KDE – your next generation business desktop?

Eva Brucherseifer
KDE e.V., Darmstadt, Germany
eva@kde.org

Abstract

KDE, the “K Desktop Environment”, is an Open Source platform for desktop applications on GNU/Linux and other Unix systems. In its recent version KDE 3.1 the most popular desktop for Linux/UNIX systems presents itself with more features and faster than ever. It offers software developers a sophisticated, stable platform with cutting-edge technologies. Users, that this paper addresses, especially benefit from a consistent and familiar Look & Feel and a set of more than 50 applications that cover basically all typical tasks within a home or office environment. All these applications have an inherent internationalization support and are therefore easy to handle for users with different mother tongues. With these features and an exemplary stability the system is no longer just an interesting experiment for technology enthusiasts but becomes an appropriate choice for usage in business environments.

This paper that complements a presentation at the LACFREE 2003 conference features the platform from a users point of view, introduces different core features of the KDE system and shows the benefits that result from system modularization, integration and extensibility. These system characteristics help users to solve their tasks in a coordinated, very efficient and convenient way.

With more than 800 registered developers and contributors from different countries KDE is one of the most extensive Open Source projects world-wide. Being an insider who works hands-on within the project the authors presents interesting background information about the various active contributors and their work as well as about the way KDE meanwhile receives attention and support by major companies and starts spreading within the administrative, financial and business sector. The paper finally aims to point the reader to further information about KDE and enables interested parties to directly access and use the software suite.

Keywords

Open Source Software, Linux, KDE, Desktop Environment

I. Introduction

Open Source projects and especially the Linux operating system and its applications have gained a remarkable momentum within the last years and are substantially influencing the way software is developed, distributed, deployed and used. So far Linux has especially gained a significant market share in the server area, whereas its desktop usage is still limited to a smaller percentage of individual users. Due to the availability of powerful tools, the estimated savings in the total cost of ownership (TCO) and the flexibility that Open Source software offers the situation is now changing in the desktop area as well.

This paper shows how the KDE desktop which offers a comprehensive and powerful desktop environment is a major step stone towards the usage of Linux systems in administrative, commercial and government environments as well. We will mention planned improvements where it is appropriate – KDE 3.2 with its planned release date in December 2003 will again bring a lot of improvements throughout the whole desktop including some major step stones.

The paper is intended for an audience that is interested in the features of the KDE desktop, the technology and concepts it uses and is structured in the following manner: Section II introduces KDE basics and is followed by a presentation of selected KDE applications for typical business environments in Section III. Section IV and V introduce usability aspects and show how KDE eases the work of system administrators that are responsible for setting up, configuring and maintaining a large number of systems. This is especially relevant in the context of many users that are migrating from Microsoft Windows environments that they have used so far. After this important aspect we present selected information about the people who together work in the project in Section VI. Finally we conclude the paper with a summary and outlook on future KDE activities as well as a collection of URLs for obtaining the software.

II. KDE – THE THINGS YOU SEE FIRST

KDE [8] is a network transparent contemporary desktop environment for UNIX workstations. It seeks to fill the need for an easy to use desktop for UNIX workstations, similar to the desktop environments found under the MacOS or Microsoft Windows. We believe that the UNIX operating system is the best operating system available today. In fact UNIX has been the undisputed choice of the information technology professional for many years. When it comes to stability, scalability and openness there is no competition to it. However, the initial lack of an easy to use contemporary desktop environment has prevented UNIX from finding its way onto the desktops of the typical computer user in offices and homes.

Even though there have been several sophisticated window managers for the traditional X11 desktop these have had a number of shortcomings and drawbacks such as no common Drag and Drop protocol, no easy dialog based desktop configuration and no unified application help system. Features such as network transparency on the application level or a compound document framework have been missing in basic X11 and window manager based installations as well. Finally the authoring of X11 applications with low level means such as the X11 widget sets and without the help of a powerful toolkit was (extremely) difficult and tedious. This led to a lack of applications that have meanwhile become standard on a typical PC desktop running Microsoft Windows and has for a period of time prevented the success of Linux based systems for not only server but also desktop usage.

The KDE project is a large open group of developers consisting of several hundred software engineers, translators, documentation writers and artists from all over the world. Their commitment to free software development is the core aspect that unites this heterogeneous crowd. Meanwhile the KDE system startup screen (Figure 1) has become familiar to the users of many different Linux distributions and forms an integral part of the user interface on millions of systems.

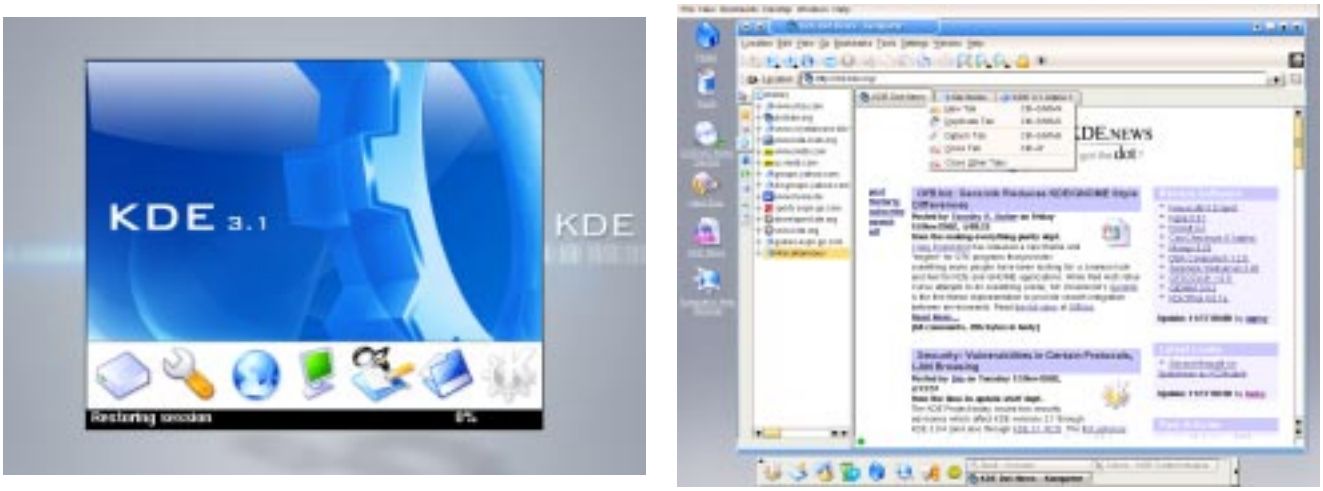

Fig. 1
THE KDE SPLASH SCREEN AND THE KONQUEROR BROWSER

The KDE project is a free software project. This means that everyone has the right to run the software for any purpose, to study how it works and adapt it to his needs, to redistribute it and to improve it, releasing the improvements to the public [7]. This implies in particular that KDE is available free of charge to anyone and will always be free of charge to anyone. This guarantee is of great importance especially also for companies and institutions that are going to base their long-term IT on Linux and KDE installations or plan to even provide own services on this basis.

Among other things KDE brings a good looking contemporary desktop with complete network transparency, standardized menu and toolbars, key bindings, color-schemes, consistent dialogs etc. and an inter-

nationalization that makes KDE available in more than 50 languages to the user. The project provides a great number of useful KDE applications with the konqueror browser as the probably most prominent and familiar one. It allows to easily navigate both the World Wide Web as well as the local file system. Its flexibility and universality that lets users view and handle numerous file formats is based on the KDE component technology KParts.

But browsing the web and manipulating files is only a small fraction of what KDE offers. Meanwhile it has especially proven to also provide the tools and features that are needed in a typical business or office environment.

III. Applications for your Typical Business Needs

There are on-going efforts to develop a comprehensive suite of office applications that form a functional counterpart and equivalent to the tools that are provided by the Microsoft Office suite that most users in traditional environments are used to. This forms the basis for a smooth migration that re-uses and exploits the existing skills of employees. The upcoming release 1.3 of KOffice will again bring a lot of new functionality and improved stability. Powerful filters for document import and export ensure that documents can be exchanged with other systems that have not undergone the migration step to Linux so far. KOffice integrates within the KDE desktop and ensures that both standard office tasks can be performed as well as documents from the Windows platform can be read and written.

Collaboration between multiple users is a typical requirement in business environments. It is supported with applications that allow to communicate in the traditional store-and-forward email manner.

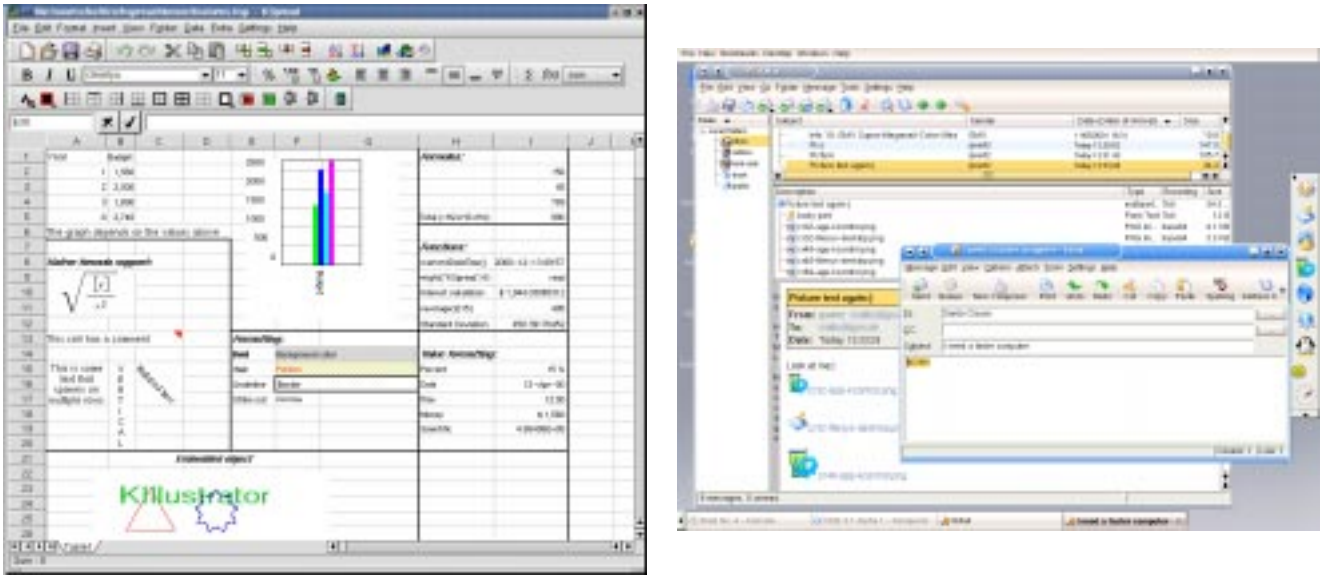

Fig. 2
KDE office and email tools

The KDE email application KMail integrates cryptographic mechanisms that ensure that sensitive and confidential information can securely be transported over the Internet. It interacts with document encryption and signing software such as PGP and makes use of an S/MIME based transport [1][13] for payload protection. The S/MIME implementation called Ägypten was sponsored by German government to enable encryption in the German e-government projects [18]. The integration in a common desktop ensures that information such as address or contact lists does not have to be stored multiple times. The KAdressbook component can use the Lightweight Directory Access Protocol LDAP as its back-end for address storage and is used in applications such as KMail and KOrganizer, KDE's calendar manager as well.

These applications of the personal information management (PIM) suite can be used as standalone programs too. KDE 3.2 will furthermore include a new project named Kontact which uses the KParts component technology to integrate all PIM applications under one roof. This way Kontact enables an Outlook-like use of KDE PIM (Personal Information Manager) components, including the ability to use an Outlook 2000 server via WebDAV. A completely free groupware solution will be offered by the on-going kroupware project, which is initiated by the German government [14] and can be seen as a major step stone towards the KDE business desktop. It consists of the free groupware server Kolab and integrates well-established free server software such as the Apache httpd, MySQL, PHP and OpenLDAP and client functionality which is integrated into the KDE PIM suite.

Helpdesk support forms an important necessity in business environments. Within this scope KDE supports the IT departments in two typical ways. Firstly, company documentation integrates perfectly in KDE help system. The KDE documentation is written using the XML docbook format and is provided as HTML. Secondly, significant benefits are gained by sharing the KDE desktop between multiple individual users that are spread in a local area network or even all over the world. A user can create personal invitations to the helpdesk team member who in return controls the user's mouse and keyboard. Using this technology the helpdesk team member can explain applications or investigate the problems that the user reports within the environment where they actually happen.

IV. Flexible System Configuration and Exemplary Usability

KDE presents itself with a consistent look and feel of all KDE applications and offers an integrated help system that supports a convenient and consistent access to help information on the use of the KDE desktop and its applications. System customization is typically performed with a centralized consistent dialog driven desktop configuration (Figure 3).

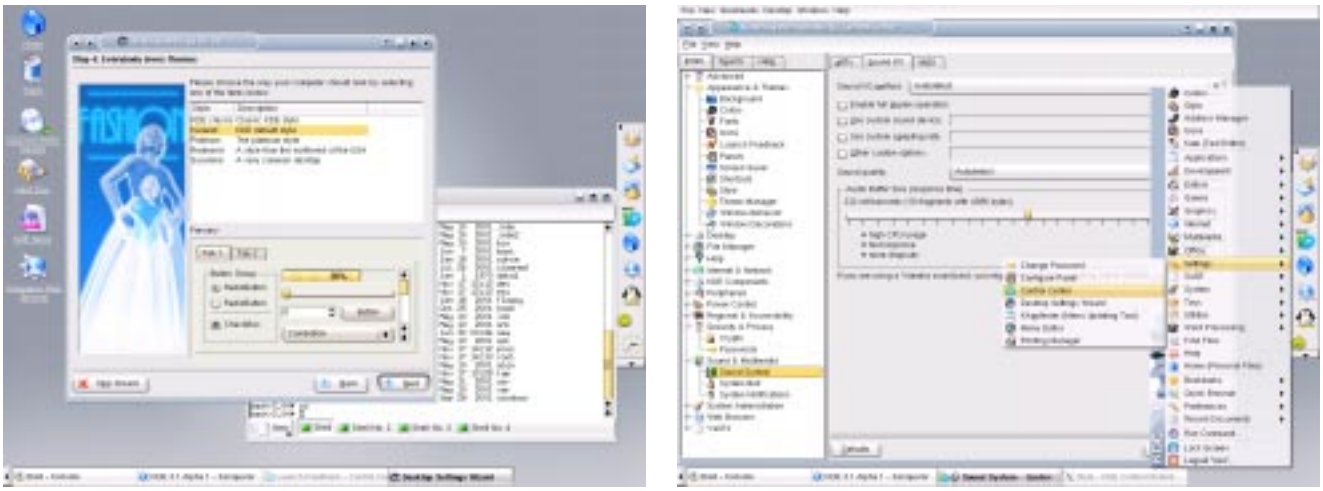

Fig. 3
Flexible System Configuration with KPersonalizer and the System Control Center KControl

The configuration results are stored in system configuration files and can therefore easily be deployed to a large number of individual machines once an optimal system setup has been found and agreed upon.

A special contribution of KDE system is its strategy to support and improve the consistent handling of applications. Activities can usually be activated and performed in several ways (by for instance double clicking on an item and using keyboard or mouse input then) so that users with different preferences can choose their preferred working mode. Central configuration settings that can be changed in the Control Center are used by all KDE applications which enables a consistent desktop Look & Feel and ensures that

even new users become familiar with the system very fast.

Our recent activities and a representative field trial that specifically investigates convenient system configuration and usability aspects compared with those of traditional Windows applications [15] show the potential and exemplary flexibility that KDE offers for providing both a standard system setup as well as an adaptation and optimization for specific needs of different user groups.

V. System Support for Administrators

Not only individual users but especially also system administrators who are responsible for a large number of systems substantially benefit from KDE. New packages can either be compiled from the system sources but are also available as RPM packages for a number of different Linux distributions and can therefore conveniently be installed.

KDE integrates support for the setup and management of resources that are typically shared between multiple clients. The printer subsystem configuration is a prominent example for a task that has to be done in this scope. KDE delivers consistent printer dialogs as shown in Figure 4 with CUPS support witch enables the use of printer features in the same way as on windows.

The system architecture and interprocess communication mechanisms include support for the Desktop Communication Protocol (DCOP) that lets various modular system parts exchange data or trigger and control operations. It can be used from high level language scripts and KDE integrates bindings for various popular scripting languages such as Perl or Python. This feature makes it easy to automate and fasten re-occurring tasks.

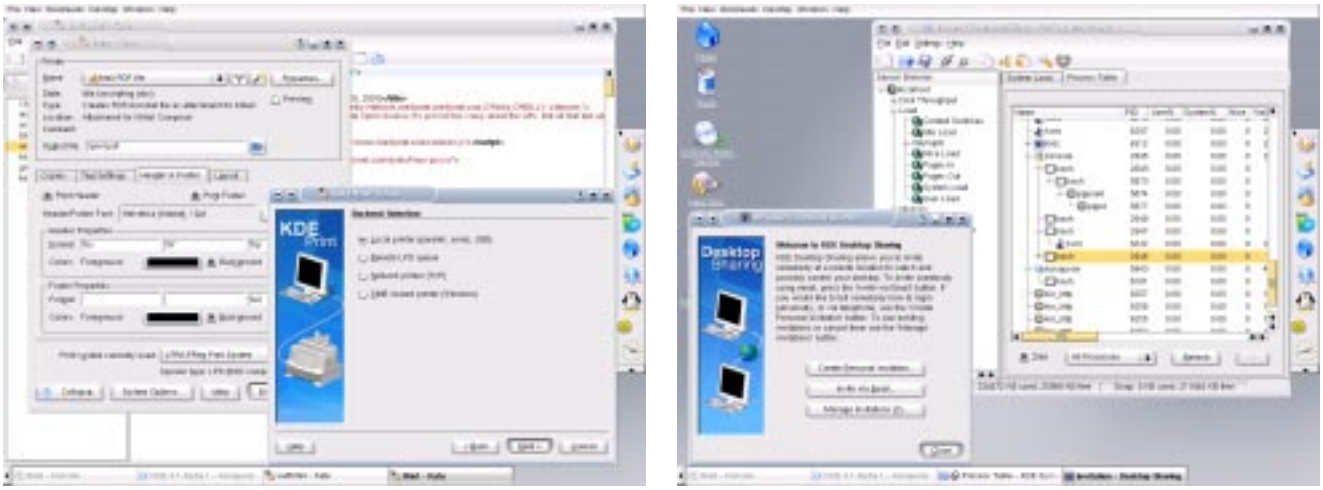

Fig. 4
Printer dialog and desktop sharing for interactive cooperation

Allowing users to override system settings is not always desirable. To keep administration headaches to a minimum, many corporate IT departments define a standard system configuration, and lock systems so that users cannot alter specific policies once they have been set. KDE provides support for policy-controlled configurations via the KDE Kiosk framework, which debuted in KDE 3.0. Work on the Kiosk framework was originally inspired by the requirements of public access terminals or installations at other exposed places, where restricting the system features is mandatory. In the process of adapting KDE for Kiosks, it was quickly realized that the very same framework is perfectly suited for managing systems in a corporate environment as well. KDE 3.2 will introduce a graphical administration tool KWallet to the Kiosk framework which will make its manager even more convenient.

VI. The People behind KDE

KDE is a big project. While it is very hard to quantify what this means exactly, note that the KDE CVS source code repository currently holds about 2.6 million lines of code. To put things into perspective: The Linux kernel version 2.5.29 consists in about 3.1 million lines of code. Several hundred developers are coding for KDE. The translation team alone consists of about 300 individuals. 11,014 CVS commits were executed during May 2002 [5][4]. KDE has more than 24 official WWW mirrors in over 16 countries and more than 71 official FTP mirrors in over 30 countries.

Besides meetings and numerous mailing lists and IRC channels KDE has developed further ways to spread information between the many project members. The “Dot” [6] regularly informs about news around KDE e.g. about new versions, the aggregated KDE discussion traffic (as a summary of KDE mailing lists) and most recent code changes that have been committed to the KDE CVS.

Obviously such an effort needs some form of legal organization and coordination. That is where the KDE e.V. [10] as a German non-profit association plays an active role. It organizes developer conferences and meetings such as the one in Nove Hrady [9] this year, presents the projects at major exhibitions and conference events and coordinates and enhances industry contacts.

The group of active KDE contributors is a very heterogeneous one and consists of students as well as of professionals who meanwhile started selling KDE and general system services as well. The “rules” inside the project aim to ensure ongoing system quality but nevertheless try to be as democratic and open as possible. Whereas a project core group (with affiliation mainly based on personal reputation because of active contributions to the project) can be identified, there is no such thing as a benevolent dictator as described by Eric S. Raymond [2]. Typically there are project maintainers that are responsible for an individual part or application of the system and again coordinate work on specific aspects. The KDE manifesto [11] summarizes the intentions and goals of the project and form the basis for the successful work of the numerous project members.

Volunteers who want to join the KDE development team are generally welcome and will find a great variety of ways to contribute [19] either by e.g. actively coding, making systems designs, translating information to more languages, designing icons and so on to only name a few.

VII. Planned Future Development and Potential

Whereas universities have been using Linux desktop installations on a broad basis for quite a while already, we currently face a transition process of larger companies and administrations to use it on a general basis as well [16][17]. Companies such as SuSE [20] and Conectiva [3] who have been involved in and driven Open Source development for a long time already but also major players such as IBM show a strategic commitment that ensures that this choice is a future-proof decision and that systems and services develop further. You can participate in this development by either downloading and using KDE from one of its mirrors that are located all over the world [12] or can also actively participate in the development as an active contributor.

Bibliography

[1] S. Dusse, P. Hoffman, B. Ramsdell, L. Lundblade, and L. Repka. S/MIME Version 2 Message Specification. RFC 2311, Internet Engineering Task Force, March 1998.

[2] Eric S. Raymond. *The Cathedral & the Bazaar*. O’Reilly & Associates, 2001.

Online References

[3] Conectiva.
http://www.conectiva.com.br

[4] CVS Statistics (all time).
http://bulunga.dat.escet.urjc.es/kde-cvs/

[5] CVS Statistics (monthly).
http://kde.mcamen.de/statistics.html

[6] dot.
http://dot.kde.org

[7] FSF Europe – What is free Software?
http://www.fsfeurope.org/documents/freesoftware.en.html
[8] KDE.
http://www.kde.org
[9] KDE Contributors' Conference 2003, Aug 22-23 in Nove Hrady.
http://events.kde.org/info/kastle/
[10] KDE e.V.
http://www.kde.org/kde-ev/
[11] KDE manifesto.
http://www.kde.org/whatiskde/kdemanifesto.php
[12] KDE mirrors.
http://download.kde.org
[13] KMail OpenPGP and PGP/MIME HOWTO.
http://kmail.kde.org/kmail-pgpmime-howto.html
[14] Kroupware Project.
http://www.kroupware.org/
[15] Linux Usability Study, by relevantive AG and basysKom GbR.
http://www.relevantive.de/linux
[16] Munich city administration chooses Linux desktop.
http://news.com.com/2100-1016-1010740.html
[17] Munich city administration chooses Linux desktop.
http://www.suse.de/us/company/press/press_releases/archive03/munich.html
[18] Project Ägypten (Free Software Sphinx-Clients).
http://www.gnupg.org/aegypten/
[19] Supporting KDE.
http://www.kde.org/support/
[20] Welcome to SuSE.
http://www.suse.com