Integration with Other Solaris Components

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Integration with Solaris OpenWindows

Solaris VISUAL applications are X client programs running in an X window system environment such as SunSoft's Solaris OpenWindows. The X window system is made up of several components. The most important of these is the X server, which is responsible for managing output requests from client applications to draw on the display and for distributing input events to the appropriate client applications.

Client applications and the X window server communicate via the X protocol. During a work session, client applications generate protocol queries and requests using the Xlib programming interface or an X toolkit; the server processes these requests.

X applications create, use, and destroy resources during their operation. A resource is an abstraction of a complex entity, such as a window or a pixmap. Resources allow applications to interact with the physical features of a display and to use state information about the display, such as window position and colormap.

Solaris VISUAL application programs use Xlib or X toolkit functions to connect to the server, create the window on the display, and handle event interpretation. The Xlib or X toolkit calls coexist with the Solaris VISUAL interface (XGL, XIL, PEXlib, DPSlib or Xlib) graphics calls, sharing the same process resources and address space and drawable area on the screen. Xlib or an X toolkit manage the relationship among the windows, provide input to the application, and provide the user interface system. An X toolkit such as Motif or OLIT also provides an application with a set of user interface mechanisms that ensures a standard 'look and feel' across applications using the same toolkit.

Graphics Interface Interoperability and Independence

Any graphics API may render to the same window as another, at the same time. However, no interface is specifically aware of the rendering that other interfaces have done to the window, and will not assume responsibility to re-display due to repaints, or rendering. It is SunSoft's goal to provide complete interoperability of the Solaris VISUAL graphics components, where each foundation library is aware of the others and the sequence of drawing operations is preserved.

Application programmers which call more than one interface, such as XGL and Xlib, should be careful when mixing calls from both interfaces. Latencies involved in communication between high-level interfaces, graphics hardware and the window server make it possible for a primitive drawn by one interface to appear out of order to a primitive drawn by another interface. If the order of the primitives to be rendered is important, the application needs to assume responsibility for synchronizing among the multiple interfaces into an X window.

All of SunSoft's interfaces render onto X windows, and all work in an integrated manner with the any X Windows-compliant toolkit. Solaris VISUAL will conform to toolkit standards defined by the Common Open Software Environment. Third-party graphics interfaces layered above the Solaris VISUAL foundation libraries should also work well under OpenWindows.

Solaris LIVE!

Solaris LIVE! is SunSoft's strategic platform for distributed multimedia. Solaris LIVE! incorporates a number of APIs to provide the features and services needed by multimedia applications. Solaris LIVE! utilizes several Solaris VISUAL interfaces, as well as the OpenWindows window system, OpenWindows DeskSet and the ToolTalk messaging system.

Solaris LIVE! also includes access to audio capabilities available on the desktop system and integration with a number of third-party APIs managing device control, text-to-speech translation and speech synthesis.

Solaris LIVE! uses these Solaris VISUAL interfaces for managing display of geometry-based multimedia (such as animation) as well as image-based multimedia (digital video, image, compression/decompression, etc.).

Solaris VISUAL and Solaris LIVE! are complementary suites of APIs with complete interoperability under the Solaris platform.

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