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Beer

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[54] **METHOD FOR DYNAMICALLY SWITCHING BETWEEN VISUAL STYLES**

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[21] Appl. No.: **747,792**

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[51] **Int. Cl.^{6}** **G06F 3/00**

[52] **U.S. Cl.** **345/334**; 345/335; 345/343

[58] **Field of Search** 345/326–358, 345/977; 704/8; 395/200.3–200.83, 680, 682, 685

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[57] **ABSTRACT**

A method and system for allowing a user to retrieve a user interface and a visual style from a local or remote storage unit, rapidly display the visual stylized user interface, and dynamically switch between visual styles, without comprising security over a network system. Once displayed, the user can customize or configure the visual style of the user interface. The invention includes a programmable graphics user interface (PGUI). The PGUI is initialized to a default visual style or to a user's preferred style when the user logs onto a network system. In the preferred embodiment, after proper login, a user interface, stored on a server as a description in a text-based User Interface Language (UIL), is transferred to user's client system. The PGUI parses the UIL description and creates the user interface controls defined in the description. The PGUI then uses the currently selected visual style to display the user interface, and then reads any content (e.g., text, images, or other content) for the interface. The PGUI displays the content within the user interface, such as in a scrollable area or any other area described by the UIL. Once the user interface is displayed, the user can change the user interface, save the user interface, change the contents, save the contents, or switch visual styles. Compound or complex user interfaces can be easily created by combining simple user interface components.
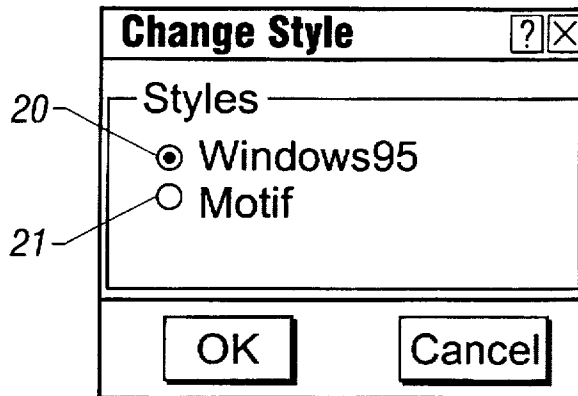
12 Claims, 3 Drawing Sheets

Figure 1

Figure 2

Change Style   [?][X]

┌─ Styles ──────────────────┐
20 — ⊙ Windows95
      ○ Motif
21 —

[OK]   [Cancel]

Figure 3

Change Style

┌─ Styles ──────────────────┐
20 — ◇ Windows95
      ◇ Motif
21 —

[OK]   [Cancel]
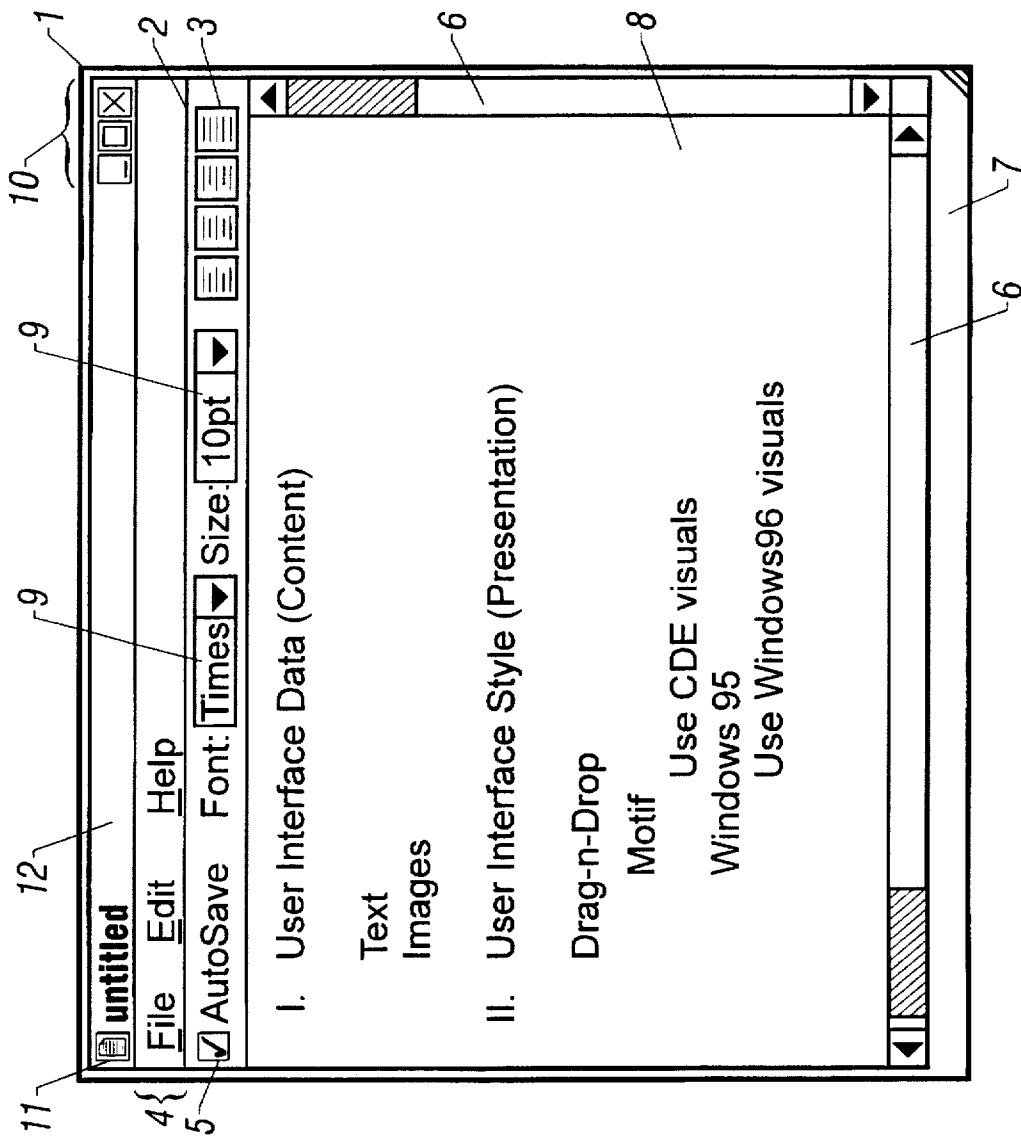
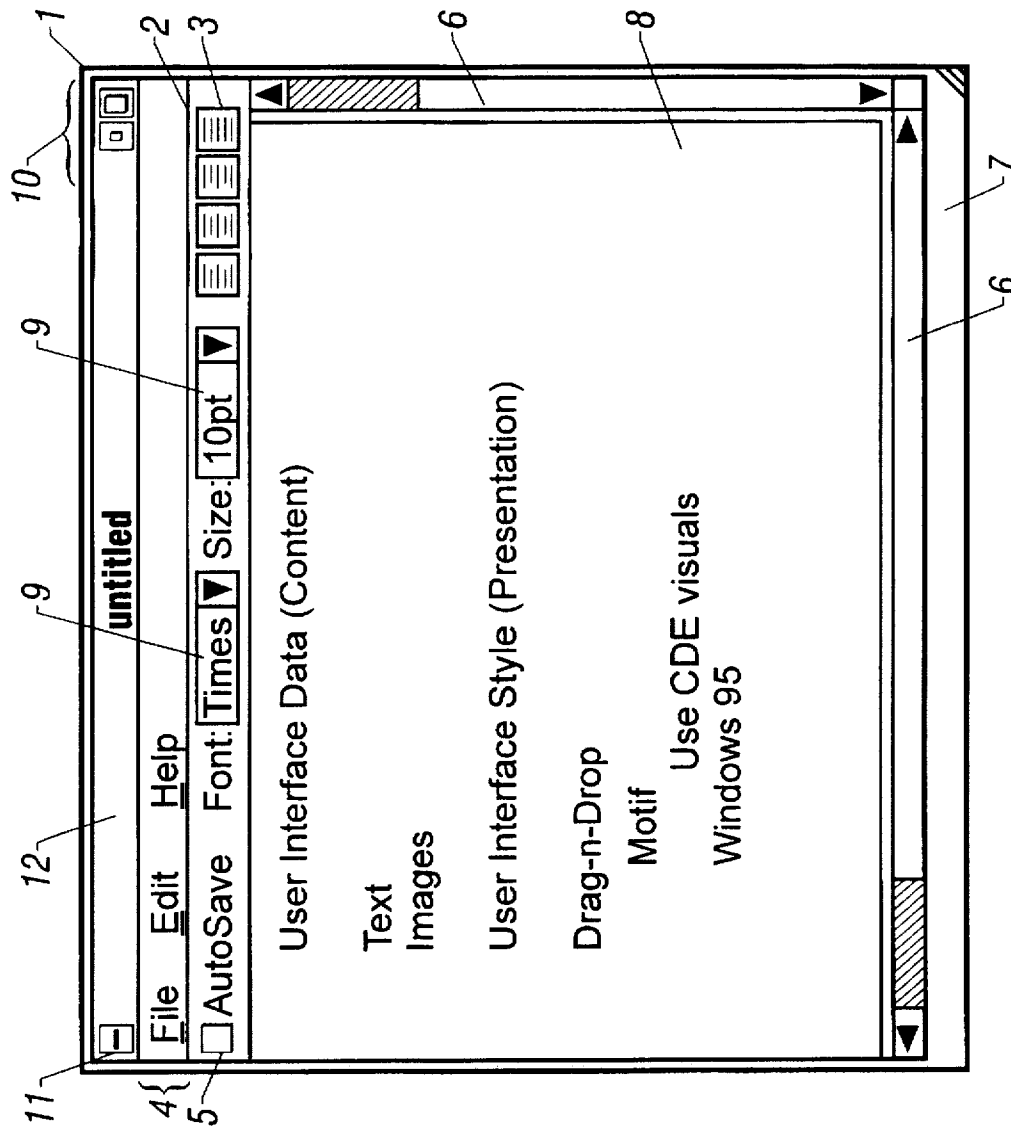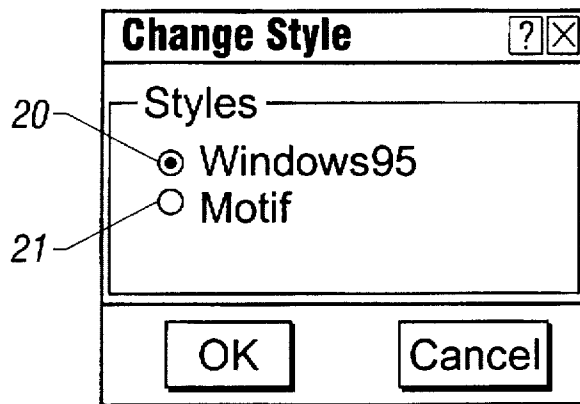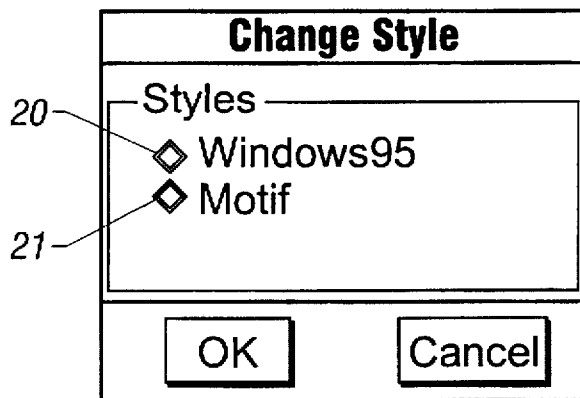**Figure 4**

METHOD FOR DYNAMICALLY SWITCHING BETWEEN VISUAL STYLES

This invention is related to the inventions entitled "System and Method for Distributing Objects and User Interfaces", and "URL Login", U.S. patent application Ser. No. 08/748,664, filed on the same date as the present patent invention.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to computer graphical user interfaces, and more particularly to a graphical user interface having dynamically switchable, user-definable visual styles.

2. Description of Related Art

Present computer systems, such as personal computers and workstations, generally have a graphical user interface (GUI). A GUI allows a user to interact with a computer system by using an input device (e.g., a pointing device such as a mouse or touchpad, a keyboard, or voice control) and icon or graphics-based commands and controls. Presently, different brands of computer systems often use different GUIs. For example, the Windows95 system from Microsoft Corporation differs in "look and feel" from the Macintosh System 7 operating system from Apple Corporation, both of which differ from the Motif GUI often used on UNIX systems. Further, applications that are nominally the same may differ in appearance and interaction depending on platform. Thus, a word processing application on one type of GUI-based system generally looks different from, and requires different user interaction than, the same word processor application designed for a different GUI-based system. For example, Microsoft Word has a different user interface on the Macintosh System 7 operating system than it does under the Windows95 operating system. Such differences present a problem for employers who may have widely disparate types of computer systems, due to the cost of training employees on how to use different user interfaces.

Another problem with current computer systems occurs with networked computer systems. Such systems generally have centrally maintained applications stored on a server computer that are accessed by multiple client computers by means of a networked file system. This type of configuration requires that an entire application be transferred from the server over the network to a client in order for the user to interact with the application. Today's applications are typically 1–2 megabytes in size, and can be significantly larger. Loading such large applications on a server and providing access to multiple users decreases the overall performance of a network. For example, the start-up time alone for such applications can take 60 seconds or more, resulting in a decrease of overall productivity of employees.

Loading applications from servers also presents a security problem. The machine code of an application can be altered in transit or on a server's local storage unit, which could lead to corruption or deletion of a company's sensitive or vital data upon execution of that code.

The design of applications themselves pose some problems for users. A user typically buys an application because it provides some kind of functionality that enables the user to perform a particular task. One of the problems that arises when acquiring prepackaged, or "shrink wrapped", applica-tions is that such applications often provide some of the

ficulty of learning applications. Another problem of such applications is that a user generally cannot modify the user interface to make the applications easier to use.

No solution is known to exist to simultaneously deal with all the problems discussed above. Accordingly, there is a need for a method and system to overcome these problems. The present invention provides such a method and system.

SUMMARY OF THE INVENTION

The invention comprises a method and system for allow-ing a user to retrieve a user interface and a visual style from a local or remote storage unit, rapidly display the visual stylized user interface, and dynamically switch between visual styles, without comprising security over a network system. Once displayed, the user can customize or configure the visual style of the user interface.

The invention includes a programmable graphics user interface (PGUI) that provides visual information about resources and objects throughout a network and on user systems. Objects are presented as icons which a user can manipulate by means of an input device, such as a pointing device, keyboard, touch screen, etc. An object can be opened by selecting the object with an input device (for example, by moving a display cursor over the object icon and double-clicking a mouse button), thereby invoking an associated application for viewing and/or manipulating the object.

The PGUI is initialized to a default visual style or to a user's preferred style when the user logs onto a network system. In the preferred embodiment, after proper login, a user interface, stored on a server as a description in a text-based User Interface Language (UIL), is transferred to user's client system. The PGUI parses the UIL description and creates the user interface controls defined in the descrip-tion. The PGUI then uses the currently selected visual style to display the user interface, and then reads any content (e.g., text, images, or other content) for the interface. The PGUI displays the content within the user interface, such as in a scrollable area or any other area described by the UIL. Once the user interface is displayed, the user can change the user interface, save the user interface, change the contents, save the contents, or switch visual styles. Compound or complex user interfaces can be easily created by combining simple user interface components.

The invention provides a method to present a user inter-face with multiple selectable visual styles, and defined in a simple markup-text form that can be quickly retrieved from a server to define a user interface on a client. The invention also reduces security risks inherent when loading applica-tions from servers by avoiding use of machine code in defining a user interface. The invention further provides a method to separate the functionality of user interface con-trols from the display of the user interface controls, and a method to separate the functionality of an application from the display of the user interface. The invention provides a simple method for adding new functionality and new con-trols to a user interface. Finally, the invention provides a method for using a plurality of UIL's with the capability of specifying each UIL in a user's native natural language.

The details of the preferred embodiment of the present invention are set forth in the accompanying drawings and the description below. Once the details of the invention are known, numerous additional innovations and changes will become obvious to one skilled in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a screen shot showing an exemplary represen-

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