OpenOffice.org: KDE Integration Project

Jan Holešovský <kendy@suse.cz>

SUSE Labs

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OpenOffice.org

Probably not necessary to introduce, but:

- Full-featured office package including word processor, table processor, presentation program, drawing tool, and more.
- Big amount of code
- Lots of supported platforms and OSes, still more in development (e.g. x86_64 Linux)
- It's here, it's ready, it's usable

KDE: The K Desktop Environment

What is it?

- Powerful Free Software graphical desktop environment for Linux and Unix workstations
- Easy to use, similar to the desktop environments under the MacOS or MS Windows
- A great number of programs for everyday use
- Supports lots of platforms and Unix implementations (Linux, FreeBSD, NetBSD, ...)
- Framework for easier development of applications (together with Qt)

Motivation of the KDE integration

Both altruistic and egoistic:

- Usability, focus on the user
- Productivity, consistency of the workspace
- Availability of data
- Beauty; "OOo looks like an alien on the KDE desktop" (unknown author)
- It's a challenge, and it's fun! :)

Goals of the project

The integration must be **tight**:

- Look and feel
- KIO (KDE's virtual file system)
- Address book

But **optional**:

- No "kbuildsycoca" when running outside KDE
- Possibility to build without KDE/Qt libraries
- No interference with Gnome integration

Brief history

Quite young project, a little more than a year old:

- July 2003: first version of cuckooo
- November 2003: kde.openoffice.org incubator project
- January 2004: first version of KDE NWF
- June 2004: first version of KDE fpicker
- July 2004: usable KDE vclplug

ooo-build

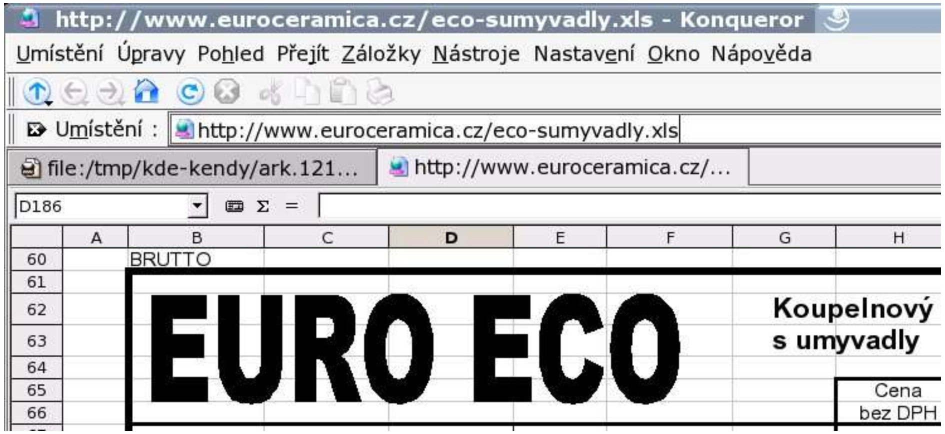
A base for OOo patches

- Originally a Ximian tool for easier building of OOo, and a base for the patches which were problematic to be accepted upstream
- Today most Linux distributions use ooo-build for their packages; also Novell Windows OOo builds come from ooo-build
- Reuse of patches, test bed for upstreaming
- All KDE integration patches are there, some of them are upstreamed already

cuckooo, the overview

Read-only KPart

- Displays OOo documents directly in Konqueror window
- "First KPart with a splash screen!" (unknown author)
- Uses UNO calls to control OOo



http://www.euroceramica.cz/eco-sumyvadly.xls - Konqueror

Umístění Úpravy Pohled Přejít Záložky Nástroje Nastavení Okno Nápověda

Umístění : http://www.euroceramica.cz/eco-sumyvadly.xls

file:/tmp/kde-kendy/ark.121...
http://www.euroceramica.cz/...

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UNO? KParts?

KParts: KDE component architecture.

- Focused on the user interface
- Reuse of code, any application can contain e.g. an editor

UNO: OOo component architecture.

- Similar to CORBA in some aspects
- Can implement interfaces in various languages (has bindings to C++, Java, StarBasic, Python, ...)
- Can be used to control OOo instance --- that is what cuckooo needs

cuckooo from inside

The user browses to a OOo/MS Word/... document, cuckooo starts and by UNO calls it:

- Tries to bind to a running instance of OOo,
- starts OOo if it does not run,
- passes the WinID of the KPart's main widget to OOo, which then draws to this window,
- hides menus and toolbars, and
- opens the document.

cuckooo limitations

The use of the UNO calls limits the use:

- Just read-only
- Hiding menus and toolbars (it is not possible to show just the content of the document window)
- OOo is running on background with all the problems coming from it (someone killed OOo, but not cuckooo, or vice versa, ...)
- The widgets use the original Windows-like look

NWF: Native Widget Framework

Solution for the cuckooo problems.

- Emulates the look of the platform (Windows XP styles, Gtk+, KDE)
- Even the feel, if possible (mouse-over effect, 3-button scrollbars, ...)
- Started by Stephan Schäfer (Sun) and Dan Williams (Red Hat)
- Patches to VCL, OpenOffice.org's toolkit

NWF from inside

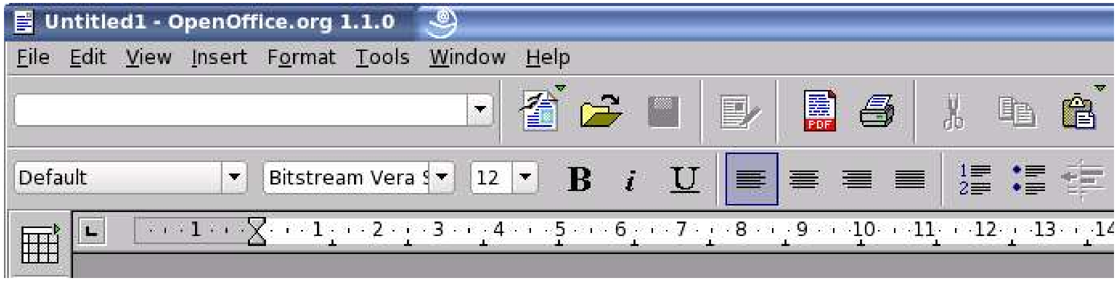
When OOo starts, we have tho initialize KApplication to have access to QStyle instance, and:

- When a widget (control) is about to be drawn in VCL, we ask NWF if it can draw a native one:
  - Yes => we let QStyle draw it
  - No => VCL has to draw the control the original way
- VCL draws the text over the widget

NWF limitations

The controls have the look of KDE/Gnome/WinXP respectively, but

- To really look like a KDE application, we need KDE icons instead of the original ones
- The integration is not optional, because we have to link against KDE libraries (or Gtk+ in the case of Gtk+ NWF)
- We need standard KDE dialogs (e.g. file dialog)


Untitled1 - OpenOffice.org 1.1.0
File Edit View Insert Format Tools Window Help
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vclplugs

Solution for optionality of KDE/Gtk+ NWF are vclplugs.

- SAL = System Abstraction Layer
- SAL part of VCL was moved to a plugin, which is dynamically loaded, and the classes are instantiated by an ancestor of SalInstance
- Currently there are generic X plugin, Gnome (both made by Philipp Lohmann from Sun), and KDE plugin

KDE vclplug (1)

I implemented the KDE vclplug with just Qt and KDE functions

- Main parts work, but a lot of functionality is incomplete
- No problems with Qt events in e.g. KDE file dialog, because Qt event loop is used

Gtk+ vclplug uses another approach

- It is linked against generic X vclplug which does most of the work => much less to re-implement
- Problems with Gtk+ events and locking

KDE vclplug (2)

Michael Meeks (Ximian/Novell) did a second implementation of KDE vclplug

- It is linked against the generic plugin
- Does just the NWF initialization, other functionality is from the generic vclplug
- No Qt events

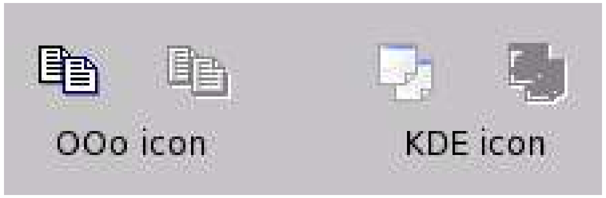
I find this approach better, so I have to add the Qt events to this implementation...

OpenOffice.org & icons (1)

OOo icons can be changed by merging them to one big bitmap, and creating a XML file which maps their indexes to resource numbers.

Disadvantages:

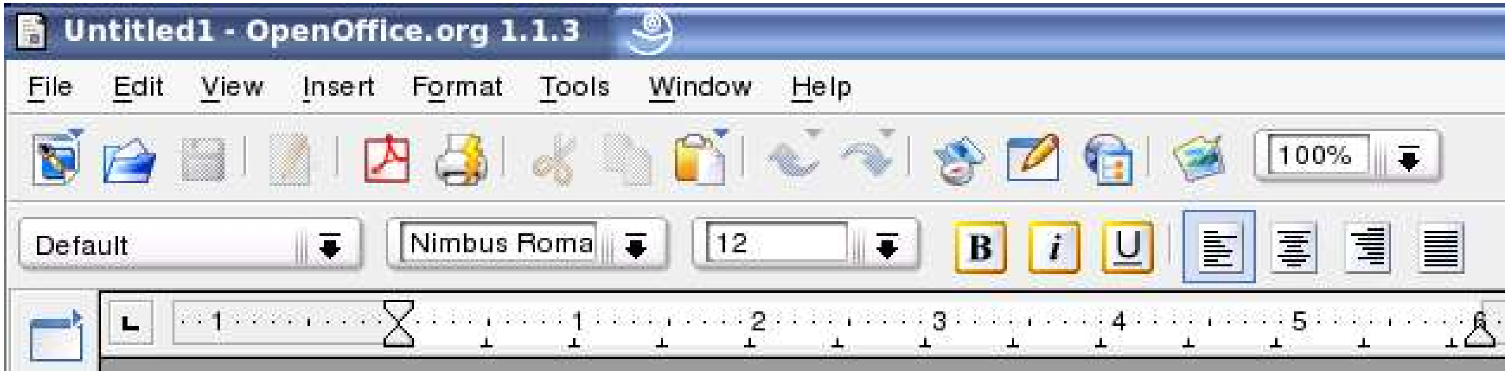
- It is limited to 24 bit icons with visible/invisible flag
- No way to define small versions of the icons (for menus)
- OOo has to be patched anyway to show the disabled icons a reasonable way



OpenOffice.org & icons (2)

So it was better to use Ximian patches which allow 32bit icons with alpha channel

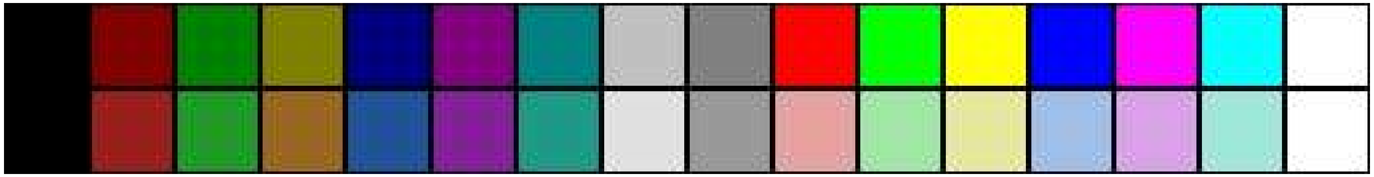
- Such icons have to be compiled in the resource files, it is not possible to change them at run time, so
- switching to another set is problematic.
- But the result is worth it :)



KDE (Crystal) icons

It was not easy to find the appropriate KDE icons

- Necessity to find equivalents between **1500 KDE icons** (!), found about 250.
- Icons for many OOo actions do not exist, an icon designer is needed
- I did some of them myself, when it was possible to compose the icon from existing ones
- For the rest I had to use the original OOo icons, but change the color mappings to fit the Crystal color scheme



OOo native file dialogs

It is possible to implement a UNO service that provides file dialog functionality.

- The service is implemented in a library which is dlopen'ed on request, so
- it is easy to have Gtk+, as well as KDE implementation at the same time

KDE file dialog

Implemented out-of-process way, because:

- The vclplugs are for 2.0 (but backported in ooo-build now)
- Anyway, KDE/Qt events do not work there yet

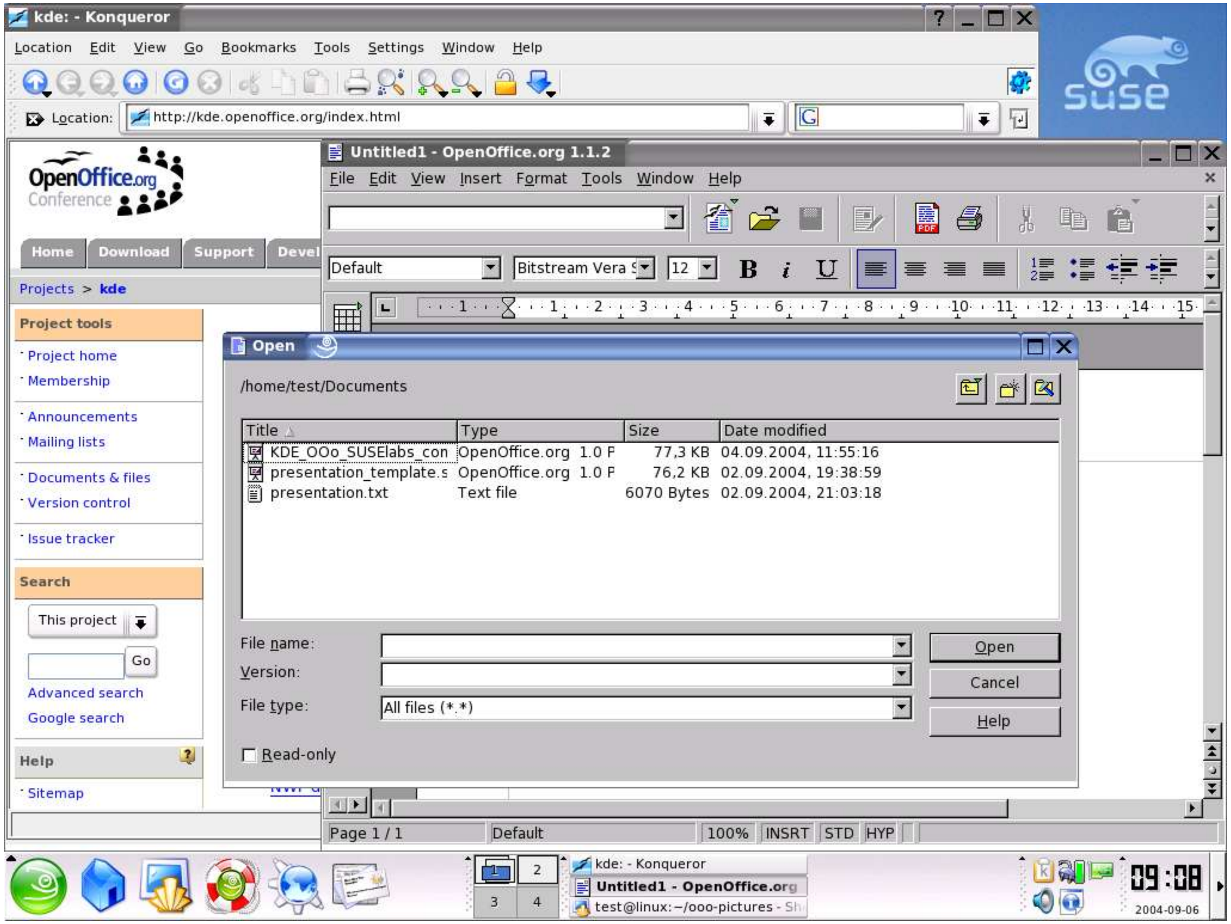
It is a standalone binary working as a filter; it gets commands from stdin and reports the user's actions on stdout.

The Future

Still a lot of work...

- Add Qt events to the KDE vclplug and implement KDE fpicker in-process
- KDE address book integration
- KDE KIO in OOo
- More KDE standard dialogs (print dialog, ...)

Conclusion: Plain OOo



kde: - Konqueror

Location: http://kde.openoffice.org/index.html

Untitled1 - OpenOffice.org 1.1.2

Open

/home/test/Documents

Title	Type	Size	Date modified
KDE_OOo_SUSElabs_con	OpenOffice.org 1.0 P	77,3 KB	04.09.2004, 11:55:16
presentation_template.s	OpenOffice.org 1.0 P	76,2 KB	02.09.2004, 19:38:59
presentation.txt	Text file	6070 Bytes	02.09.2004, 21:03:18

File name:

Version:

File type: All files (*.*)

□ Read-only

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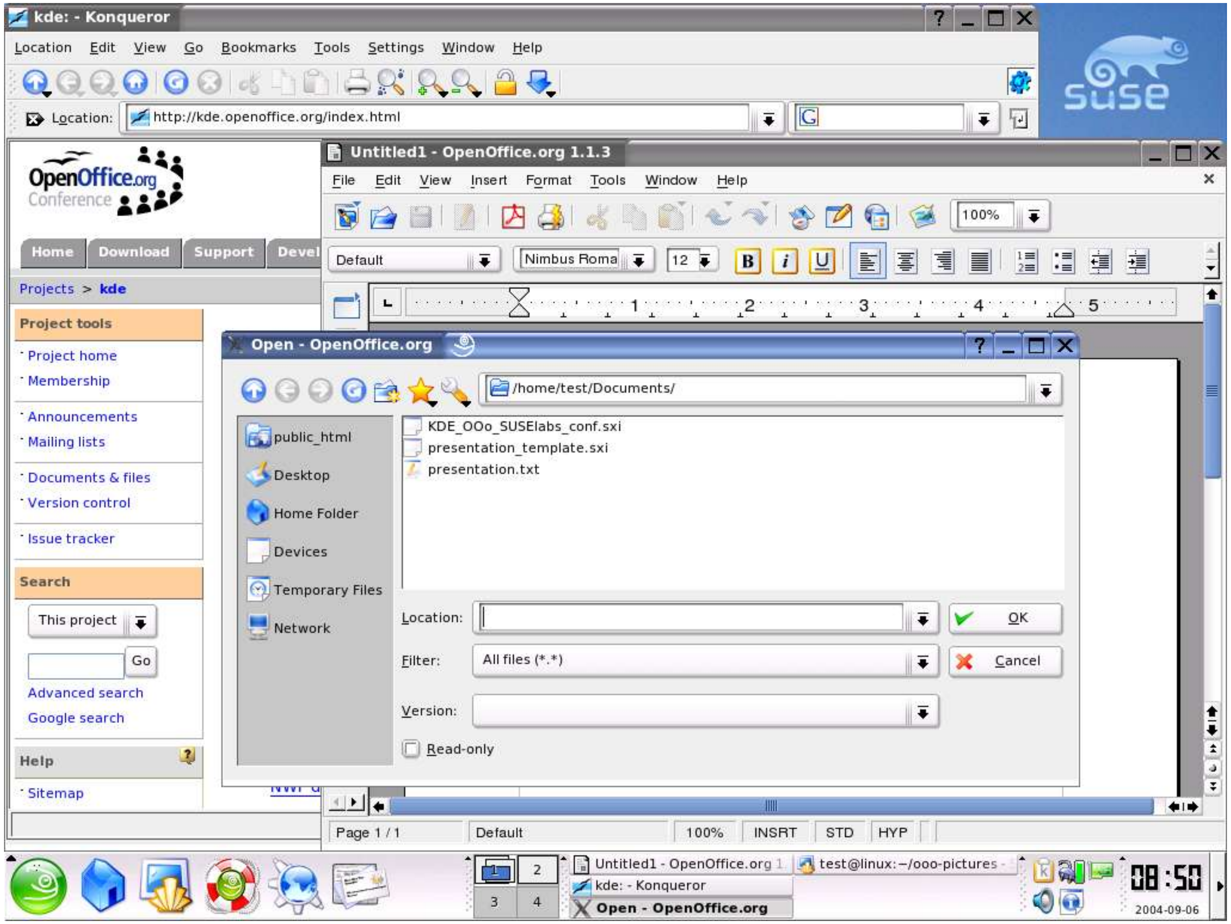
Conclusion: KDE OOo



Location: http://kde.openoffice.org/index.html

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/home/test/Documents/

- KDE_OOo_SUSElabs_conf.sxi
- presentation_template.sxi
- presentation.txt

Location:

Filter: All files (*.*)

Version:

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The End

For more information, please see:

- http://kde.openoffice.org
- http://www.openoffice.org
- http://www.kde.org
- http://ooo.ximian.com
- http://www.suse.com
- http://www.novell.com

Thank you for your attention!

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