

Sun's Adoption of GNOME: What It Means for Solaris™ Software Users

Technical White Paper
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Chapter 1

Preface

This white paper is one in a set from Sun Microsystems relating to the GNOME desktop and its adoption by Sun for use with the Solaris™ Operating Environment. All of the white papers are available at www.sun.com/gnome/. Other white papers include:

- GNOME 2.0: Developing with the Accessibility Framework
- GNOME 2.0: An Innovative Platform for Building Advanced Applications

GNOME software is made possible by the hundreds of members of the GNOME open source community around the world. Sun would like to acknowledge the efforts of Ximian (for the Evolution personal information management system, Bonobo, and many other GNOME modules) and Red Hat (for ORBit, GConf, and GTK+ enhancements).

Chapter 2

Executive Summary

Sun Microsystems has long been committed to four guiding principles that ensure the success of its software and network technologies:

- Adoption of open systems strategies is more conducive to business growth than those derived from proprietary systems
- The network is the foundation upon which all computing systems should be constructed
— *“The Network Is The Computer”*
- Actively seeking and embracing innovation
- Making the desktop accessible for users with disabilities

Sun’s adoption of GNOME as the future desktop for the Solaris Operating Environment underscores the company’s ongoing commitment to these principles. The GNU Network Object Model Environment (GNOME) offers an integrated desktop environment built on open source software and open standards. It provides powerful features for deploying network-based applications. And with its global community of developers, GNOME is poised to drive significant innovation on the user’s desktop as well as in the applications that run on it.

With GNOME, users enjoy a compelling desktop environment built upon the key foundation elements needed for success in the Internet age, including:

- Network-centric architecture
- Intuitive user interface

- Full suite of powerful mainstream applications, ranging from office productivity to advanced file management to Web browsing
- Modern, component-based environment
- Extensive support for open standards
- Scalability across a broad range of desktop systems and devices
- Built-in accessibility support

Intended for customers who currently use the Sun™ platform, this paper reviews the commitment Sun is making to the GNOME open source community. The paper also includes a brief comparison of GNOME to the Common Desktop Environment (CDE), the current desktop for the Solaris platform, and articulates the advantages that GNOME delivers.

The GNOME Project

GNOME is open source software distributed according to the GNU General Public License (GPL). The license requires that changes to the source code made by Sun or others must be made generally available. Development is steered by the GNOME Foundation, of which Sun is a charter member. Sun fully supports the GNOME project and its open source principles, delivering enhancements and new packages back to the GNOME community for the benefit of all.

The GNOME project is an ongoing community development effort intended to build a complete, easy-to-use accessible desktop environment for users and a powerful application framework for software developers. It is an object-based desktop with an extremely customizable look and feel. It provides users with a unified, competitive desktop incorporating key design elements, such as:

- Full, network-based configuration management and deployment
- Easy installation options
- Technology scalability across a broad range of desktop systems and devices
- Integrated accessibility framework and assistive technologies

Sun Commitment to GNOME

Sun is working closely with other GNOME Foundation members to enhance the GNOME desktop and deliver it to Sun customers with the same high quality and reliability expected in all Sun products. As GNOME ships with the Solaris Operating Environment, Sun will provide the same level of support as it does today for CDE. Sun also plans to utilize innovative ways to ensure that customers are always able to rapidly obtain the latest versions of the software.

Sun's adoption of GNOME means an easier to use, highly configurable environment for Sun customers. IT managers will realize benefits in lower administration costs with a single desktop environment available for a wide range of UNIX® software-based systems, and users will not have to cope with the complexity of learning disparate desktop systems. Application developers will benefit from the use of a familiar environment that is available on many computing platforms.

GNOME and CDE

Today, Sun's desktop environment for the Solaris Operating Environment is based on CDE, an established, standards-based desktop environment that provides a consistent graphical user interface for users of UNIX workstations. GNOME leapfrogs CDE in terms of usability, visual design, core features, and accessibility; it also provides much tighter integration with network and Internet services. As a result, it is a much more compelling environment for users who need to leverage remote data and services to get work done — in other words, almost anyone using a computer today.

The GNOME desktop will also include a set of office productivity applications, including a Web browser, word processor, presentation package, spreadsheet, graphics editor, mail client, appointment calendar, contact manager, Web publisher, and image editing tool.

GNOME makes it possible for any user to harness the capabilities of the underlying Solaris Operating Environment without having to be a UNIX guru or a command-line wizard. In particular, GNOME's file manager, Nautilus, provides advanced capabilities to locate and manipulate local and remote files — as well as global information resources. GNOME also includes a powerful component model that makes it much easier to create desktop applications that support compound documents and can be scripted and integrated with other applications.

Although Sun continues to support CDE and the needs of customers committed to it, future investments will be focused on enhancements to GNOME. For example, GNOME will be the focus of Sun's efforts in the area of desktop accessibility, enabling developers to write accessible applications that utilize assistive technologies such as voice recognition, screen magnification, and pointing devices.

Chapter 3

Sun and GNOME

What Sun Is Doing

Sun is a charter member of the GNOME Foundation and an active member of the GNOME community. Sun is committed to delivering a high-quality GNOME user environment for the Solaris Operating Environment, and to providing dedicated resources for the ongoing development and enhancement of GNOME.

The adoption of GNOME further strengthens Sun's position as a provider of powerful desktop user solutions. Just as important, it provides the GNOME community with the benefits of Sun's investments, including resources focused on extending GNOME, and an attractive deployment platform with the Solaris Operating Environment. With the unification and winning combination of Sun and the GNOME community, customers enjoy leading-edge innovation, technologies, products, and services.

Sun is also engaged with the open source community in the area of productivity software. It has provided most of the StarOffice™ source code to OpenOffice.org so that others can use it pursuant to the GNU Lesser General Public License or the Sun Industry Standards Source License. This software, which runs in the GNOME desktop, is an important part of Sun's desktop strategy.

Why GNOME?

GNOME is the future. It provides the foundation required to fully exploit the advantages of a networked environment while delivering more capabilities to the user in an intuitive manner. And it meets the demands of today's IT departments, development organizations, and end users who require a degree of consistency across systems from multiple vendors without sacrificing the configuration flexibility needed to satisfy individual needs.

GNOME's open, component-based architecture and framework is poised for the future, providing key advantages and solutions for today and the future business computing needs of the enterprise, ISVs, developers, ASPs/ISPs, and user communities.

GNOME provides the following key features and benefits:

- *Network-centric architecture*: Transparent integration with network and Internet services reduces complexity and raises user productivity. Secured access to the user environment eliminates intruders from unauthorized access.
- *Intuitive user interface*: GNOME's appealing and flexible design promotes easier user interaction and navigation with desktop and global information. Users are up and running immediately.
- *Full suite of powerful mainstream applications*: A key benefit of GNOME is the ability to run virtually all existing CDE/Motif and Java™ technology-based applications. This includes Sun's award-winning StarOffice productivity suite (for word processing, spreadsheets, and presentations) and the Netscape™/Mozilla™ browser. In addition, Evolution, an advanced e-mail, calendar, and address book client, is in development.
- *Extensive support for open standards*: Built-in universal standards for ongoing compatibility and interoperability are good for customers because the source code is always available if an issue needs to be resolved quickly. Investment protection and low total cost of ownership are also realized through the multiplatform support inherent in GNOME.
- *Component-based environment*: GNOME provides a powerful, flexible, and open GUI toolkit for software developers (GTK+), which also supports component-based applications. In addition, Java technology-based applications work without modification under GNOME, allowing developers to use familiar Java development tools and continue to take advantage of the portability and productivity that the Java platform provides.
- *Scalability*: GNOME technology scales across a broad range of desktop systems and devices.
- *Accessibility*: GNOME's built-in accessibility framework provides developers with the accessibility toolkit (ATK) and assistive technology service provider interface (AT-SPI), the infrastructure needed to quickly build innovative desktop solutions for users with disabilities.

Sun's Commitment

Sun is providing considerable resources to deliver the GNOME desktop on the Solaris Operating Environment. Sun's expertise with CDE and the Solaris platform will be leveraged to provide transition tools to assist Sun users and developers in moving to GNOME. For software engineers, a broad choice of development tools is already available, and the ability to run software based on Java technology means that existing Java technology-based development tools may be used as well.

The entire GNOME community will be enriched by Sun's contributions, which will include:

- Reliability and quality assurance
- Enhanced accessibility
- Documentation
- Internationalization and localization
- Mozilla integration and enhancements

Sun will continue to take an active role in the GNOME community and will work to enable ongoing innovation by:

- Tracking GNOME advances and working with GNOME community members to assure consistency and easy integration
- Forging technology partnerships for ongoing team development
- Providing innovative ways for customers to easily obtain and update the GNOME desktop environment
- Empowering the workforce by making accessibility an intrinsic part of the desktop

Chapter 4

GNOME and CDE

Commitment to Our Customers

CDE users and developers will continue to be supported in accordance with standard Sun support policies. Because many of its customers have made significant investments in CDE, Sun will help preserve them. With Sun's commitment to GNOME, customers have additional choices for the desktop environment, with the same level of support.

In addition, Sun will provide support programs to help customers in their transition to the GNOME environment.

Feature Comparison

CDE set an early standard for manageability and customization of the desktop from the administrator's point of view. GNOME transfers much of this power to the user, while respecting the important user-system-network administration paradigm. GNOME leapfrogs CDE in terms of core architecture features, usability, and visual design, while it also provides more transparent integration with network and Internet services. As previously mentioned, GNOME will provide enhancements to key elements of the desktop, including:

- Network-centric architecture
- Intuitive user interface
- Full suite of powerful mainstream applications
- Modern, component-based environment
- Extensive support for open standards

- Scalability across a broad range of desktop systems and devices
- Built-in accessibility support

Network-centric Architecture

GNOME, like CDE, enables organizations to take full advantage of all the features and benefits that the Solaris Operating Environment offers. For example, both allow complete, transparent access to network resources. Users can find and retrieve files, print to network printers, or run applications that are located on other systems.

Today, organizations are finding it necessary to move data between desktop systems, PC-based laptops, and PDAs, as well as run applications over the network. It is imperative that these systems be able to exchange information and provide a uniform user interface while ensuring data security and integrity. As such, providing access and sharing of data is a vital feature of the GNOME desktop. The GNOME desktop's architecture, the Virtual File System, is integrated in its file manager, giving seamless access to any type of file-based resource across networks.

Through its component-based model and support of industry standards, GNOME enables more sophisticated capabilities — such as compound documents — to be easily created. It is GNOME's network-centric architecture that delivers this transparent integration with network and Internet services in a manner that reduces complexity and raises productivity.

Intuitive User Interface

GNOME provides an entirely configurable desktop environment, ranging from easy access to menus and applications to customization of the GUI look and feel. This new level of customization enables the user to tune the entire desktop for maximum productivity. A large step in this direction is the introduction of *themes*, which enable the administrator to pick a default look and feel that will make the user comfortable. At the same time, the look and feel can be easily customized to suit the user's preferences.

GNOME also gives users a central place to configure the desktop. The GNOME Desktop Preferences menu gathers all the configuration tools in the system into one place, simplifying the user experience.

Workspace personalization includes icons, backdrops, colors, and customization tools. Multiple workspaces for application and information compartmentalization are provided, as well as an intuitive file explorer, window manager, comprehensive online help system, and integrated system and network security. GNOME also makes it easier to store files on the desktop, launch applications and utilities from pop-up menus, and track running applications with task bar icons. Menus and icons generally display help messages when the mouse pointer is placed over them.

Full Suite of Powerful Mainstream Applications Available

Transitioning to GNOME is made easier because GNOME preserves existing software investments through its ability to run virtually all CDE, Motif, and Java technology-based applications. This means that powerful applications, such as Sun's StarOffice productivity suite, which provides advanced word processing, spreadsheet, and presentation modules, can be used with GNOME. StarOffice, based on the OpenOffice.org open source project, is well known as a low-cost alternative to Microsoft Office, and includes file filters that allow most Office documents to be opened.

Evolution, an advanced e-mail, calendar, and address book client, is currently in development, and is expected to be integrated with a future release of GNOME 2.0.

GNOME 2.0 comes with a core set of utilities and accessories to help improve productivity including a text editor, calculator, CD player, media player, and image viewer. In addition, dozens of other open source applications are in development, spanning a variety of interesting subject areas. See www.gnome.org for details.

Extensive Support for Open Standards

To remain competitive in an increasingly efficient global marketplace, organizations must be able to access and provide more information faster and with greater reliability and accuracy than ever before. Better data distribution, integrated business processes, and networked communications are essential if companies are to increase global corporate collaboration, streamline overhead costs, and use information more effectively to enhance the value of their products and services.

GNOME is compliant with many important modern standards including X11, MIME, CORBA, and XML, providing seamless data interchange and interoperability. In addition, office productivity applications used with GNOME, such as StarOffice software, have the ability to read and write many popular Microsoft Office file formats.

The OpenGL® standard for high-end, 3D graphics is already provided with the Solaris Operating Environment, and is available from GNOME. With continuing support for Sun's advanced frame buffers, users and developers will experience no disruption — they can continue to design and run high-end graphics and simulations.

GNOME is also available for different flavors of UNIX software (such as the Solaris Operating Environment, GNU/Linux, BSD, HP-UX) and for numerous chip architectures including SPARC®, Intel, Alpha, and PowerPC processors.

Modern, Component-based Environment

Most of today's desktops include a mechanism to facilitate modular programming through reuse of components and objects. The current GNOME desktop has much of the infrastructure necessary to support this style of programming.

The primary library for developers is GTK+, a toolkit that provides standard user interface components (push buttons, check boxes, text boxes, and so on) that are the building blocks of application software. These components integrate with GNOME's Accessibility Toolkit to make it easy to create software that can be used with screen readers, screen magnifiers, and other assistive technologies.

Beneath the surface of GNOME is ORBit, a very fast implementation of a Common Object Request Broker Architecture (CORBA) Object Request Broker (ORB). It allows software components to interoperate seamlessly, regardless of the language in which they are implemented or even the type of machine on which they run.

Built on top of ORBit is Bonobo, a library for supporting the GNOME component architecture. This powerful new module is used to create reusable components and compound documents, delivering many of GNOME's unique benefits.

Chapter 5

Documentation and Support

The GNOME 2.0 Desktop provides extensive online help. In addition, it comes with helpful documentation to make the transition from CDE to GNOME a smooth one, including:

- GNOME 2.0 User Guide
- GNOME 2.0 Administration Guide
- GNOME 2.0 Accessibility Guide

The GNOME 2.0 Applications Menu includes a CDE Menu item that provides easy access to most of the standard applications provided with CDE. Sun also provides product support services through post-sales support options such as those available through SunSpectrumSM services. See www.sun.com/service/support for more information.

Chapter 6

Conclusion

Sun is confident that GNOME will rapidly become the preferred desktop for Solaris software users. Not only does it provide a compelling user experience well beyond anything available today, it delivers an environment that enables computer users to create, edit, analyze, and exchange information much more easily in highly distributed heterogeneous environments. The result is a collaborative computing experience that maximizes productivity.

Sun is determined to make the transition to GNOME a smooth one. As previously noted, most existing CDE and Java technology-based applications should run in the GNOME environment, helping to preserve existing software investments. Sun will also be developing tools and materials to ensure that personal information — such as e-mail and calendar information — can be easily converted.

Sun does not undertake such momentous changes lightly. The choice of GNOME was made after a careful analysis of its architecture and a review of its implementation. GNOME is the best desktop environment for Sun, and deserves widespread adoption throughout the industry.

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