6, 8, 9 or 12 main panes are provided.

83.    A computer program product as claimed in any of Claims 75 to 82 wherein the main panes do not overlap with one another at any time.

84.    A computer program product as claimed in any of Claims 75 to 83 wherein a plurality of sub-panes are provided within each main pane which exhibit substantially the same behaviour as the main panes.

85.    A computer program product as claimed in any of Claims 75 to 84 wherein each main pane is provided with an array of sub-panes which expand, contract and/or centralise in a substantially similar fashion to the main panes.

86.    A computer program product as claimed in any of Claims 75 to 85 wherein while the pointing device continues to highlight a pane, the pane continues to expand until it reaches a specified maximum size.

87.    A computer program product as claimed in Claim 86 wherein if a particular pane is selected the pane will immediately expand to the maximum size.

88.    A computer program product as claimed in Claim 87 wherein when a pane has been selected, the other panes are shifted to the outer periphery of the display, and the selected pane takes up most of the screen real estate.

89.    A computer program product as claimed in Claim 87 or 88 wherein each of the main panes are animated prior to being selected.

90.    A computer program product as claimed in Claim 89 wherein following selection the panes which have not been selected exhibit reduced animation.

91.  A computer program product as claimed in any of Claims 87 to 90 wherein following selection of one of the main panes the panes which have not been selected exhibit reduced opacity.

92.  A computer program product as claimed in any of Claims 87 to 91 wherein the selected pane exhibits increased opacity.

93.  A computer program product as claimed in any of Claims 75 to 92 wherein the relative positions of the panes to one another do not change.

94.  A computer program product as claimed in any of Claims 75 to 93 wherein the interface is applied to a graphical menu, for example, for a media player and/or a content viewer.

95.  A computer program product as claimed in Claim 94 wherein the menu is accessed by selecting a particular sub-pane within the one of the main panes.

96.  A computer program product as claimed in Claim 95 wherein when selected the menu opens a calendar viewer which allows a user to select particular days in the past and then to access a selection of content that had been broadcast on those days, or to select a future day and to select content to be downloaded after broadcast (i.e. a booking system).

97.  A computer program product as claimed in any of Claims 75 to 96 wherein the user interface operates in a fractal-like manner, preferably wherein the movement of a pointing device causes the expansion, contraction and/or centralisation of panes or sub-panes in a currently selected pane, and the main pane, while intermediate panes are shown in a tree structure.

98.  A computer program product as claimed in Claim 97 wherein the tree structure displays a set of cascaded windows all of which terminate on the same lower edge of the main pane (unlike a known cascade of windows) so as not to obscure the other main panes.

99.  A computer program product as claimed in any of Claims 75 to 98 wherein animations such as slide shows are shown in the one or more of the main panes prior to selecting a particular main pane.

100. A computer program product as claimed in Claim 99 wherein once a main pane is selected the other panes move to the edges of the selected main pane and are preferably relatively inactive (for example, floating about slightly).

101. A computer program product as claimed in any of Claims 75 to 100 wherein the number of panes allow the screen to be displayed with a selected main pane in the centre, and with the other panes positioned around the edges of the selected main pane, for example 6, 8, 9 or 12 main panes.

5   102. A computer program product as claimed in any of Claims 75 to 101 wherein the panes are in the form of rectangles or squares.

103. A computer program product as claimed in any of Claims 75 to 102 wherein a "square number" of sub-panes are provided within each main pane.

104. A computer program product as claimed in any of Claims 75 to 103 wherein a
10   pane or sub-pane is provided which provides access to further panes or sub-panes

105. A computer program product as claimed in any of Claims 75 to 104 wherein the panes are provided on a graphical background.

106. A computer program product as claimed in Claim 105 wherein the background
15   graphic is selectable by a user.

107. A computer program product as claimed in any of Claims 75 to 106 wherein the main panes expand and move/centralise around a square in the centre of the screen.

108. A computer program product as claimed in Claim 107 wherein the size of the
20   square is proportional to a factor of 1.6 times the size of an unexpanded main pane.

109. A computer program product as claimed in any of Claims 75 to 108 wherein the panes expand to 1.6 times their size when hovered over.

110. A computer program product as claimed in any of Claims 75 to 109 wherein each
25   content item which may be viewed using the user interface provides a "send to a friend" icon.

111. A computer program product as claimed in Claim 110 wherein when the "send to a friend" icon is selected an animated selection of images corresponding to a list of friends or buddies is superimposed over the user interface and it is possible to
30   "drag and drop" the selected content item onto a particular image to effect the transmission of the content to the friend.

112.    A method of providing content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure with a number of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at a first level in the directory or hierarchical structure, all the available selection options available are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, and wherein, on selection of a particular selection option and thereby proceeding to a second level in the directory structure, said other selection options in the first level remain displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas.

113.    A method according to Claim 112, wherein the content access indicia representing said further plurality of selection options linked from a particular selection option are simultaneously displayed as discrete and non-overlapping screen sub-areas within the screen area of said particular selection option.

114.    A method according to Claim 112 or 113, wherein said plurality of screen areas are displayed to the user as discrete and non-overlapping screen areas.

115.    A method according to any of Claims 112 to 114, wherein the content access indicium are in the form of one or more of the following: screen icons, screen controls, thumbnails, text, dialogue boxes, search screens, images, slideshow successions of images, video players, and audio players.

116.    A method as claimed in any of Claims 112 to 115 wherein, at each selection option, all of the selection options available under that selection option are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, such that for any selection option the user is able to simultaneously view all of the selection options available under that selection option.

117.    A graphical user interface for display of content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure with a number of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at a first level in the directory or hierarchical structure, all the available selection options available are simultaneously displayed to the user as

corresponding content access indicia in respective ones of a plurality of screen areas, and wherein, on selection of a particular selection option and thereby proceeding to a second level in the directory structure, said other selection options in the first level remain displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas.

118.    A graphical user interface as claimed in Claim 117 wherein, at each selection option, all of the selection options available under that selection option are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, such that for any selection option the user is able to simultaneously view all of the selection options available under that selection option.

119.    A method of providing content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure with a plurality of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at each selection option, all of the selection options available under that selection option are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, such that for any selection option the user is able to simultaneously view all of the selection options available under that selection option.

120.    A method as claimed in Claim 116 or 119 wherein all or at least a plurality of selection options from the previous level and/or the base level are simultaneously displayed to the user.

121.    A method according to any of Claims 116, 120, or 120 wherein a plurality of content options are displayed to the user as a substantially rectangular tiled array of content indicia each occupying a substantially rectangular screen area.

122.    A graphical user interface for display of content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure with a plurality of successive levels of selection options, each selection option corresponding to a content access indicium and linking to a further plurality of selection options in the next level, wherein, at each selection option, all of the selection options available under that selection option are simultaneously displayed to the user as corresponding content access indicia in respective ones of a plurality of screen areas, such that

for any selection option the user is able to simultaneously view all of the selection options available under that selection option.

123. A graphical user interface according to Claim 122 wherein a plurality of content options are displayed to the user as a substantially rectangular tiled array of content indicia each occupying a substantially rectangular screen area.

124. A method of providing content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure, wherein a plurality of content options are displayed to the user as a substantially rectangular tiled array of content indicia each occupying a substantially rectangular screen area.

125. A method according to Claim 121 or 124 wherein interaction with a particular one of said content indicia by the user by way of said control device causes the screen area occupied by the interacted content indicium to expand on said display device in a way that maintains its position in said array relative to the other content option indicia.

126. A method according to Claim 121, 124 or 125 wherein interaction with a particular one of said content indicia by the user by way of said control device causes the space occupied by a plurality of other content indicia to be replaced in dependence on the interacted content indicium.

127. A method according to Claim 126 wherein said plurality of other content indicia move to occupy an area peripheral to the occupied space.

128. A method according to Claim 126 or 127 wherein the space occupied is occupied by content related to said interacted content indicium.

129. A method according to 128 wherein the space occupied is occupied by a media player for playing said content related to said interacted content indicium.

130. A method according to any of Claims 121 or 124 to 126 wherein said content indicia occupy respectively discrete and non-overlapping screen areas, irrespective of whether or not the user is interacting with any one of them.

131. A method according to any of Claims 121 or 124 to 130 wherein interaction with a particular one of said content indicia by the user by way of said control device causes said screen area to move to a relatively central area on said display device.

132. A method according to any of Claims 121 or 124 to 131 wherein interaction with a particular one of said content indicia by the user by way of said control device causes said other ones of the content indicia to contract on said display device.

133. A method according to any of Claims 121 or 124 to 132 wherein the rectangular screen areas occupied by the respective content indicia are square.

134. A method according to any of Claims 121 or 124 to 133 wherein the rectangular tiled array of content indicia is square.

135. A method according to any of Claims 121 or 124 to 134 wherein the number of content indicia in the tiled array is a square.

136. A graphical user interface for display of content data for navigation and selection on a display device by a user using a control device, the content data organised into a directory or hierarchical structure, wherein a plurality of content options are displayed to the user as a substantially rectangular tiled array of content indicia each occupying a substantially rectangular screen area.

137. A method of displaying search results to a user wishing to access available data content, comprising the steps of:

providing to the user a means of inputting search terms;

receiving from the user one or more search terms;

conducting a search in accordance with the search term(s);

displaying to the user a prescribed search results screen area, containing discrete graphical indicia representing all the search results.

138. A method according to Claim 137 wherein the size of said indicia is determined in dependence on the number of search results returned.

139. A method according to any of Claims 137 to 138, which further comprises:

receiving one or more additional search terms from said user;

using said one or more additional search terms to refine said search results;

displaying to the user the refined search results by displaying discrete graphical indicia representing all the refined search results within the prescribed search results screen area.

140.    A method according to any of Claims 137 to 139, wherein the or each search term represents a portion of a longer search term, the displayed results changing dynamically as each portion is typed.

141.    A method according to any of Claims 137 to 140, wherein the graphical indicia representing the search results are substantially equally sized within the prescribed search results screen area, and wherein the graphical indicia substantially completely occupy said prescribed search results screen area.

142.    A method according to any of Claims 137 to 141, wherein interaction by a user-controlled control device with a graphical indicium representing a particular item of data content provides that item of data content to be delivered to or accessible by the user.

143.    A method according to any of Claims 137 to 142 wherein said results are dynamically reduced as said search term is typed.

144.    A method according to any of Claims 137 to 143 wherein the size of said indicia increases as the number of search results returned reduce.

145.    A graphical user interface for displaying search results to a user wishing to access available data content, the interface comprising:

        means for inputting search terms;

        means for receiving from the user one or more search terms;

        means for conducting a search in accordance with the search term(s);

        means for displaying to the user a prescribed search results screen area, containing discrete graphical indicia representing all the search results.

146.    An interface according to Claim 145 wherein the size of said indicia is determined in dependence on the number of search results returned.

147.    An interface according to Claim 145 or 146, which further comprises:

        receiving one or more additional search terms from said user;

        using said one or more additional search terms to refine said search results;

displaying to the user the refined search results by displaying discrete graphical indicia representing all the refined search results within the prescribed search results screen area.

148.   An interface according to any of Claims 145 to 147, wherein the or each search term represents a portion of a longer search term, the displayed results changing dynamically as each portion is typed.

149.   An interface according to any of Claims 145 to 148 wherein the size of said indicia increases as the number of search results returned reduce.

150.   A graphical user interface for an apparatus which allows a user to access content items, the graphical user interface comprising means for displaying particular content items, means for transmitting particular content items to selected other users, and a list of users to which the content may be transmitted represented in the form of graphic icons each corresponding to another user and each being selectable by the user thereby to transmit a particular displayed content item to one or more of the other users.

151.   A graphical user interface according to Claim 150 wherein said list is displayed in a position dependent on the location of the content item to be transmitted.

152.   A graphical user interface according to Claim 150 or 151, wherein each content item is provided with an icon, the selection of which opens the list of users.

153.   A graphical user interface according to Claim 150, 151 or 152, wherein the list is superimposed over the graphical user interface.

154.   A graphical user interface according to Claim 153, wherein the list is superimposed over the graphical user interface in a position dependent on the location of the content item being viewed.

155.   A graphical user interface according to Claim 154, wherein the list is superimposed over the graphical user interface in a position which is proximate to the content item.

156.   A graphical user interface according to any of Claims 150 to 155, wherein the content item is forwarded to the other user by "dragging and dropping" the content item onto the graphical icon corresponding to the other user.

157.   A graphical user interface according to any of Claims 150 to 156, wherein the graphic icons are in the form of images of the other users.

158. A graphical user interface according to any of Claims 150 to 157, wherein the list is animated.

159. A graphical user interface according to any of Claims 150 to 158, wherein the list is arranged in a substantially circular form which is adapted to rotate when a user hovers a pointing device over the list.

160. A graphical user interface according to any of Claims 150 to 159, wherein the list is represented as a graphical card index, each card of which shows an image corresponding to another user.

161. A graphical user interface according to Claim 160, wherein the pages of the card index flip over as a user hovers a pointing device over the card index.

162. A graphical user interface according to any of Claims 150 to 161, wherein the list is in the form of an animated carousel of said images.

163. A graphical user interface according to any of Claims 150 to 161, the interface comprising an array of main panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted to expand as a pointing device highlights a pane, the expansion of said pane relative to the other panes wherein the panes remain in register with one another at the vertex as a pane expands.

164. A graphical user interface for a computer program, the interface comprising an array of main panes each providing access to a particular aspect of the program, the panes being in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes being adapted to expand as a pointing device highlights a pane, the expansion of said pane relative to the other panes wherein the panes remain in register with one another at the vertex as a pane expands.

165. A method of providing content for an apparatus which allows a user to access content items, the graphical user interface comprising means for displaying particular content items, means for transmitting particular content items to selected other users, and a list of users to which the content may be transmitted represented in the form of graphic icons each corresponding to another user and each being selectable by the user thereby to transmit a particular displayed content item to one or more of the other users.

166.     A method according to Claim 165 wherein said list is displayed in a position dependent on the location of the content item to be transmitted.

167.     An apparatus for providing content to a user the apparatus comprising means for providing a graphical user interface according to any of claims 1 to 37, 117, 118, 122, 123, 136, or 145 to 164.

168.     An apparatus as claimed in Claim 167 having a display screen for displaying said graphic user interface.

169.     An apparatus as claimed in Claim 168 having a user controllable pointing device for enabling a user to control the apparatus by the manipulation of the pointing device on the display screen.

170.     An apparatus as claimed in Claim 169 wherein said means for providing a graphical user interface comprise means for displaying on the display screen said array of panes.

171.     An apparatus as claimed in Claim 169 or 170 wherein said means for providing a graphical user interface comprises means for detecting the presence of the pointing device over a pane.

172.     An apparatus as claimed in Claim 169,170 or 171 wherein said means for providing a graphical user interface comprises means for expanding a pane relative to the other panes in response to the detection of the pointing device over a pane, wherein the panes remain in register with one another at the vertex as a pane expands.

173.     A system for providing content to a user the system comprising:

         a graphical user interface according to any of claims 1 to 37 for providing visual indications of conditions prevailing in said system, wherein said conditions comprise the availability of said content;

         and wherein said interface comprises:

                 means for generating a display (preferably a display generation module) in dependence on said conditions, said display comprising an array of panes in register with one another at a vertex corresponding to the area in which all the panes meet, each of the panes providing a user with means for accessing a particular functionality of said interface to locate said content;

means for detecting the presence of the pointing device over a pane (preferably an input analysis module);

and means for changing the size of a pane relative to the other panes (preferably a dynamic display module) in response to said detection;

5          wherein the panes remain in register with one another at the vertex as a pane expands.
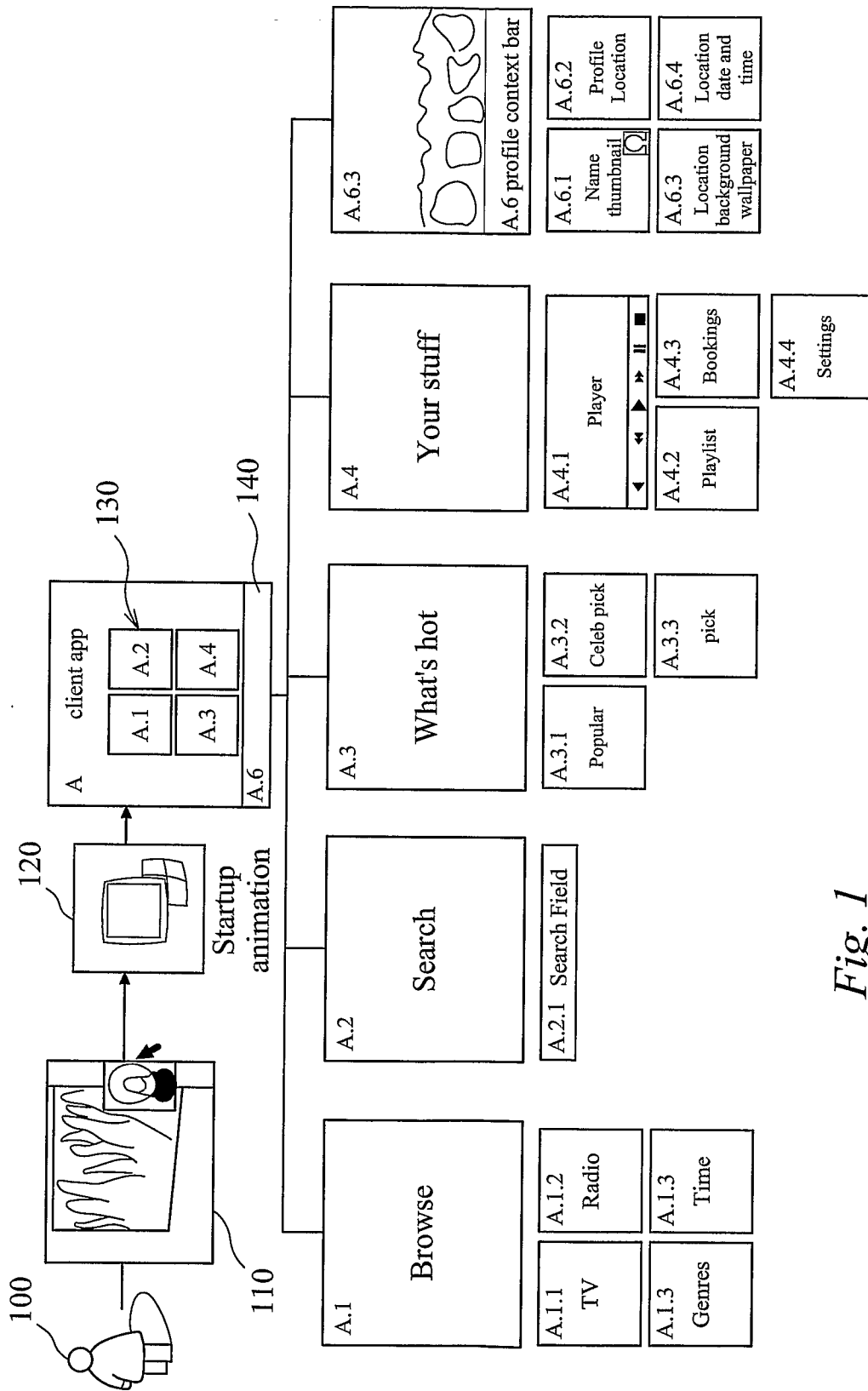
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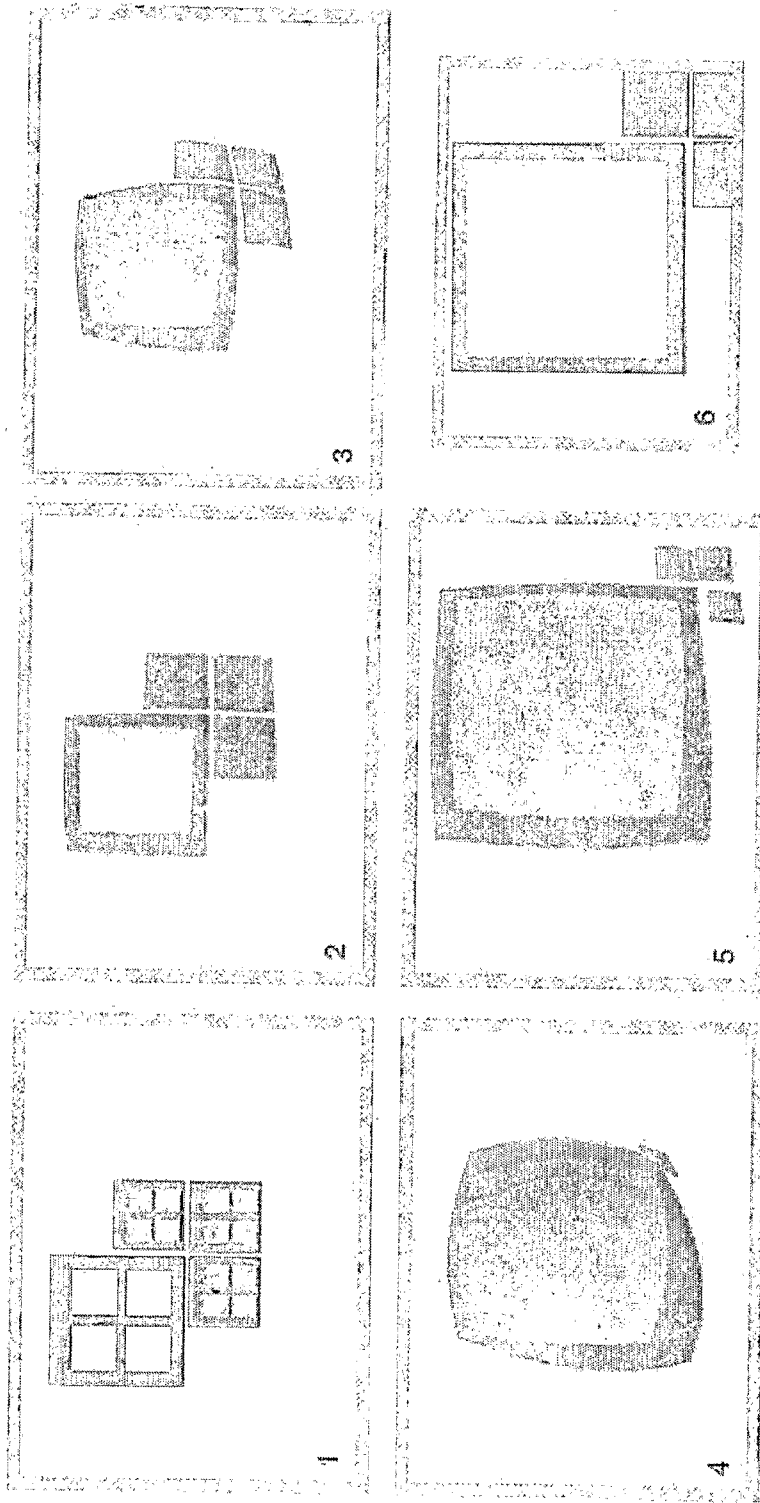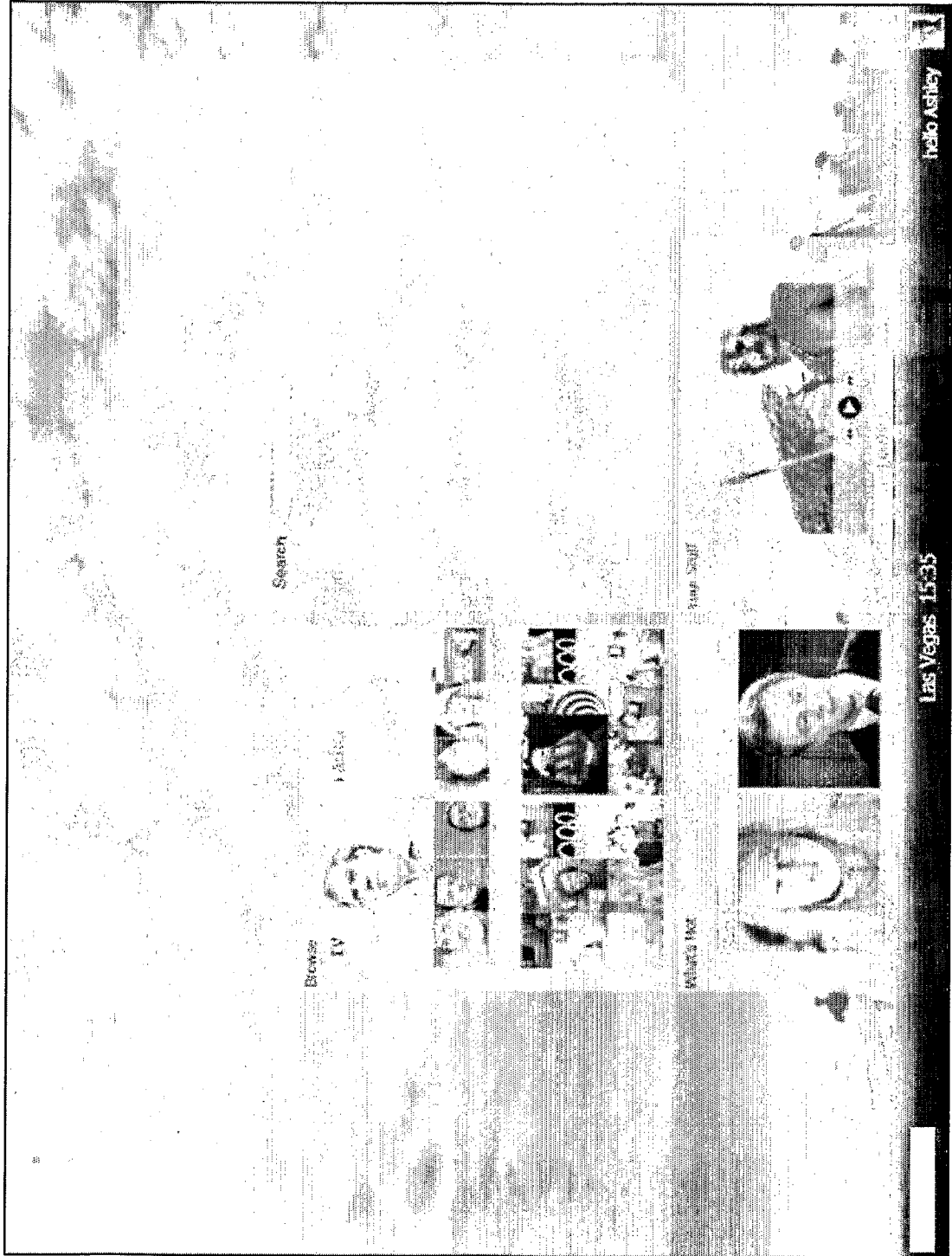
Startup Animation

120

Fig. 2
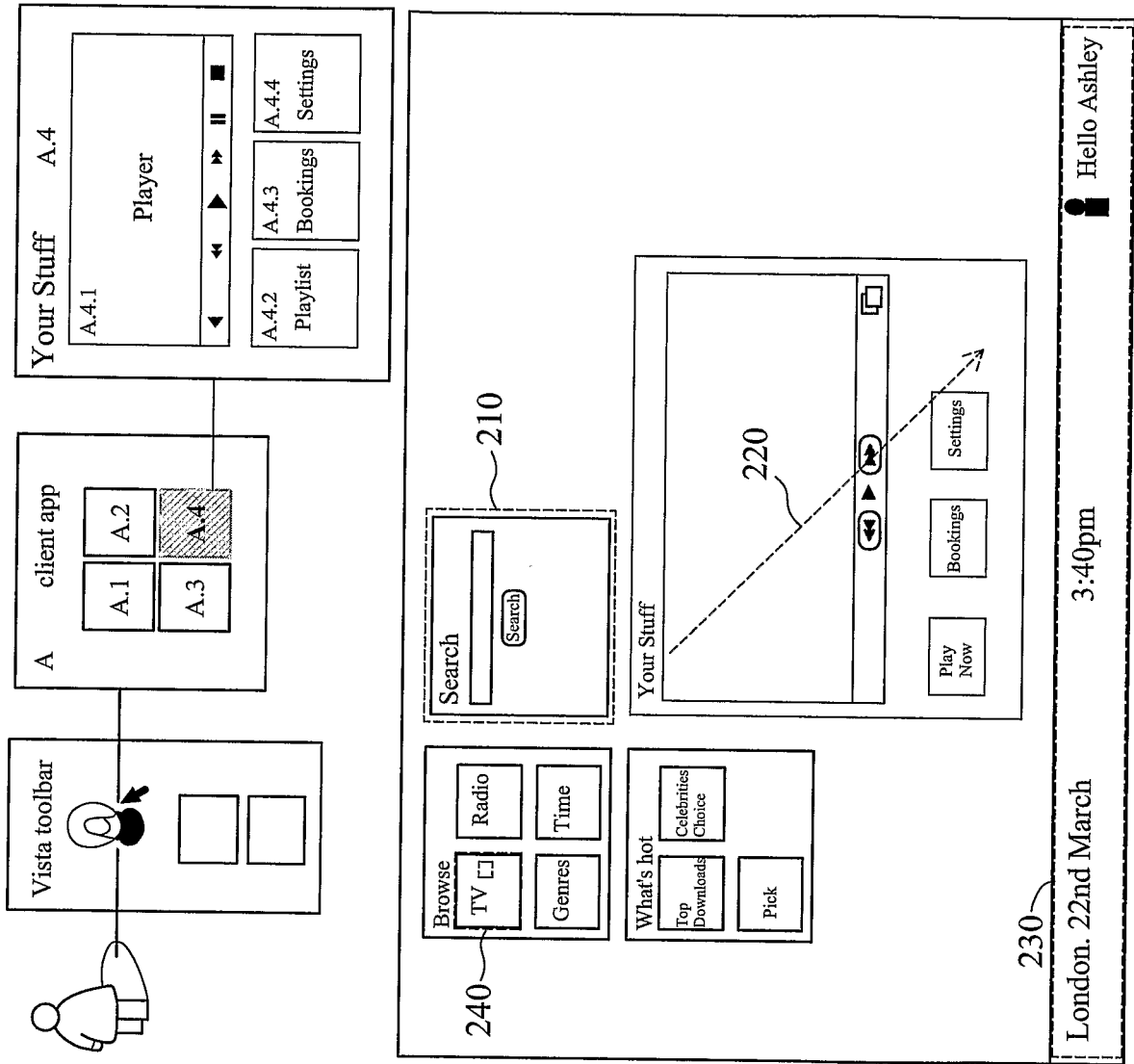
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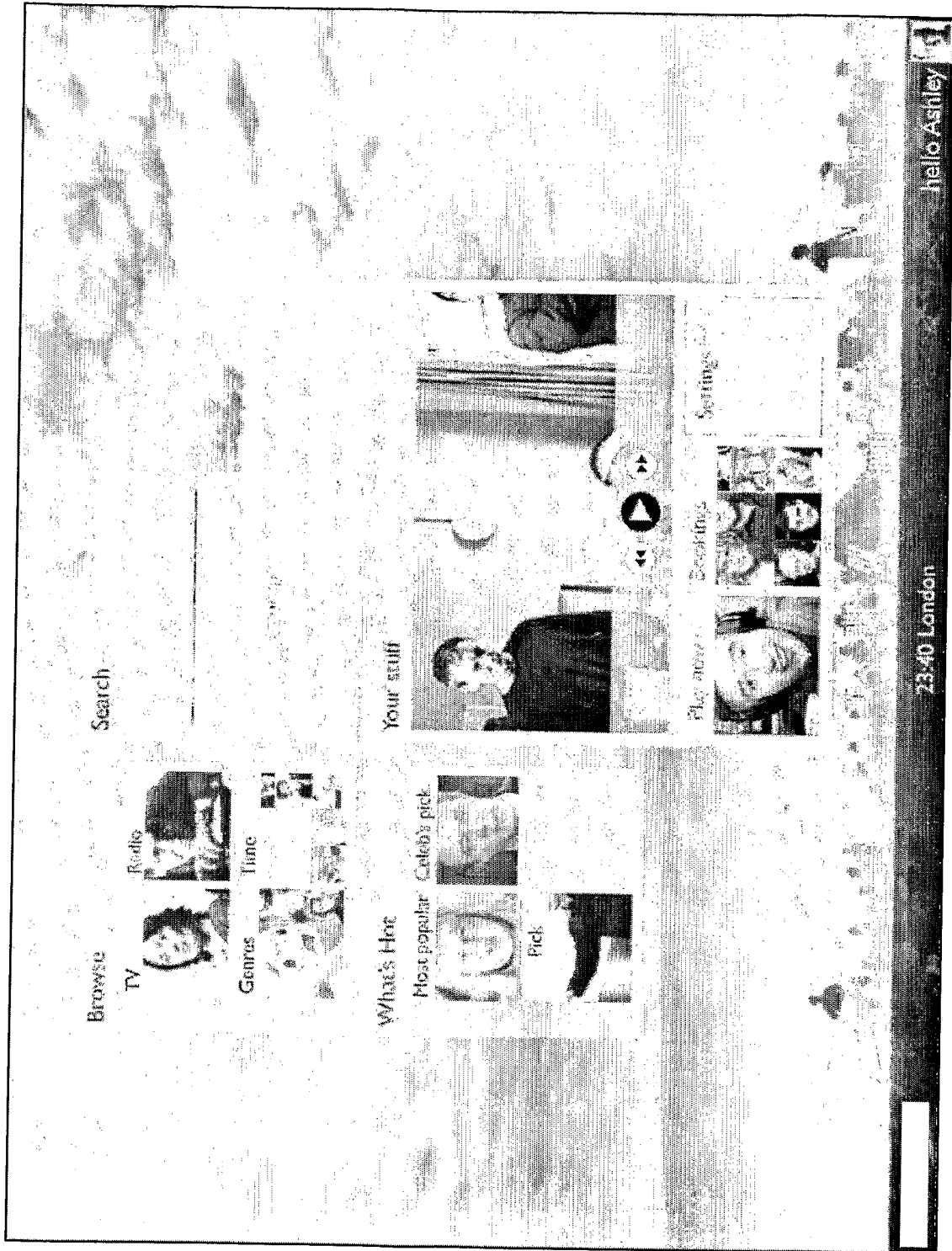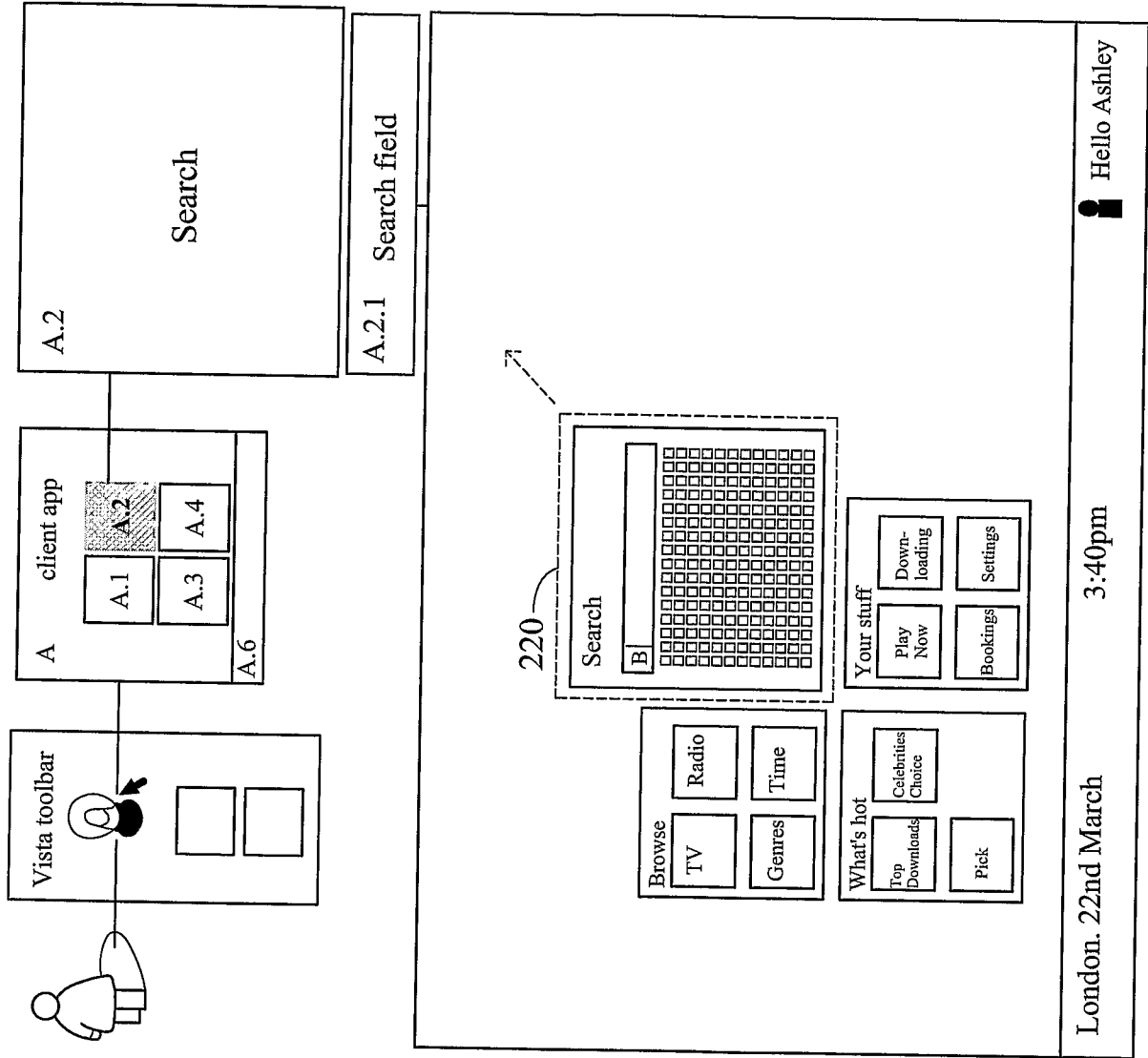
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Fig. 4

*Fig. 5*

Fig. 6

*Fig. 7*

*Fig. 8*

*Fig. 9*

Fig. 10

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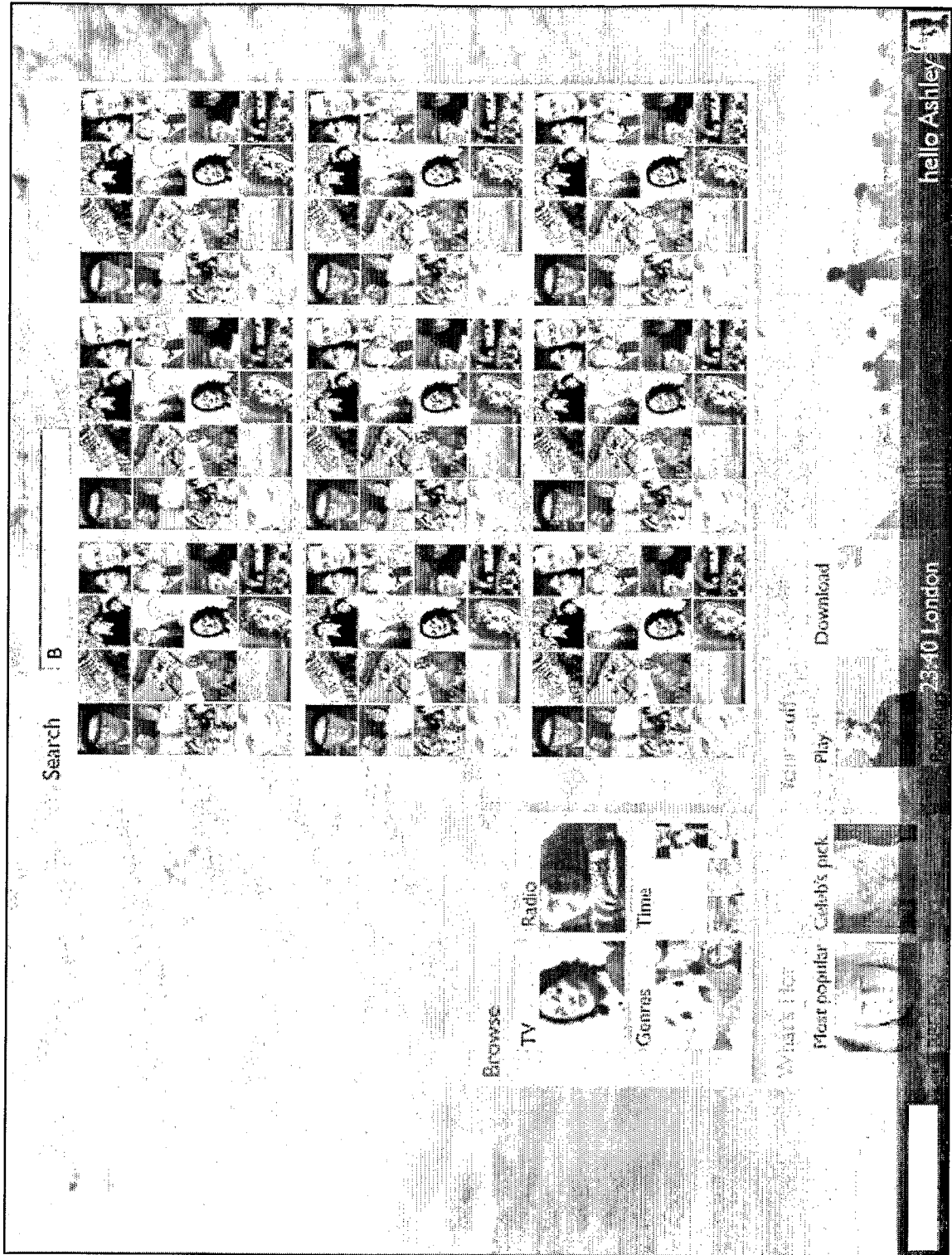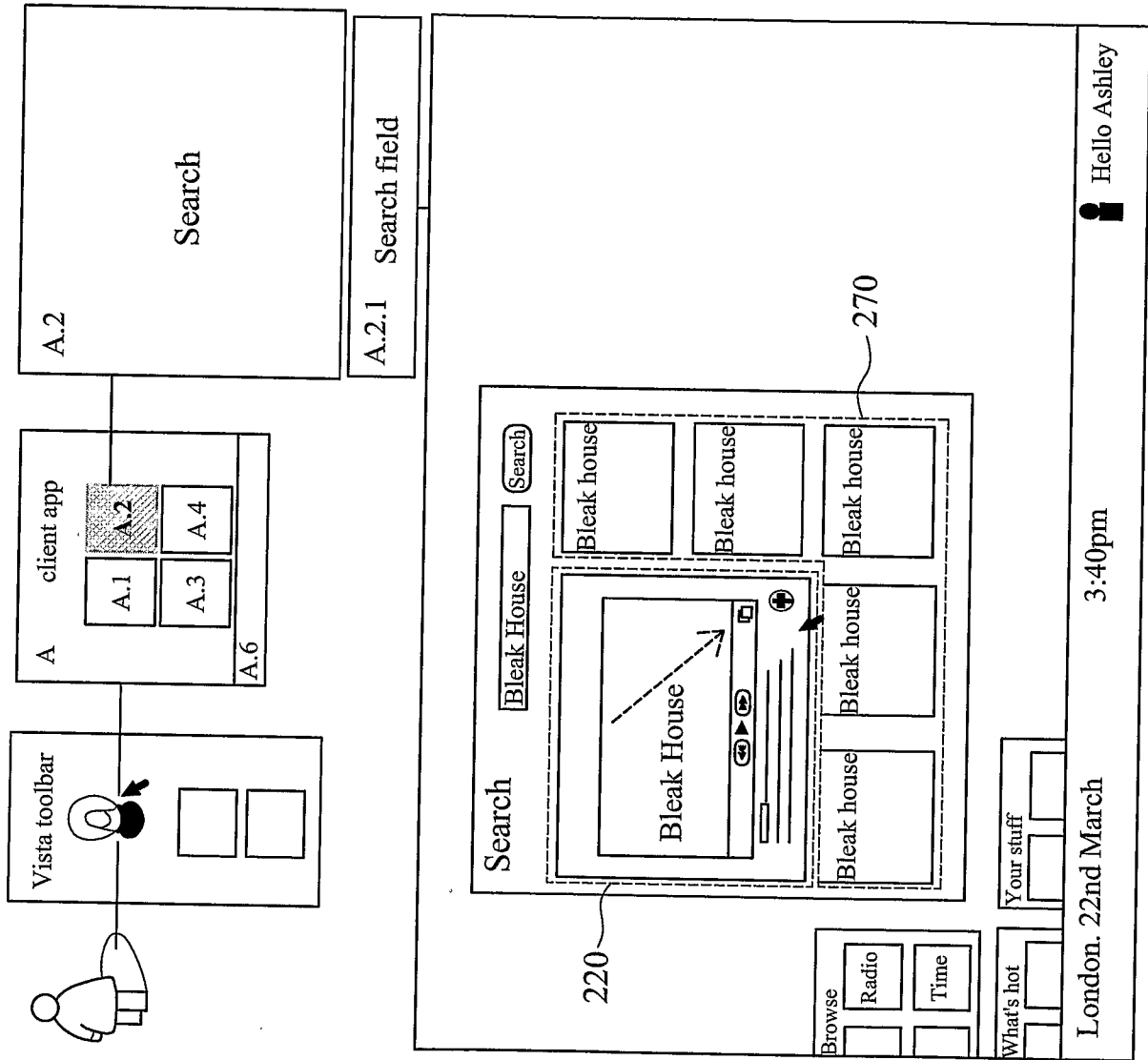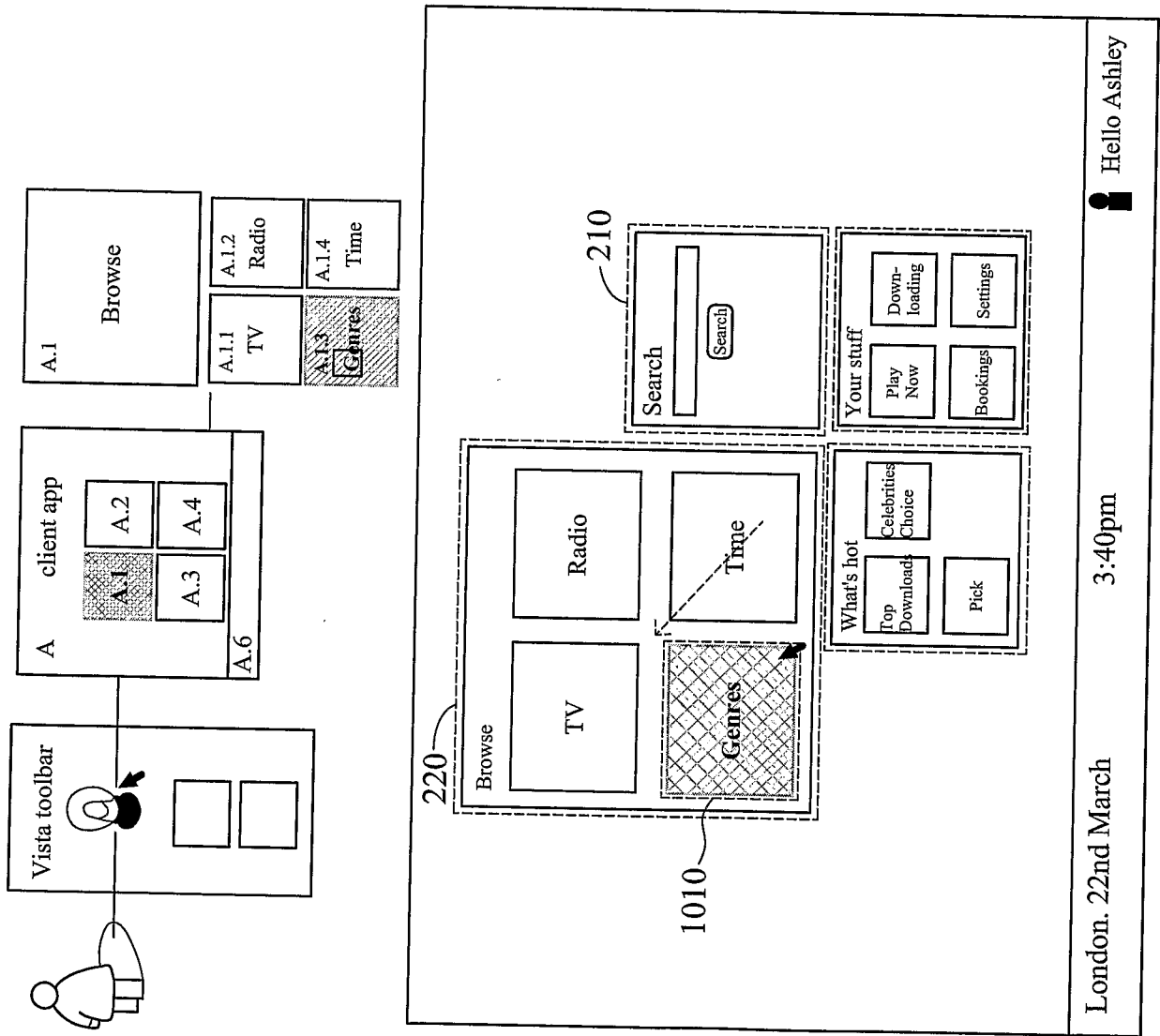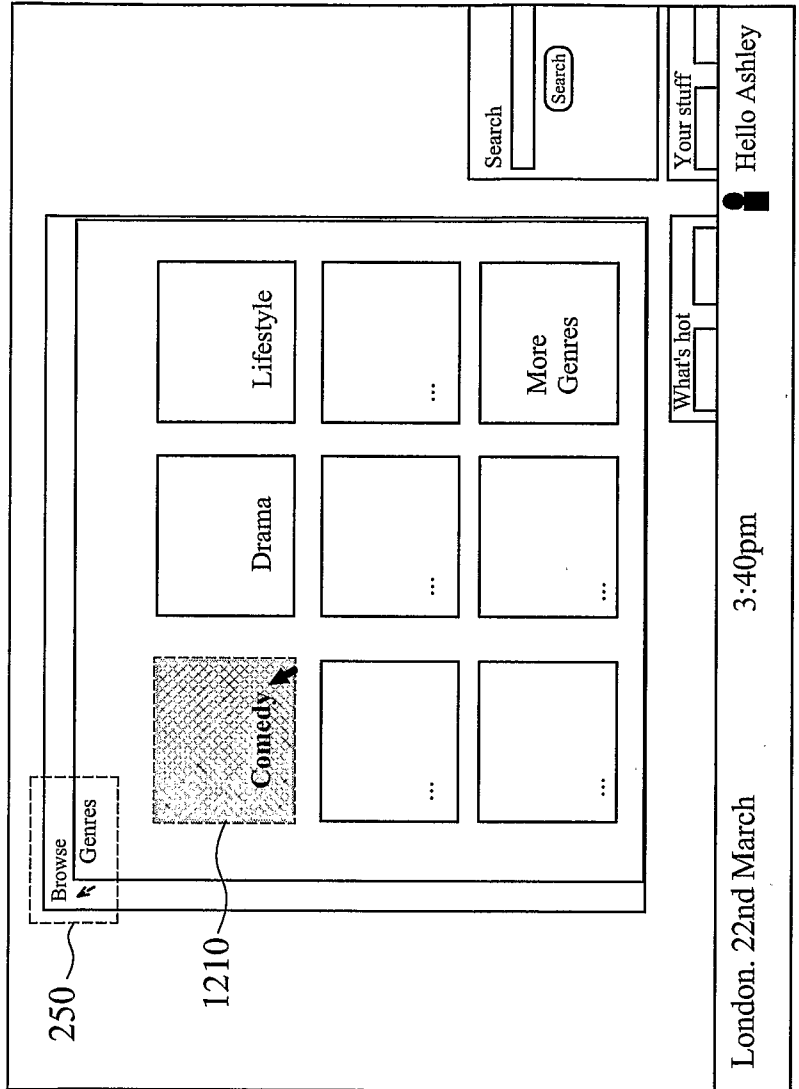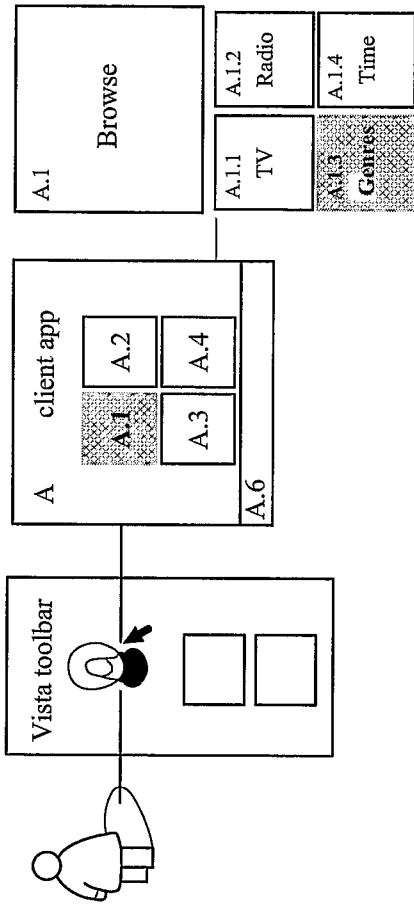


*Fig. 11*
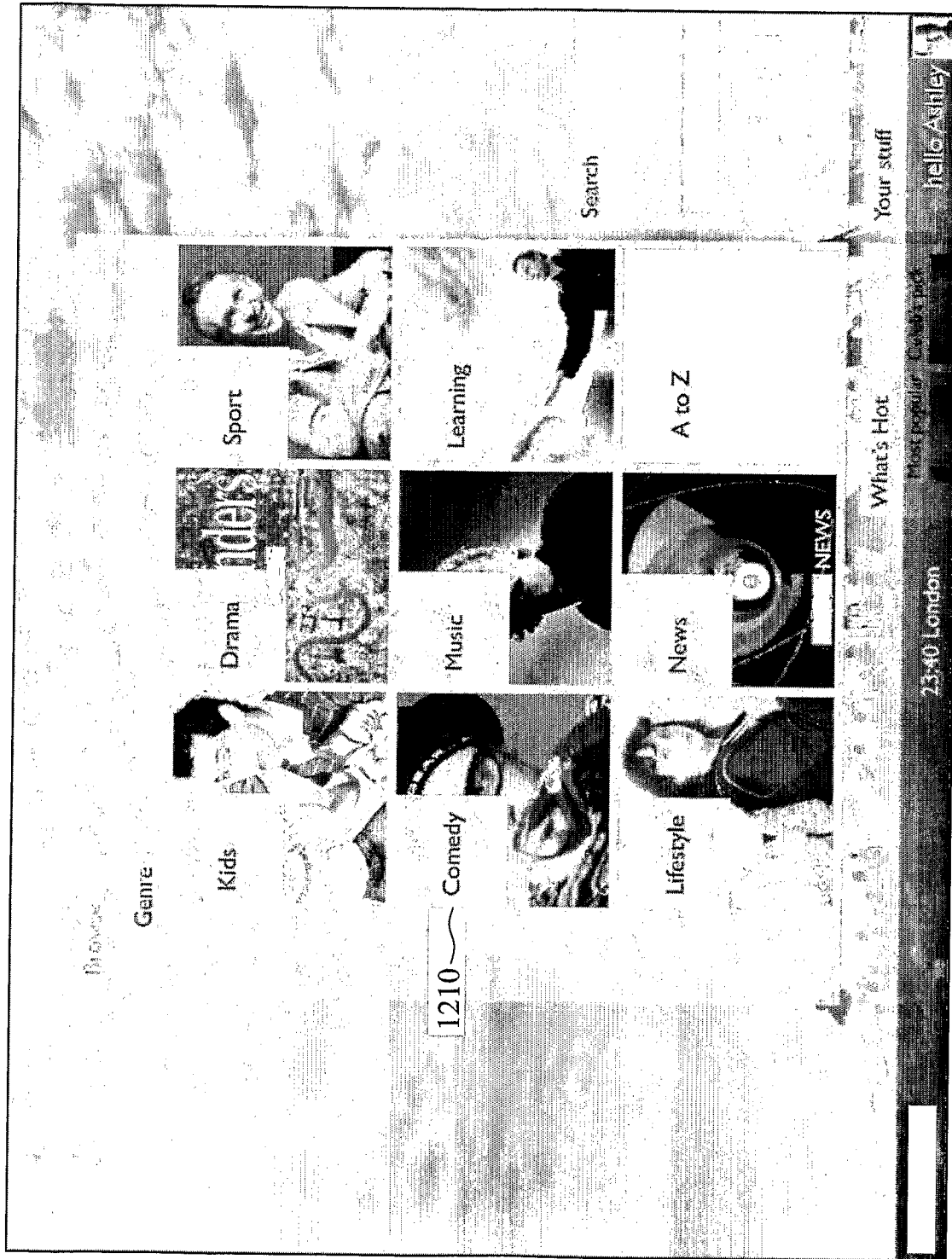
*Fig. 12*
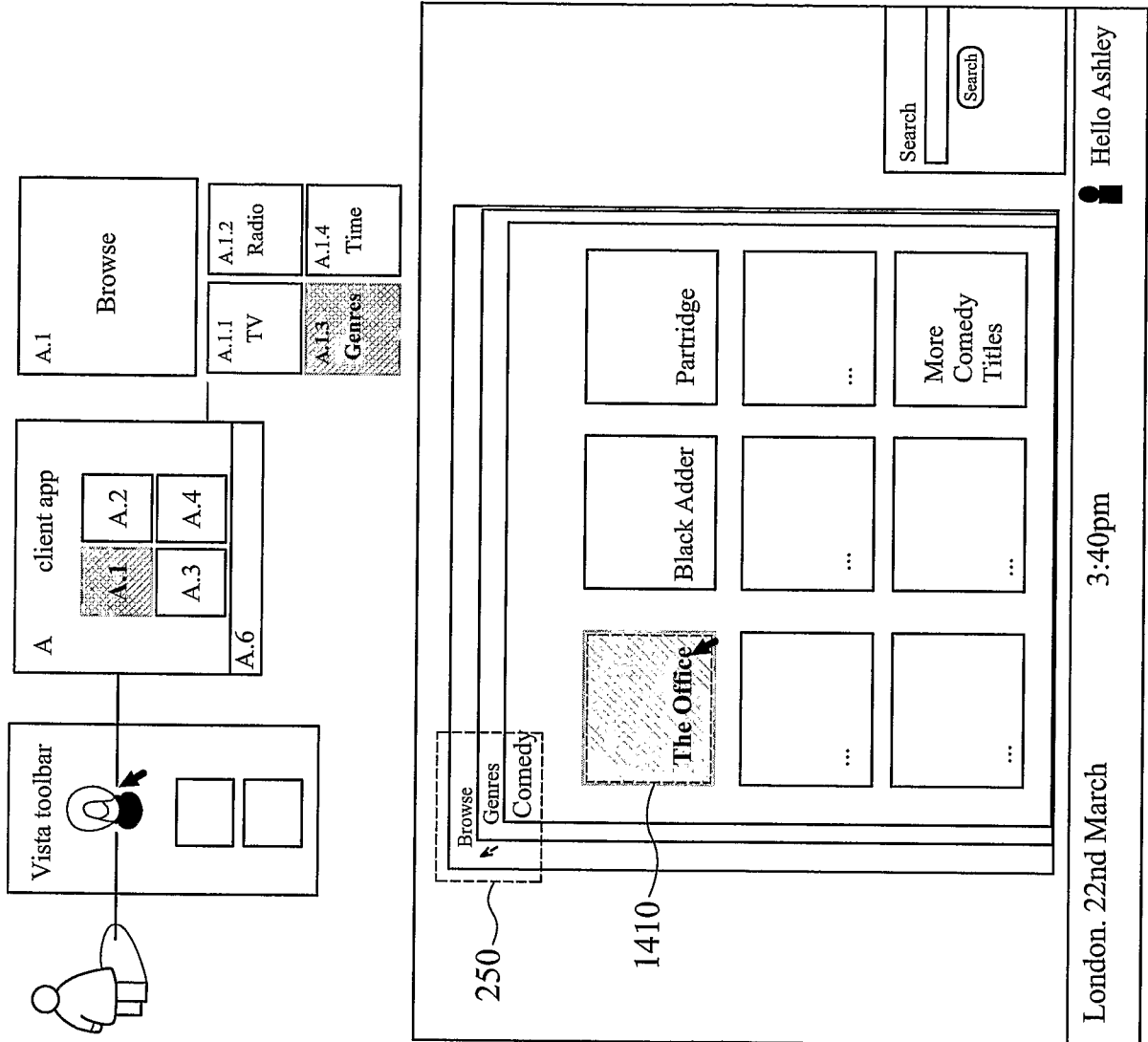
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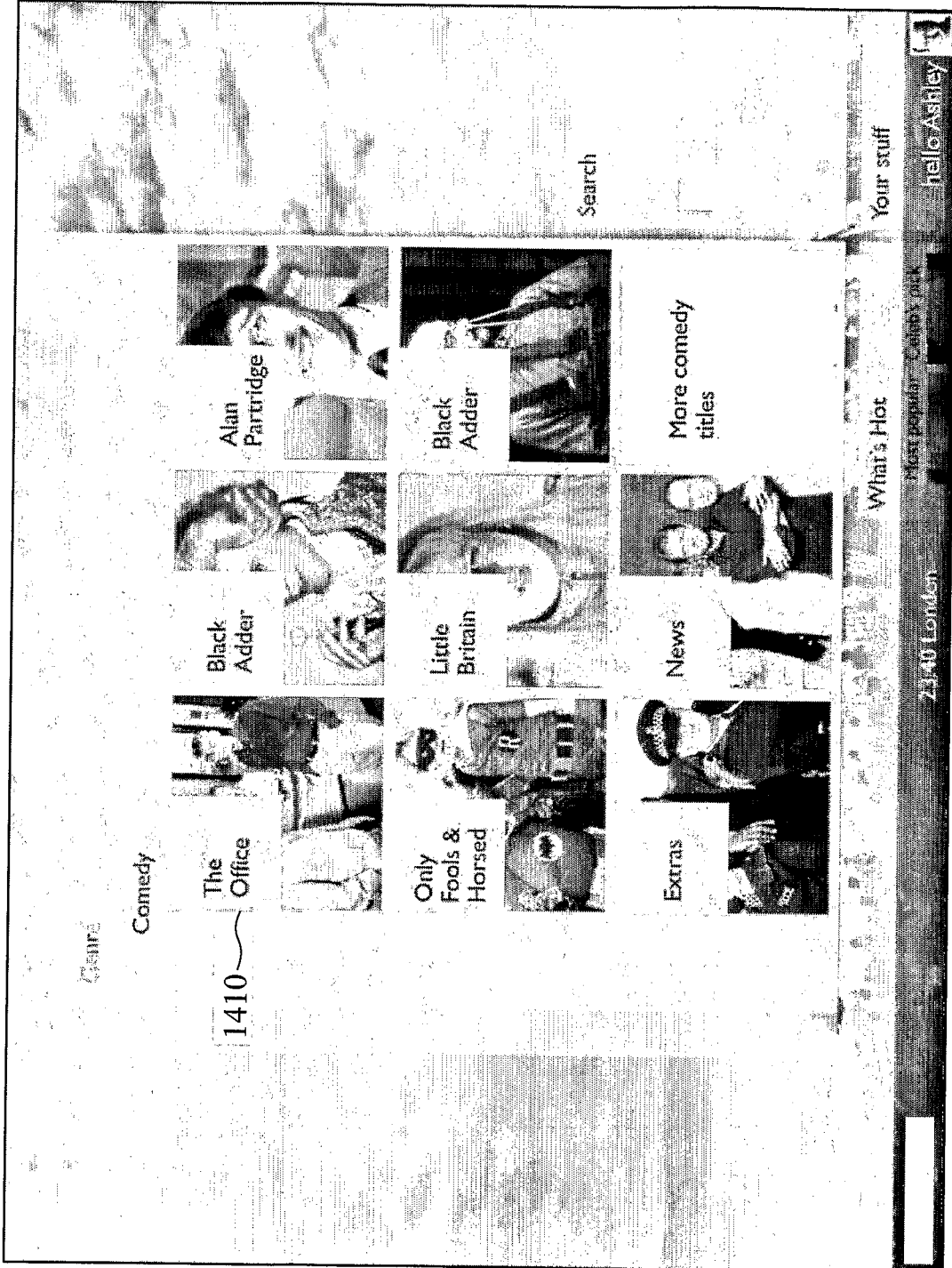
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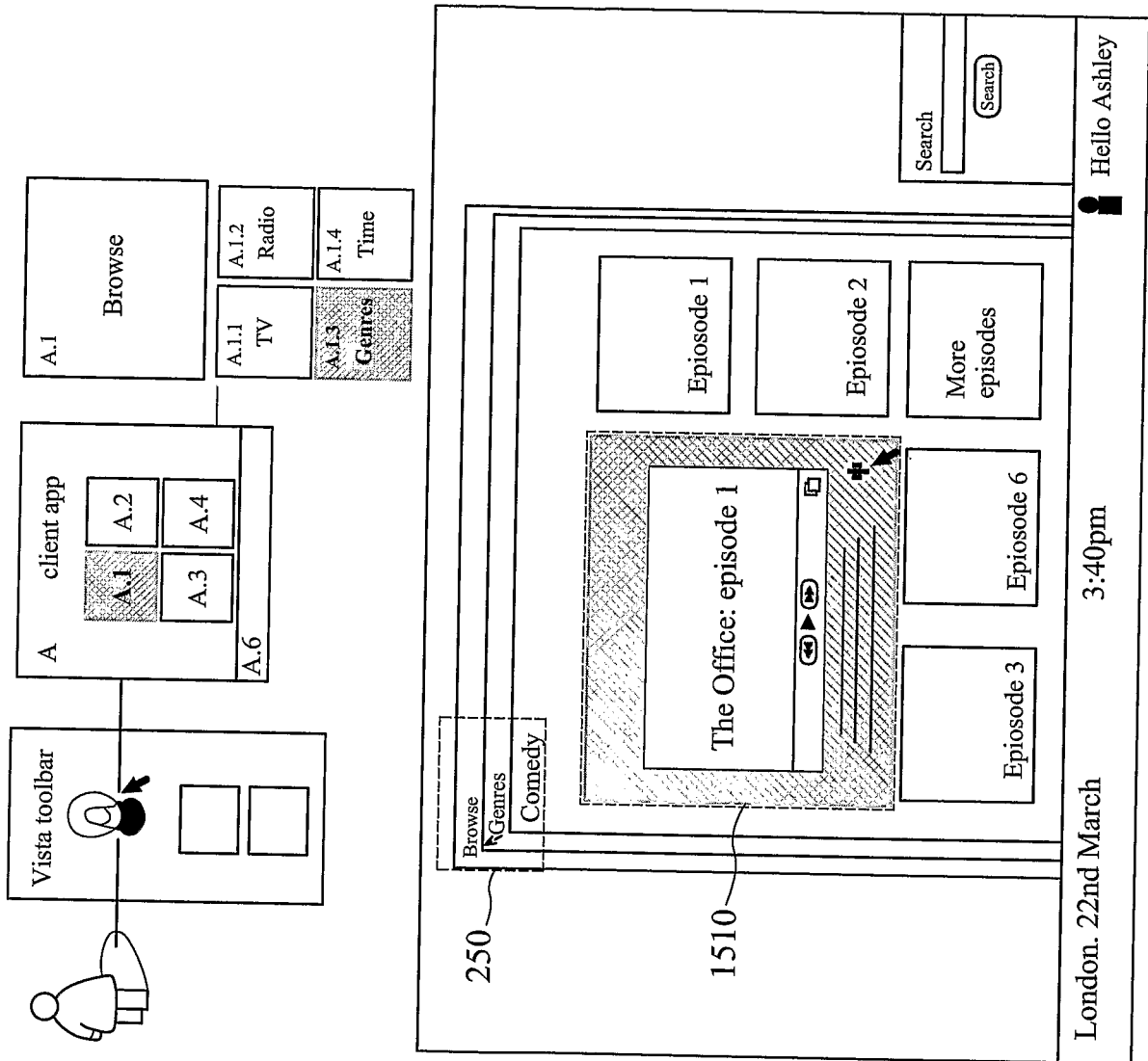
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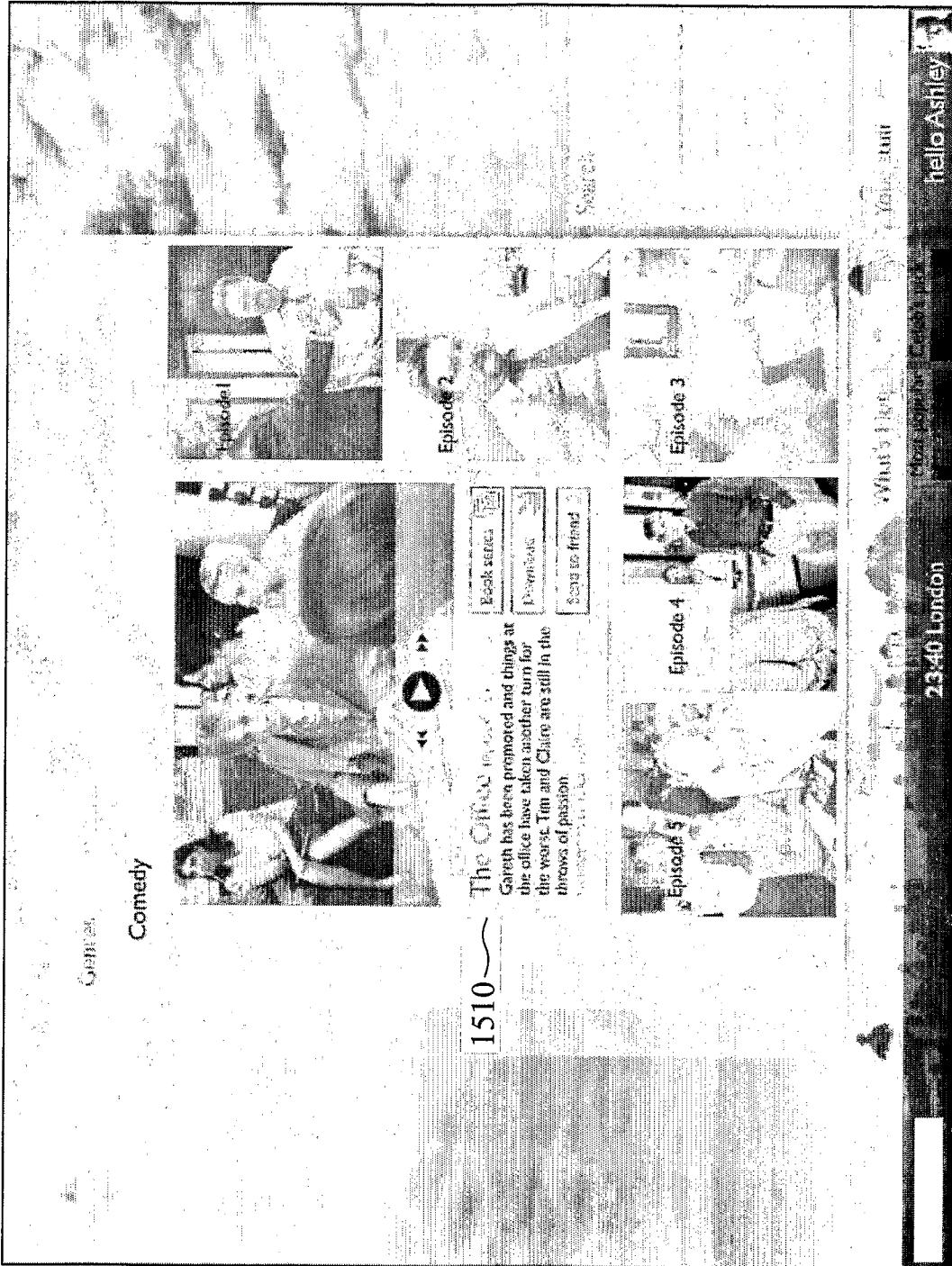
*Fig. 16*

*Fig. 17*

Fig. 18

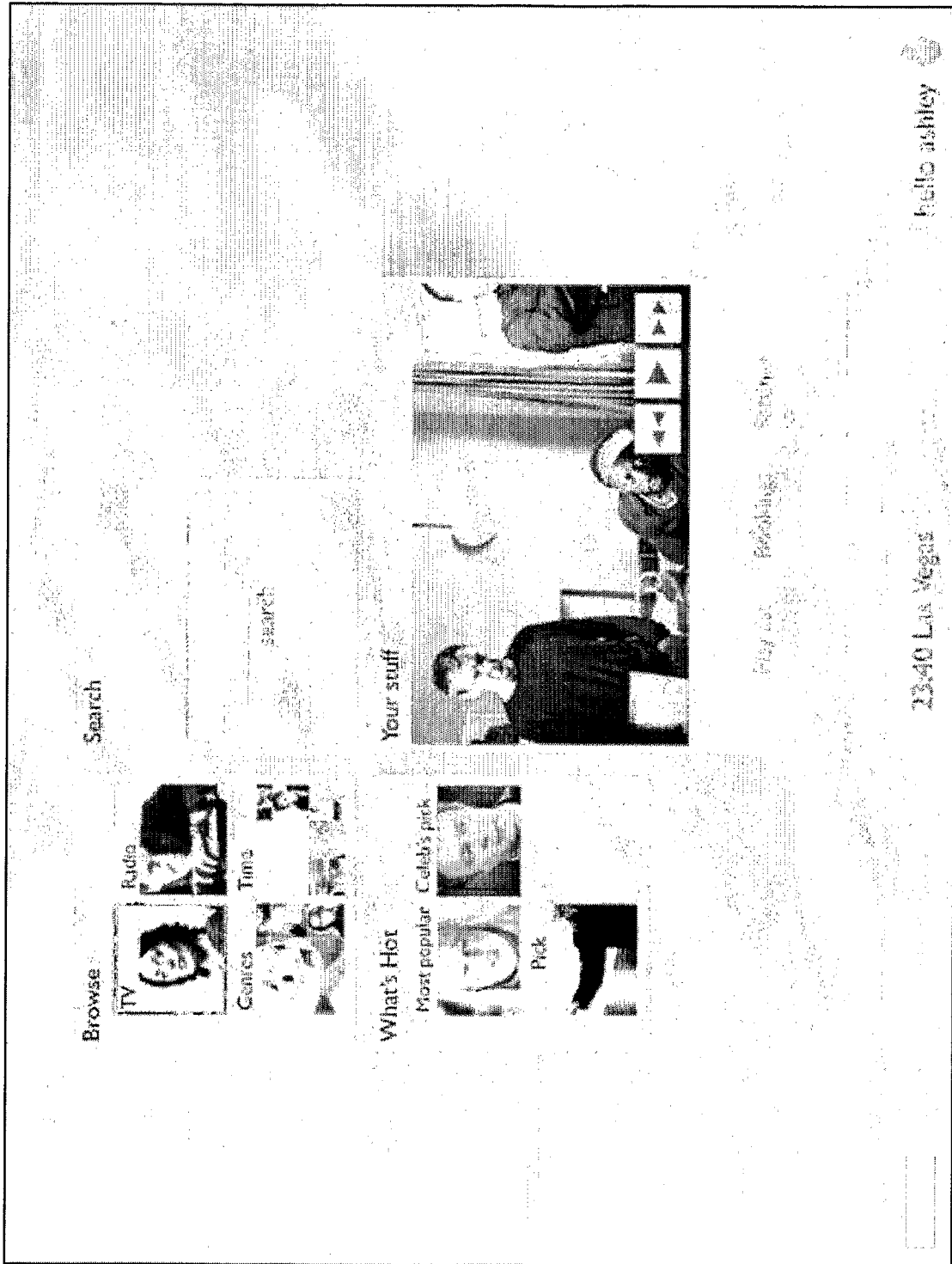Fig. 19

Fig. 20

*Fig. 21*

*Fig. 22*

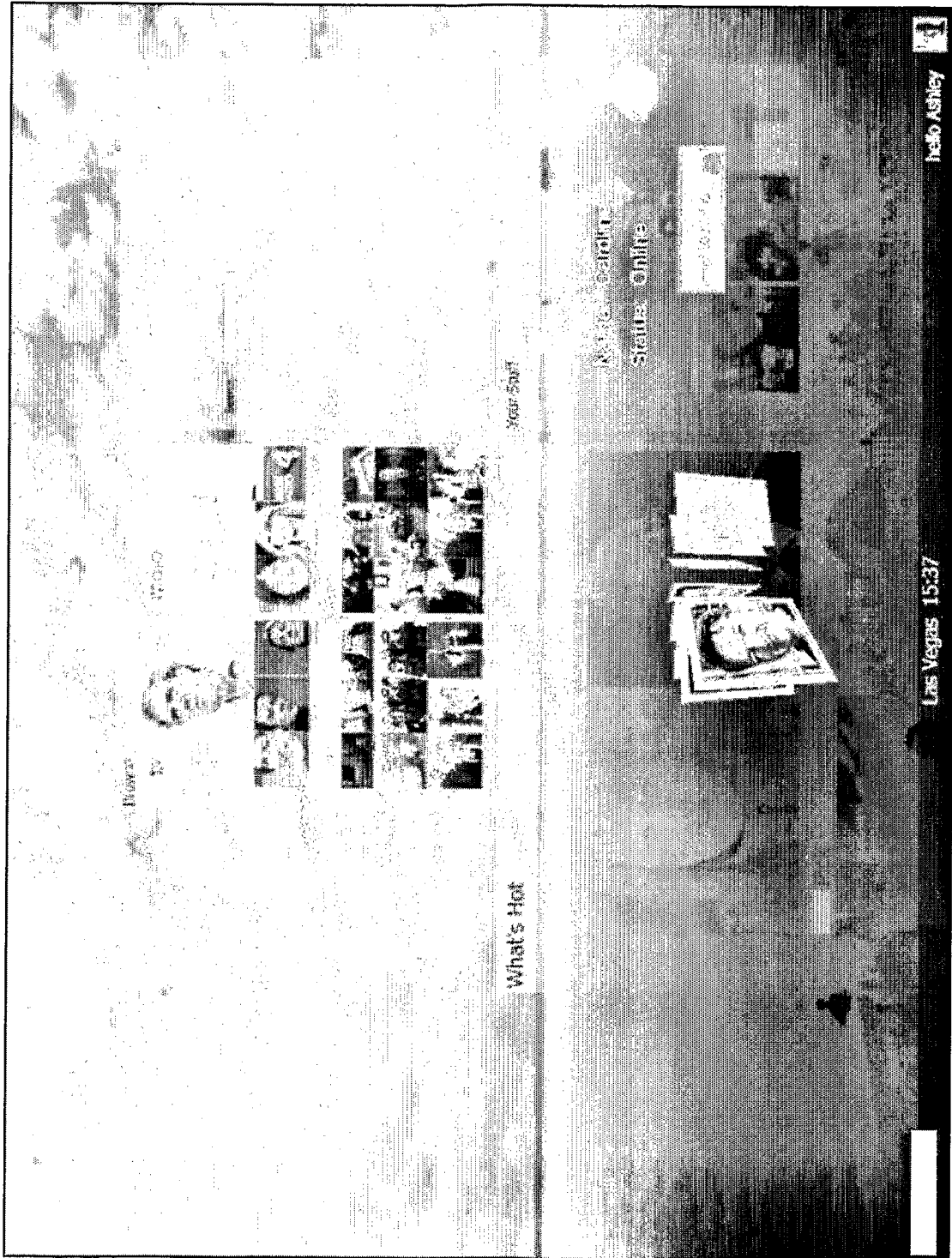23/31
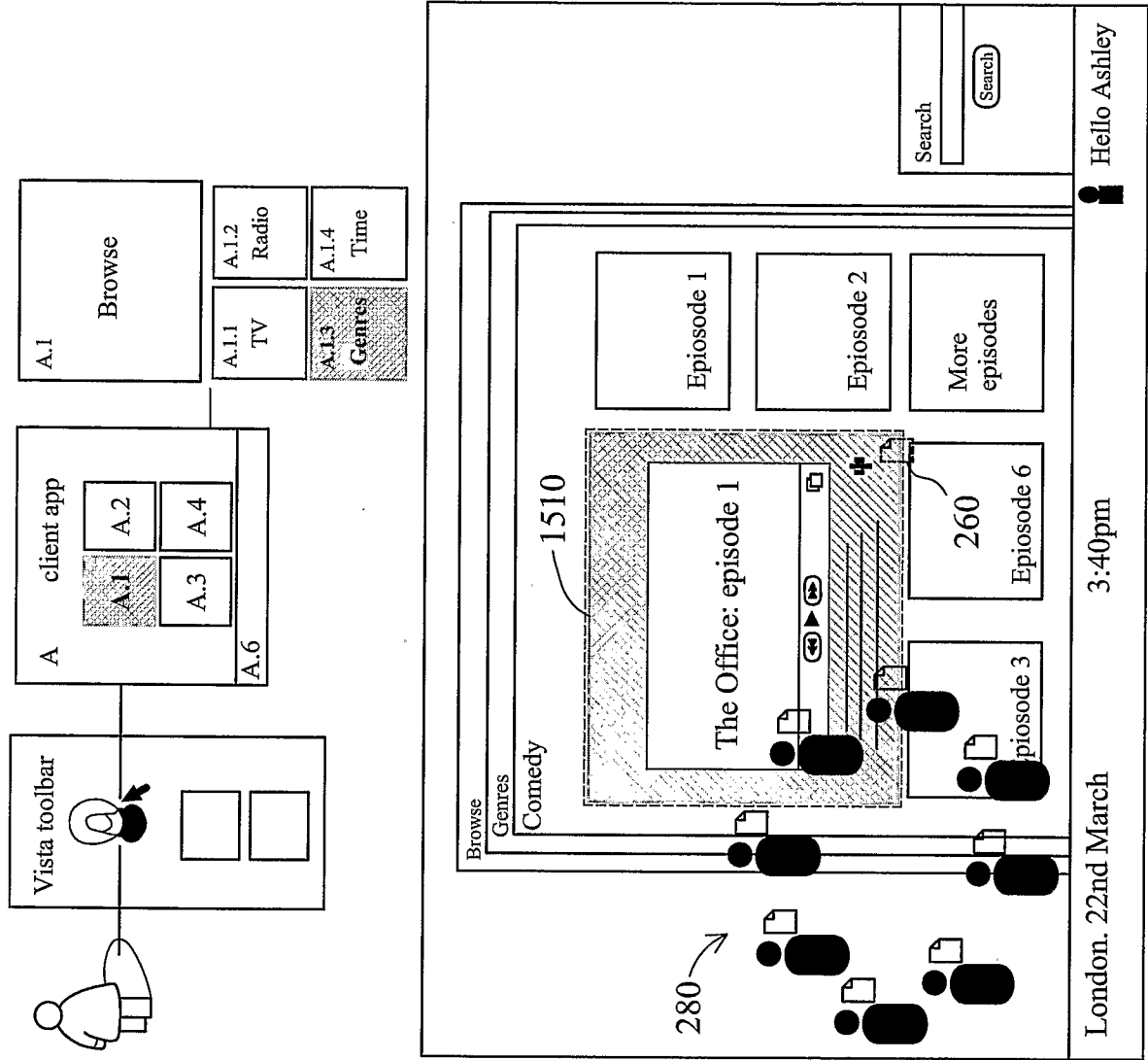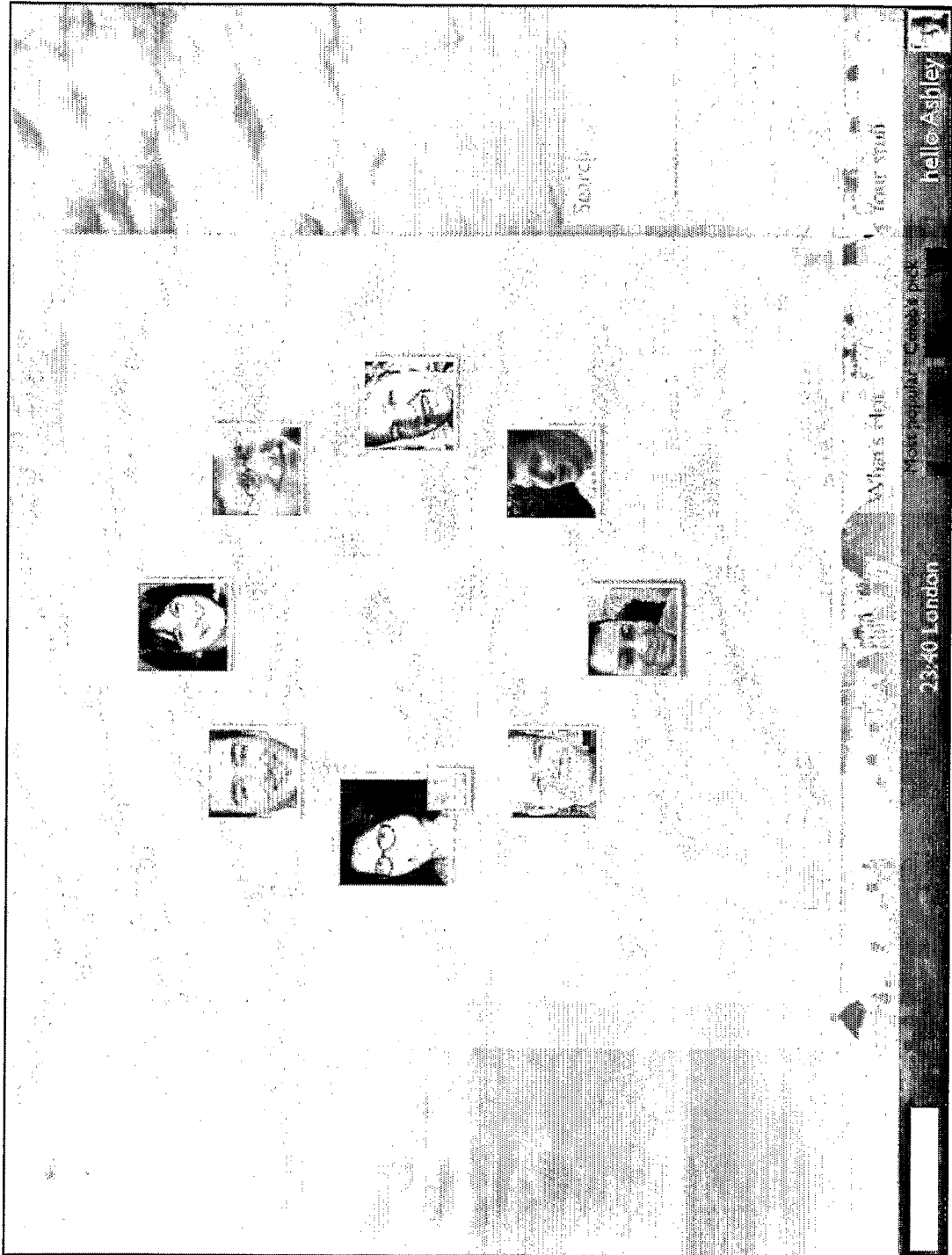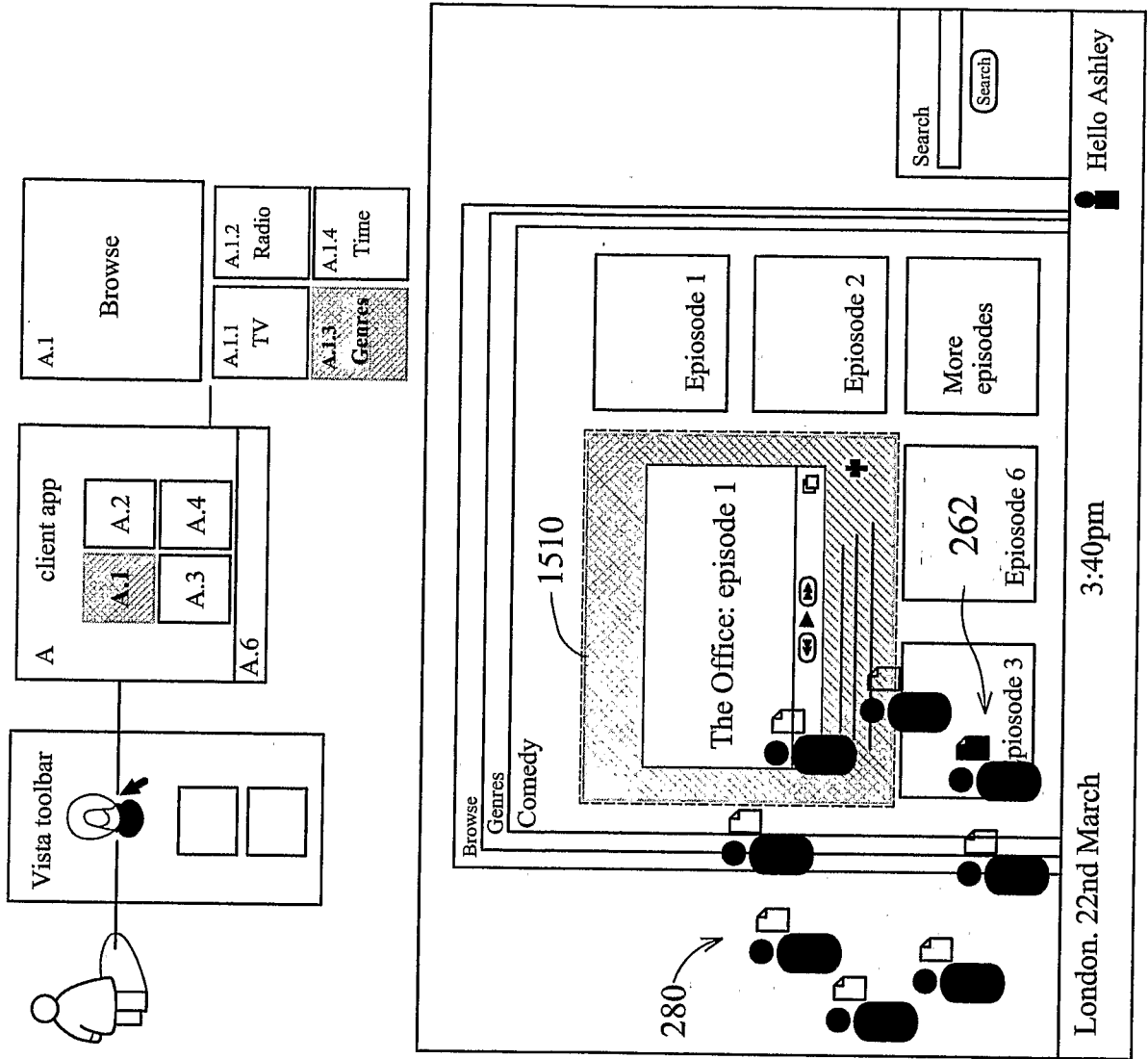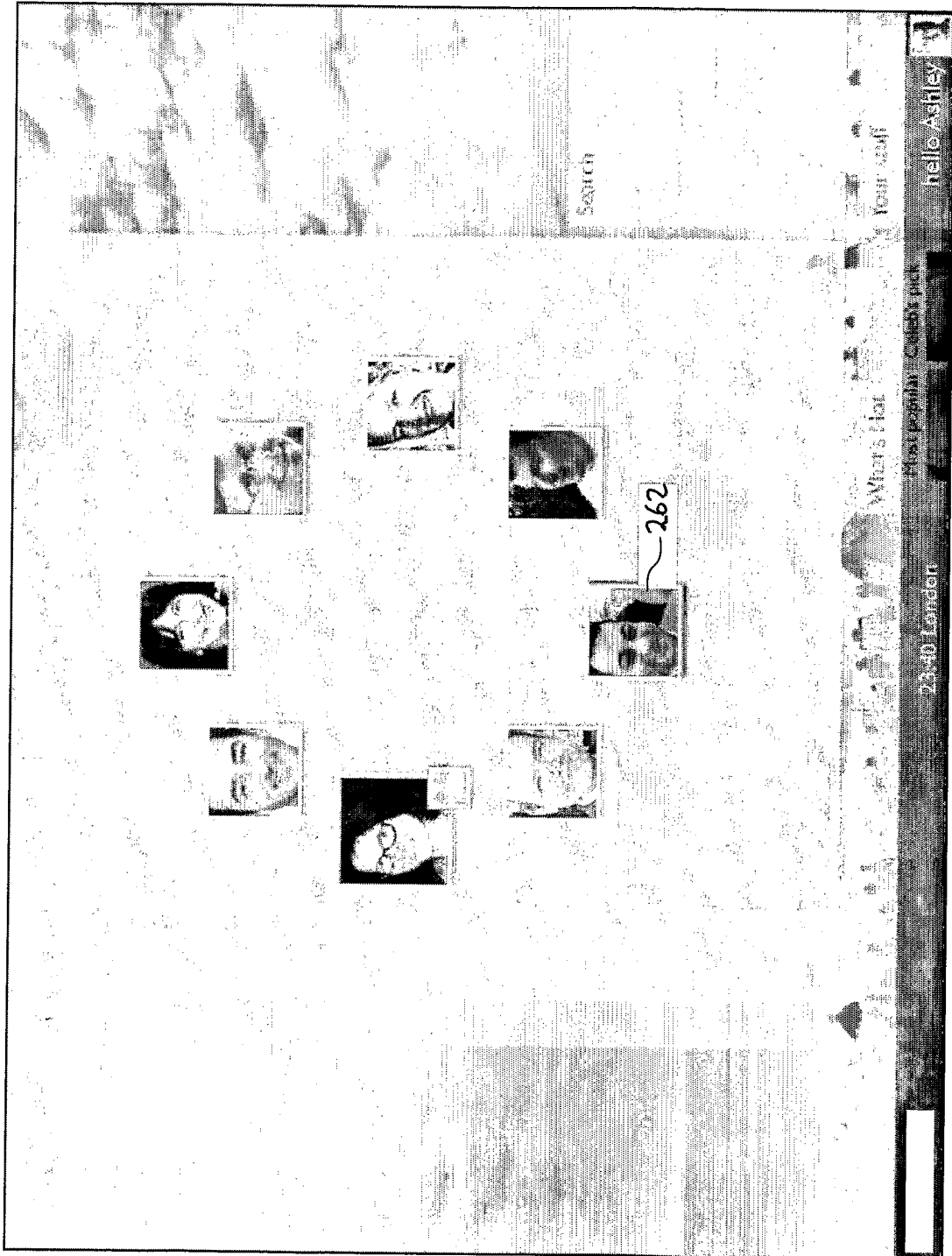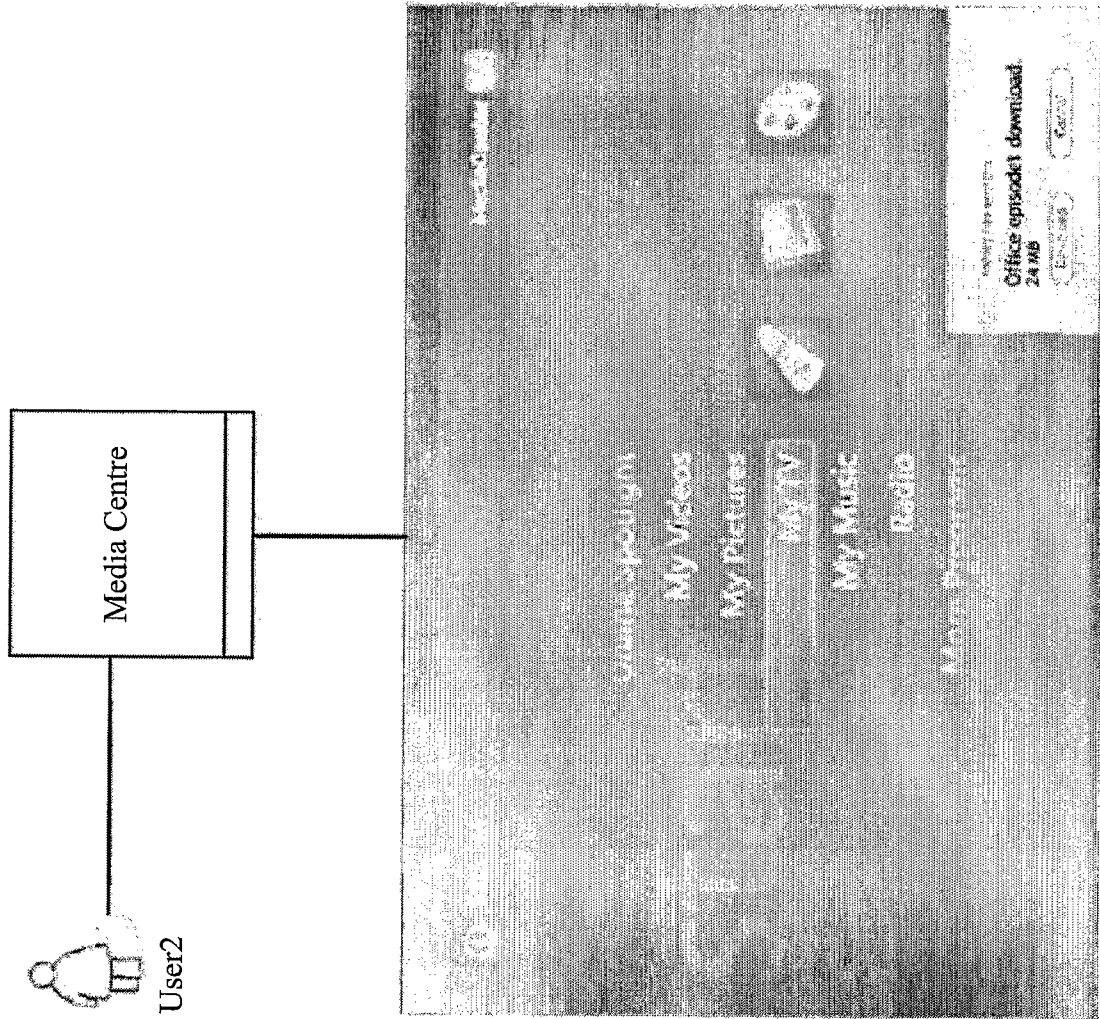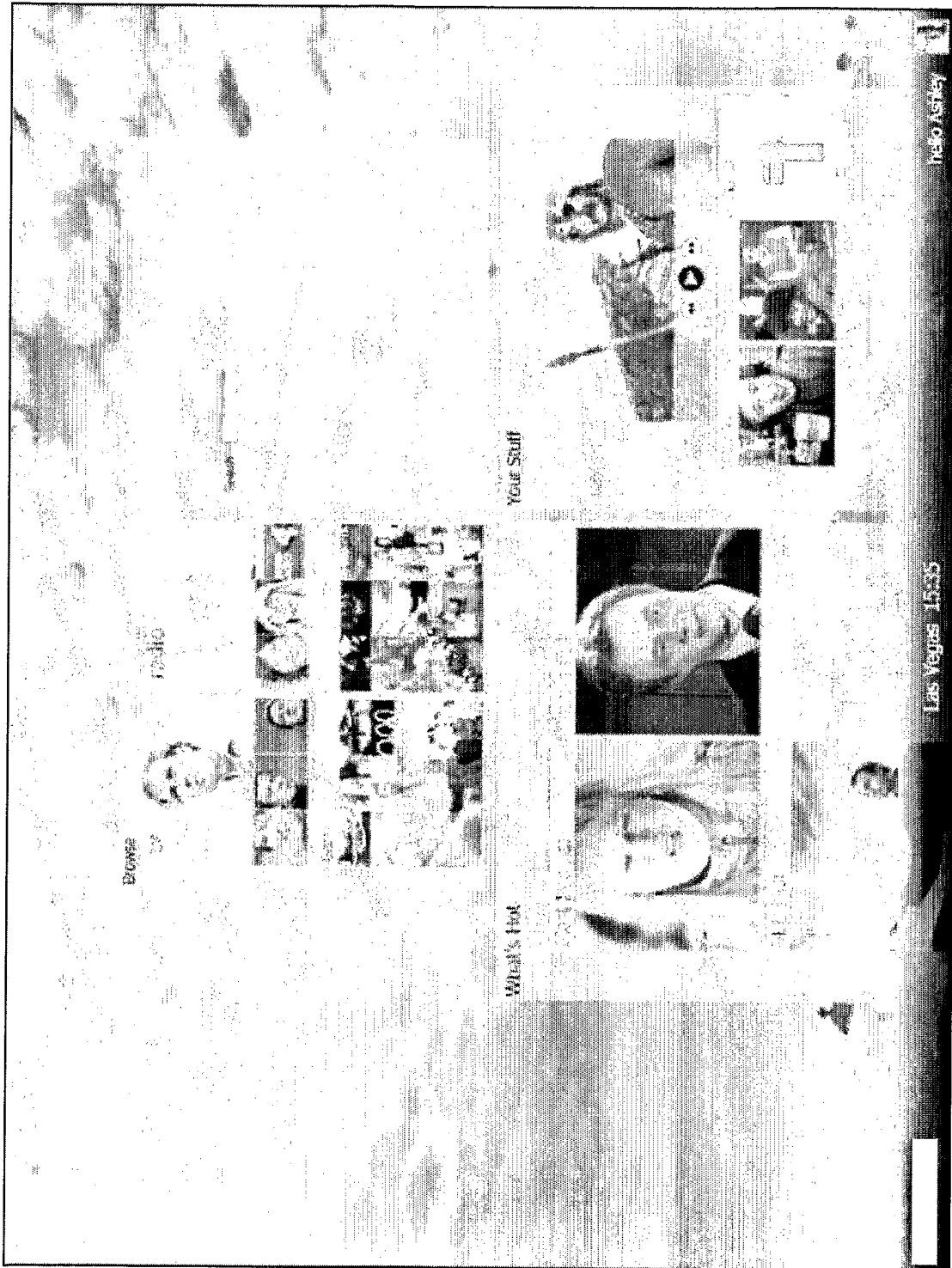


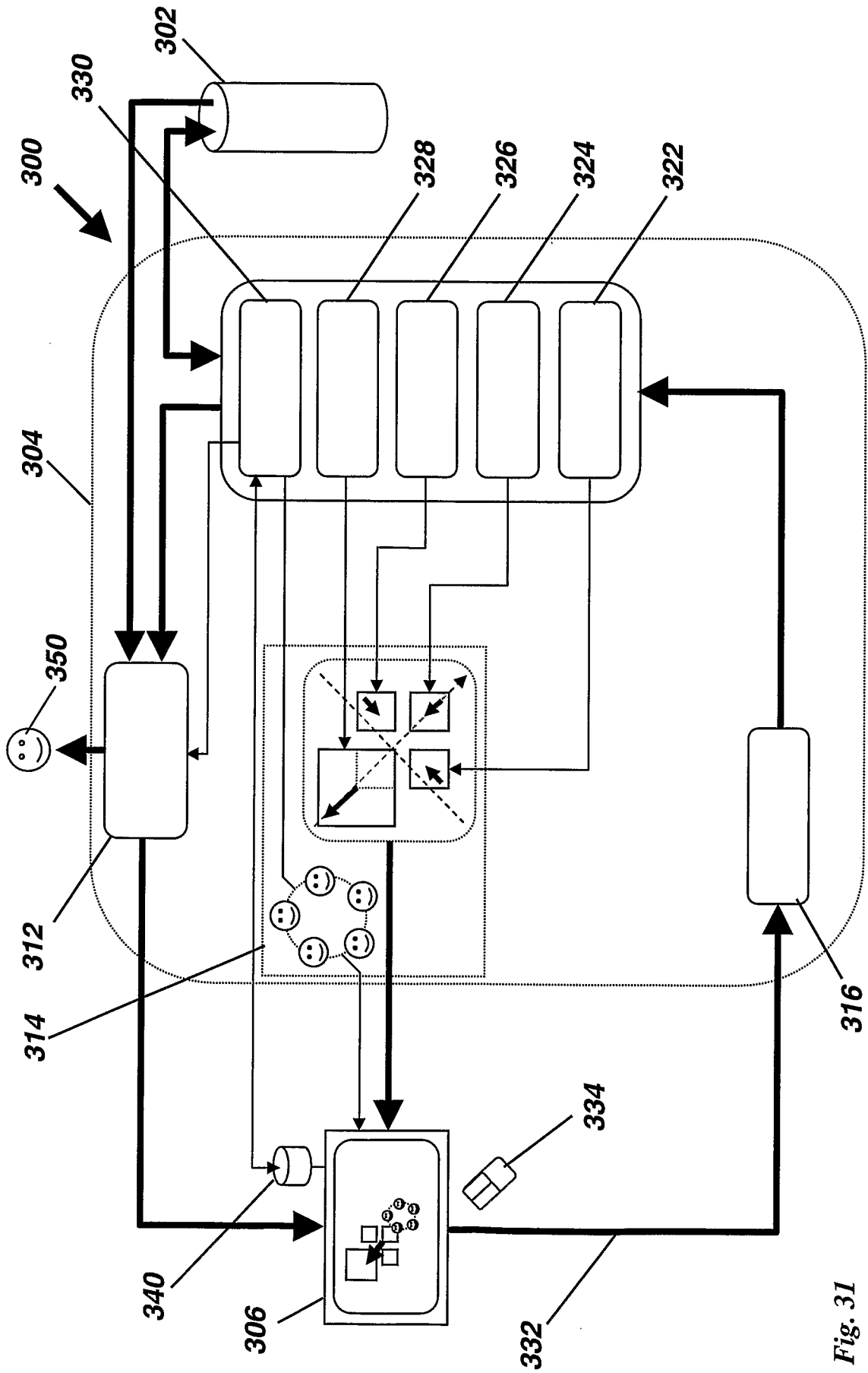Fig. 23

*Fig. 24*
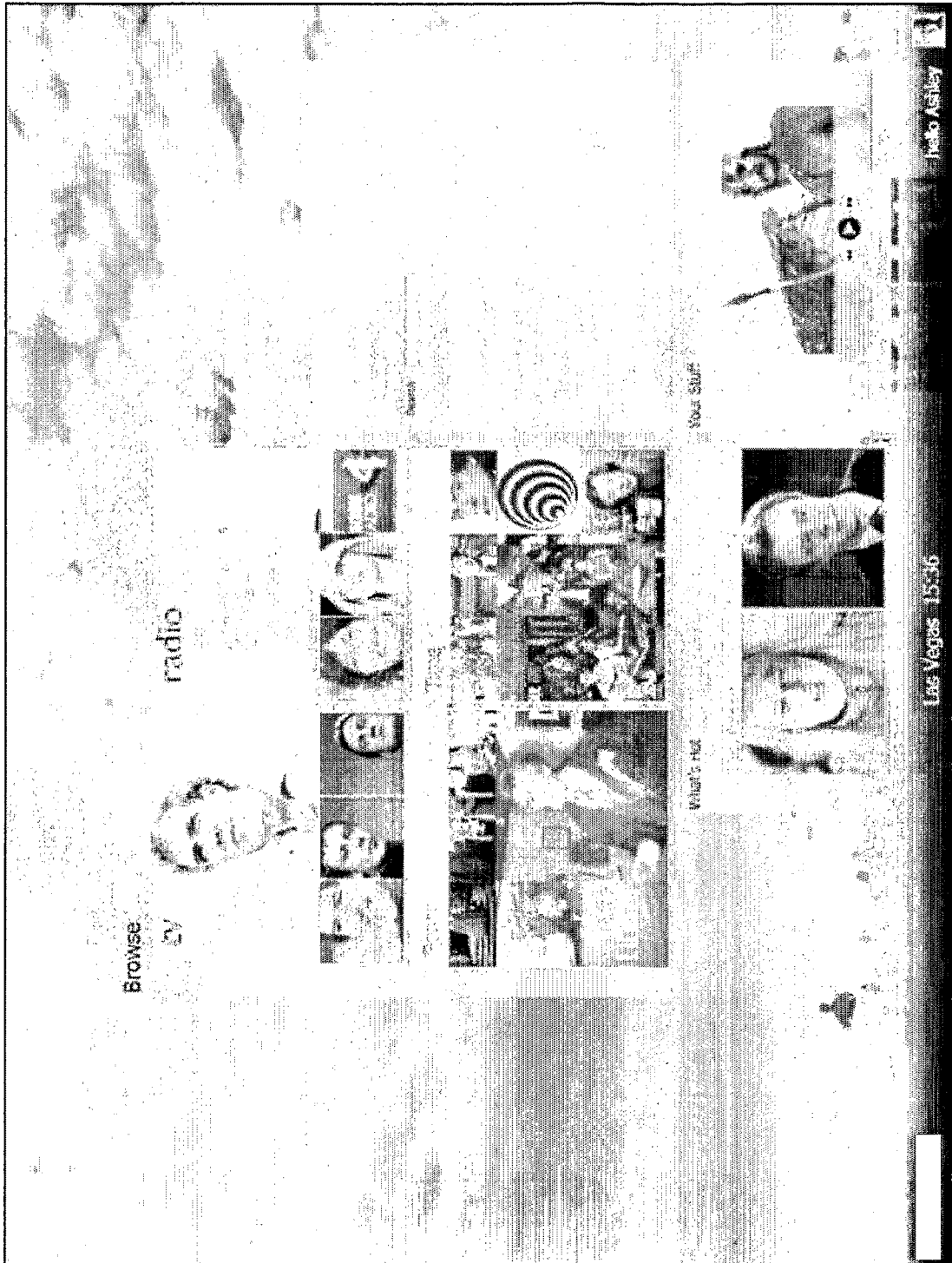
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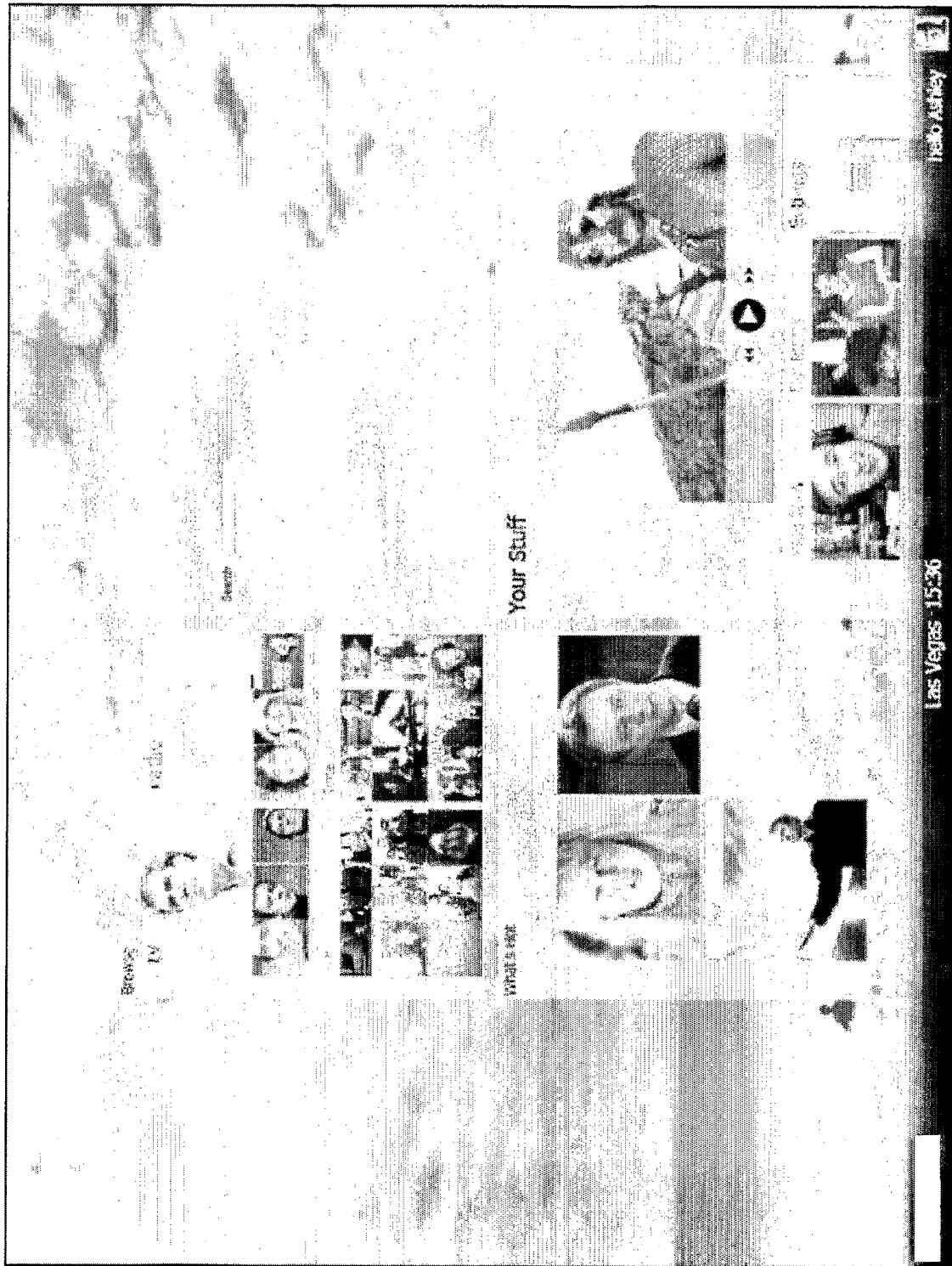
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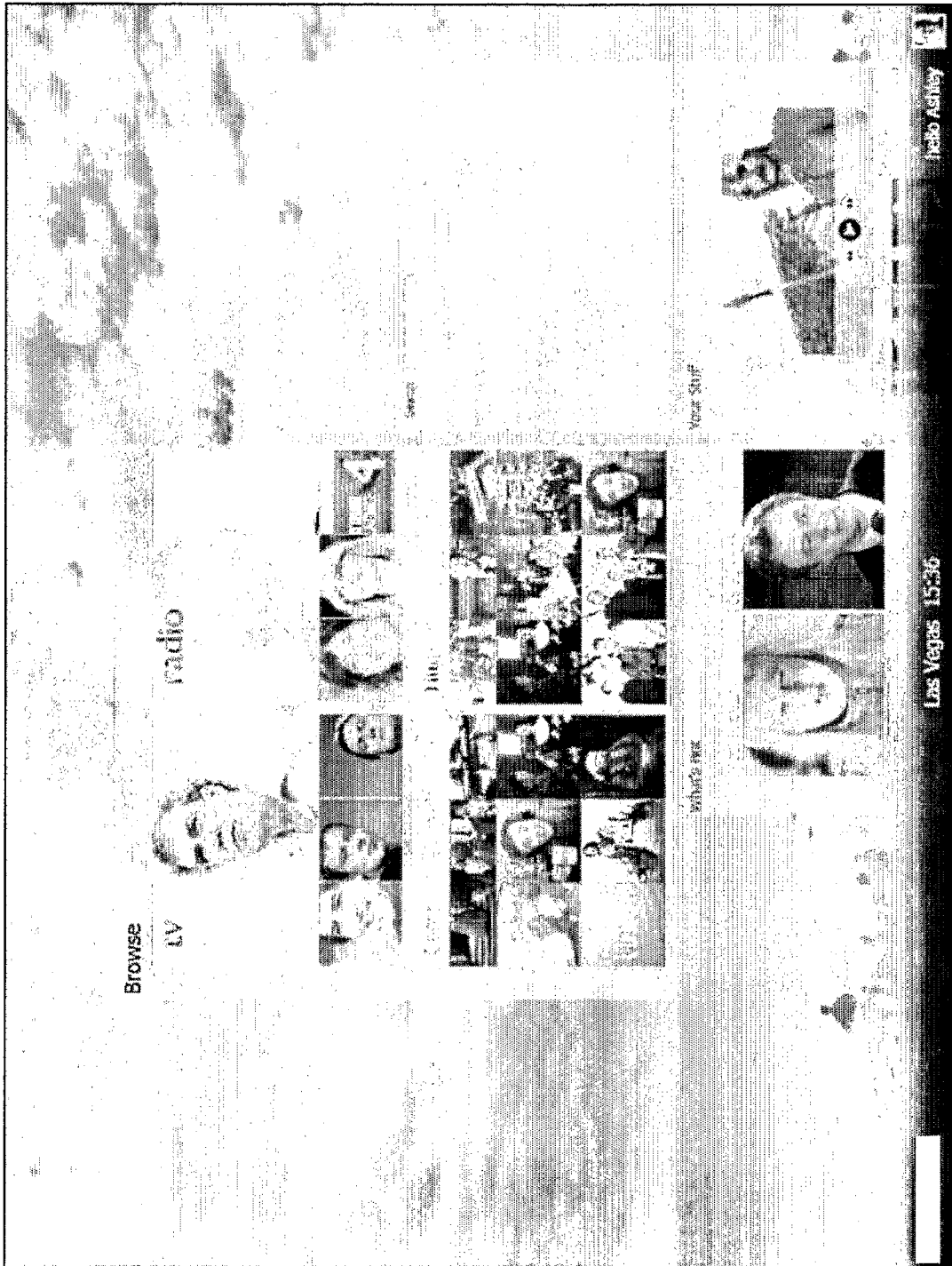
*Fig. 27*

Fig. 28

*Fig. 29*

*Fig. 30*

Fig. 31