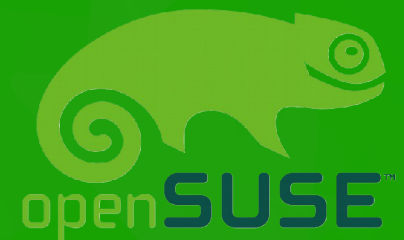


Two years of LibreOffice

Michael Meeks <michael.meeks@suse.com>
mmeeks,#libreoffice-dev, irc.freenode.net



*"Stand at the crossroads and look; ask for the
ancient paths, ask where the good way is, and walk
in it, and you will find rest for your souls..." -
Jeremiah 6:16*

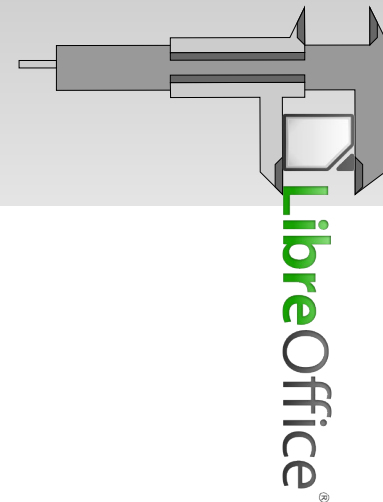


The messages in a nutshell ...

- LibreOffice project progress
- The Document Foundation update
- LibreOffice schedule
- LibreOffice 4.0
 - Interoperability, calc, fun, UI, Infrastructure
- LibreOffice – prototypes / future ...
- Getting involved

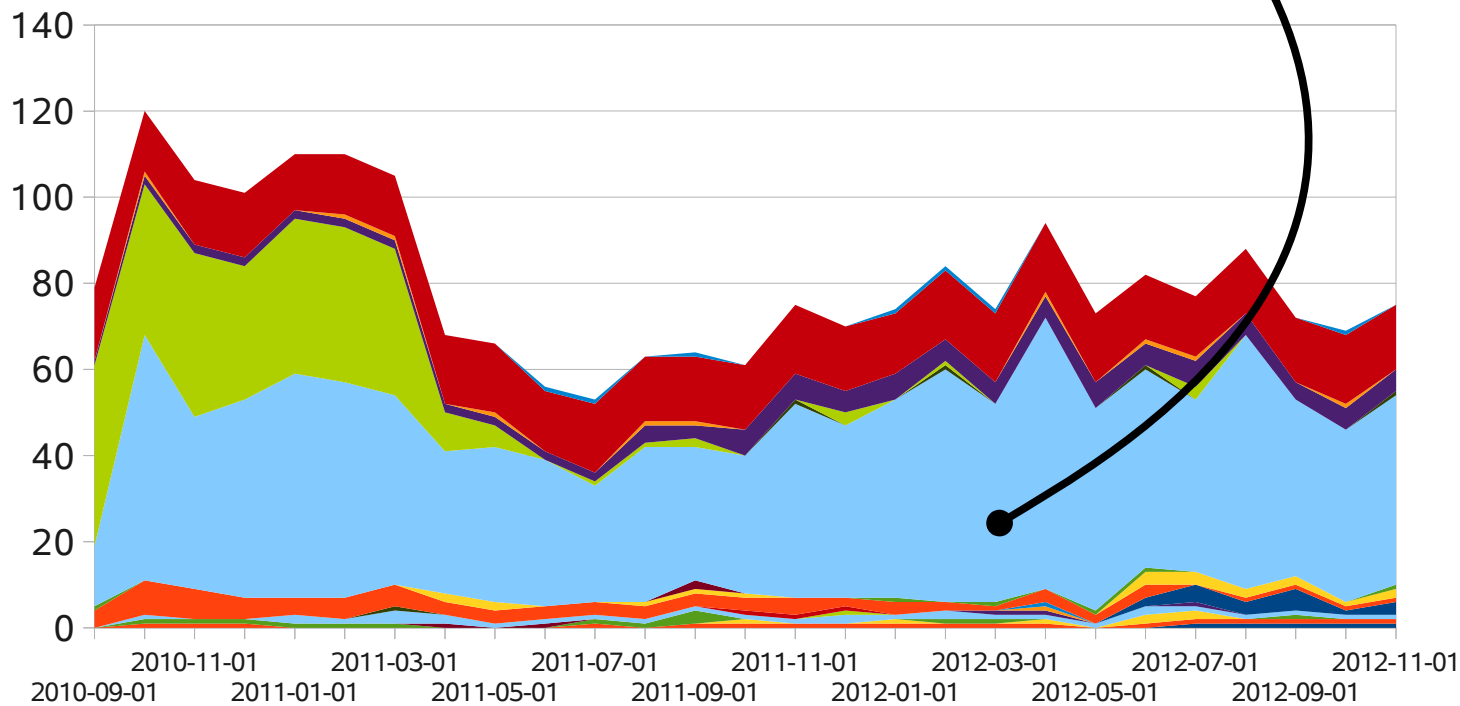
LibreOffice: progress as graphs ...

Code contributors ...



- Steadily diversifying and growing the team ...
New guys since we launched

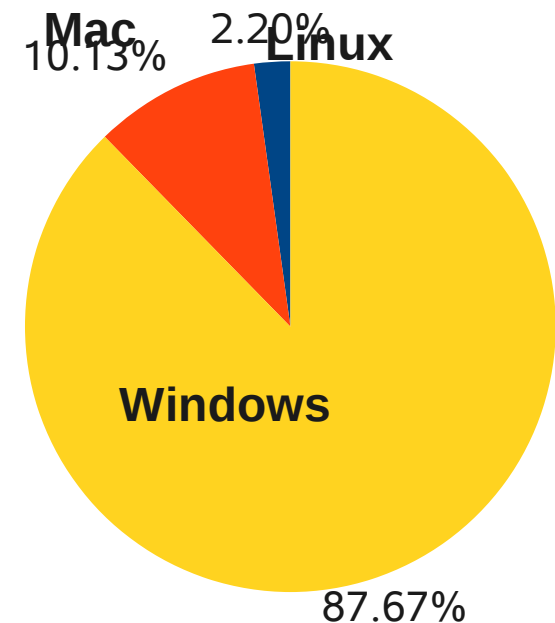
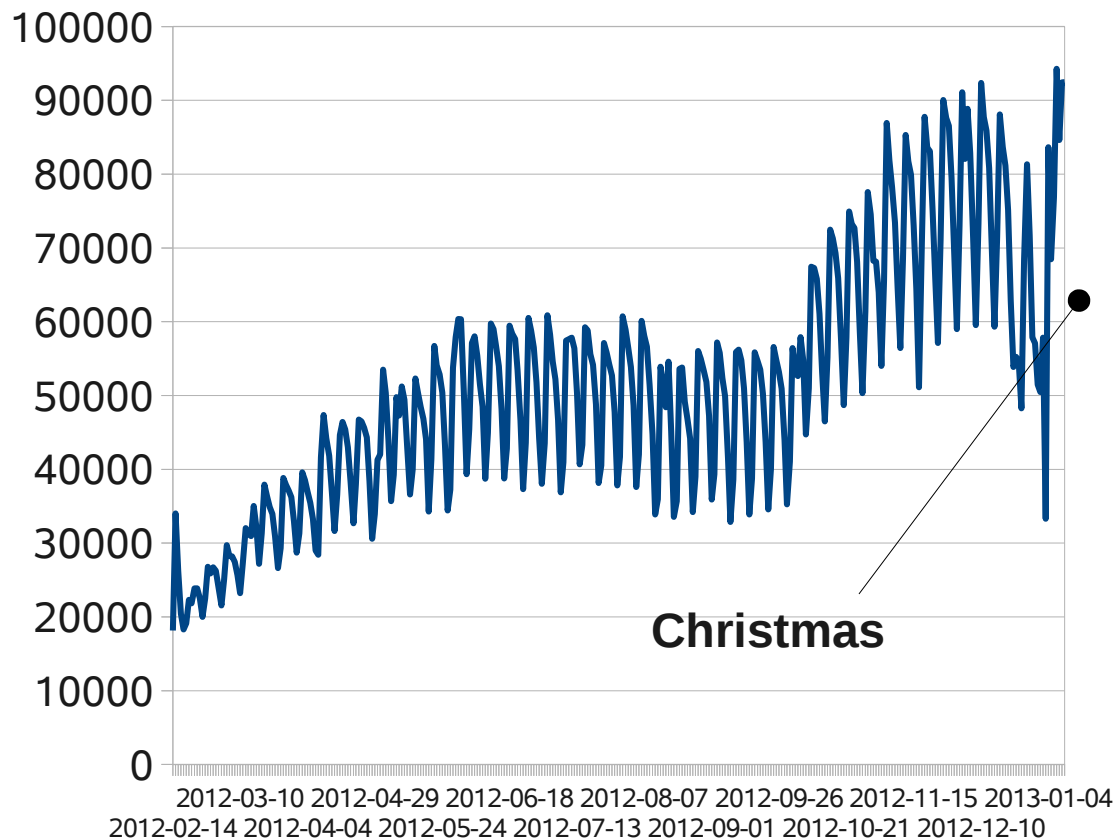
Active code comitters breakdown by month



Downloads / users (~excluding linux)

- ▼ 600k entirely new, unique IP addresses each week

entirely new unique IP's seen per day



The Document Foundation

what we are, how we work.

LibreOffice Release Schedule

Time based release train ...

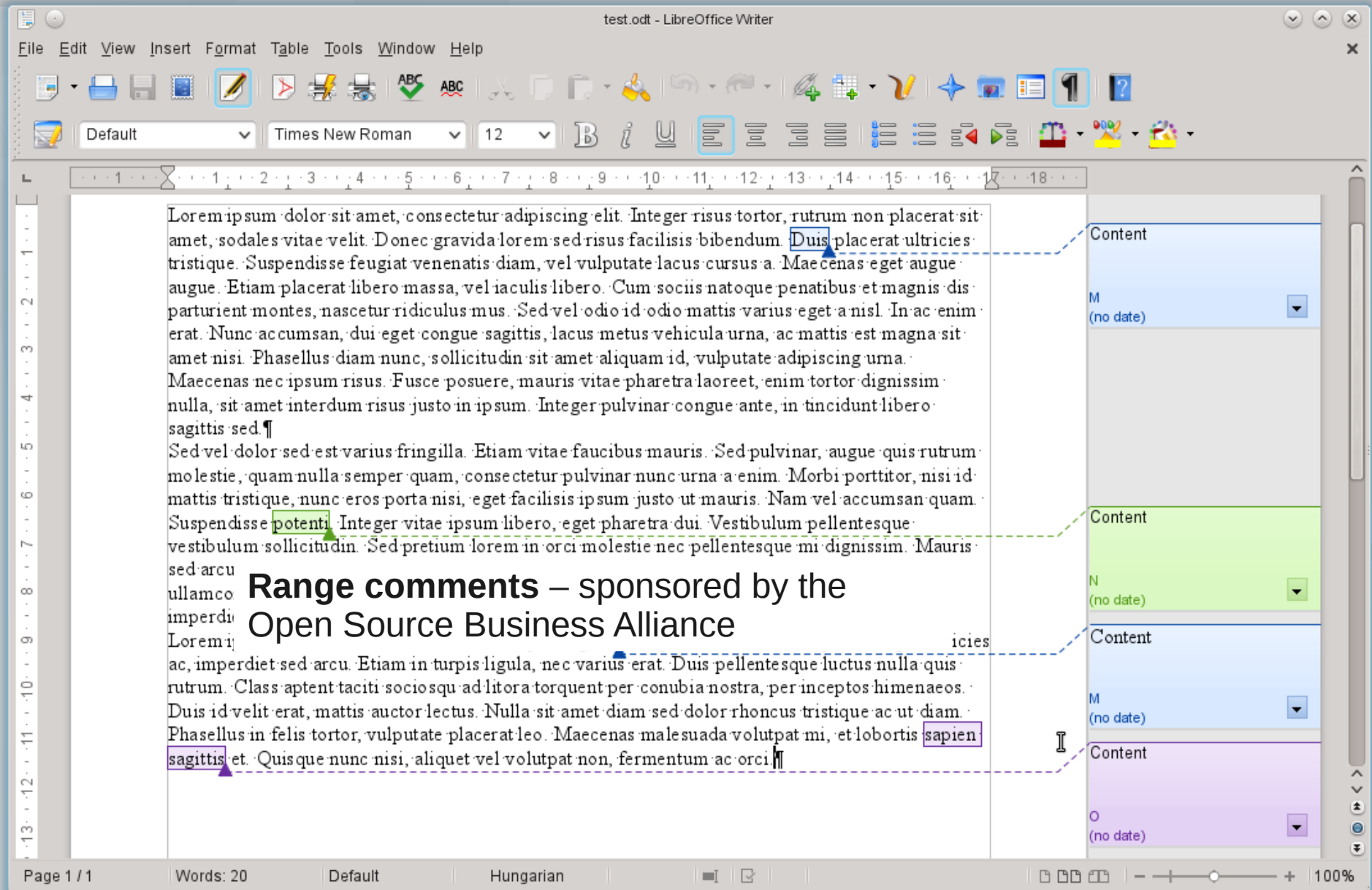
- ▼ **We release .0 every six months:**
 - ▼ A purely time based release
 - ▼ – avoids moral hazard & emotive process
 - ▼ 1st week of February, 1st week of August
 - ▼ Monthly bug-fix releases thereafter
- ▼ **.x.2 – in sync. with six-monthly distro cycle**
 - ▼ LibreOffice 3.6.2 – October 7th
 - ▼ GNOME 3.6.1 – October 15th
 - ▼ Ubuntu Q.Q – October 18th
 - ▼ Fedora 18 – November 6th

LibreOffice 4.0

*a very quick & partial snapshot of
some of the new features*

Interoperability in 4.0

Core interoperability features



The screenshot shows the LibreOffice Writer interface with a document titled "test.odt". The document contains several paragraphs of Lorem Ipsum text. A range comment is applied to a section of the text, highlighted in light blue. The comment text is "Range comments – sponsored by the Open Source Business Alliance". The comment is visible in the right-hand margin, with a blue header and a dropdown menu showing "M (no date)". Other range comments are visible in the margin, with headers in green, blue, and purple. The status bar at the bottom indicates "Page 1 / 1", "Words: 20", "Default", "Hungarian", and "100%".

Range comments – sponsored by the
Open Source Business Alliance

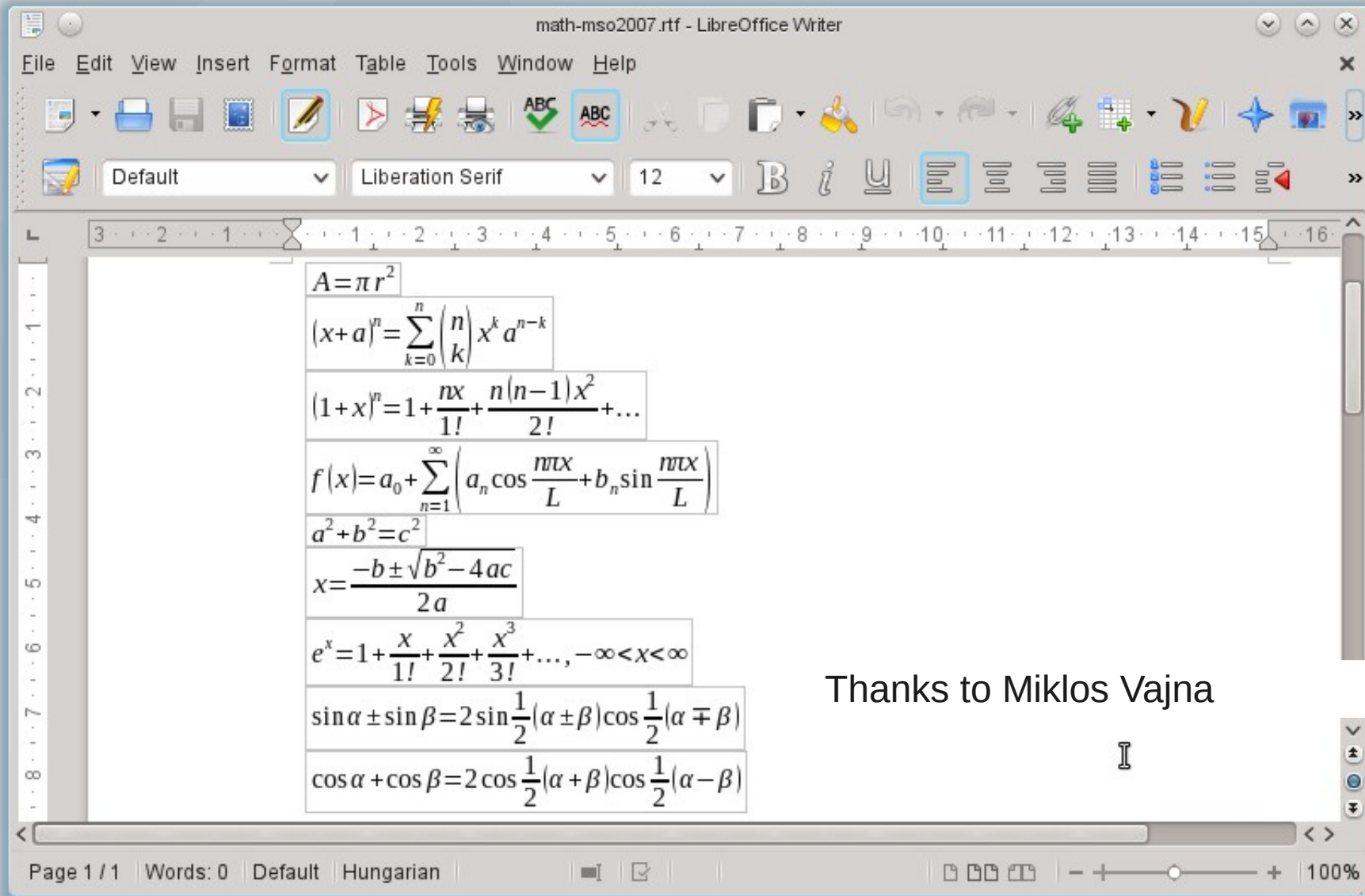
RTF: Drawing Object import

Same document in
LibreOffice 3.6

4.0

11 St' Menachem Begin Ramat Gan Israel 972-3-6339999 972-3-6296355		HRG Lachish Tours LTD		
		עוסק מורשה: 510817018		
To:	Mr. KAPLAN/LIOR	Co. Vat#:	510817018	
Address:		IATA No.	37-21078-4	
		Issue date:	24-Oct-11	
			337768	
		Start date:	27-Sep-11	
		Due date:	24-Oct-11	
ORIGINAL				
Invoice		60027		
For: Mr. KAPLANLIOR				
Service	Description	Amount	Tax	Cur
<input checked="" type="checkbox"/> Flight	Dep: 27-Sep-11 17:00 TEL AVIV - BGN APT ELAL 325T Arr: 27-Sep-11 PARIS - C. DE GAULLE	625.00	111.25	USD
<input checked="" type="checkbox"/> Flight	Dep: 16-Oct-11 00:20 PARIS - C. DE GAULLE ELAL 328V Arr: 16-Oct-11 TEL AVIV - BGN APT	0.00	0.00	USD
Total:		625.00	111.25	USD
		+ Tax:	111.25	
Remarks:		TOTAL:	736.25	USD
		ETTI		

RTF improved eg. Formulae



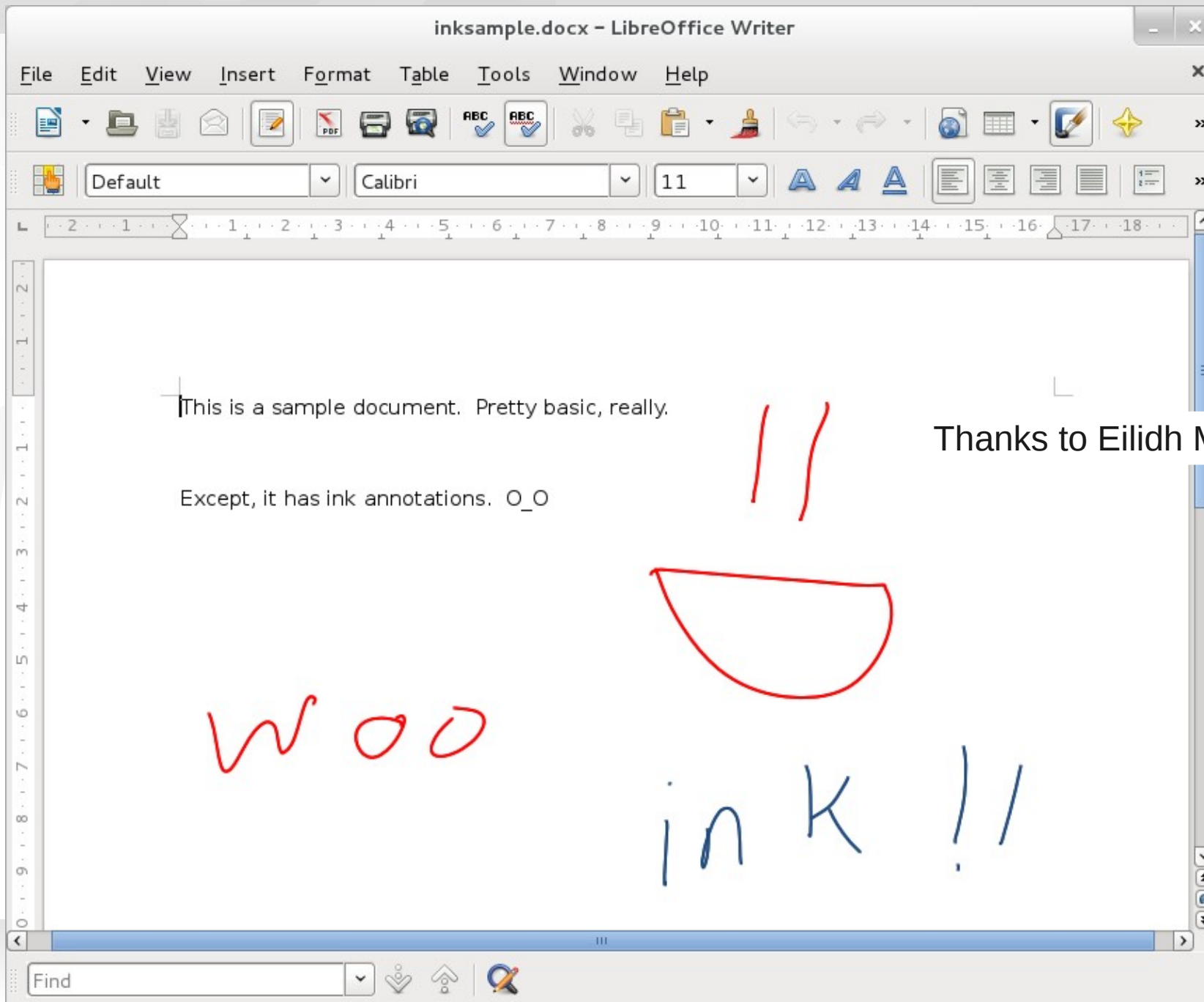
The screenshot shows the LibreOffice Writer interface with a document titled "math-mso2007.rtf". The document contains several mathematical formulas displayed in a list-like structure:

- $A = \pi r^2$
- $(x+a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k}$
- $(1+x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \dots$
- $f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$
- $a^2 + b^2 = c^2$
- $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- $e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots, -\infty < x < \infty$
- $\sin \alpha \pm \sin \beta = 2 \sin \frac{1}{2}(\alpha \pm \beta) \cos \frac{1}{2}(\alpha \mp \beta)$
- $\cos \alpha + \cos \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$

The interface includes a menu bar (File, Edit, View, Insert, Format, Table, Tools, Window, Help), a toolbar with various icons, and a status bar at the bottom showing "Page 1 / 1", "Words: 0", "Default", "Hungarian", and a zoom level of "100%".

Thanks to Miklos Vajna

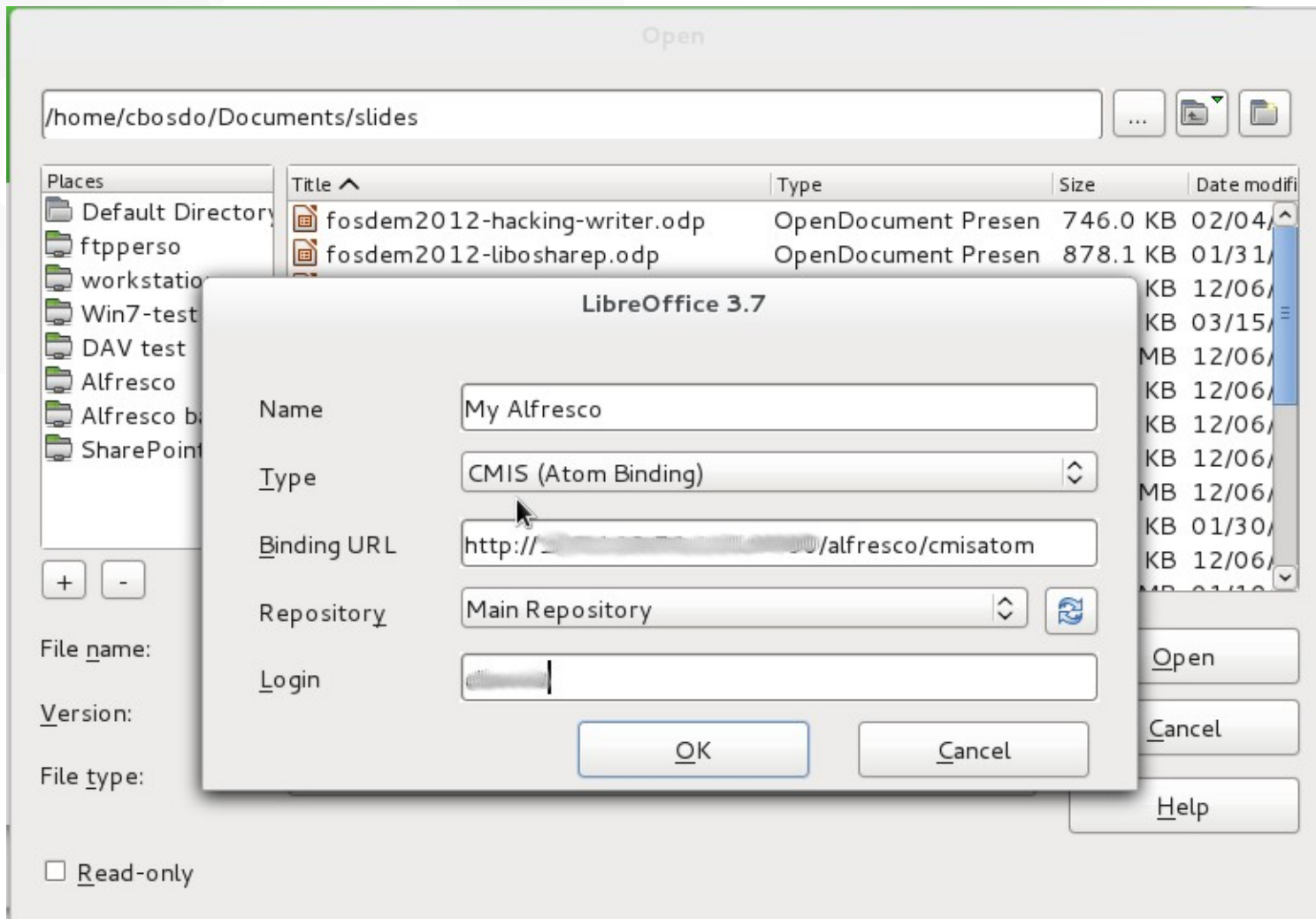
DOCX – ink annotation import



Thanks to Eilidh McAdam / Lanedo

CMIS: Sharepoint / Alfresco / Nuxeo ...

- Using the CMIS protocol – load / save / checkout to your favourite content / document management system:



Proprietary → ODF continues

Wordperfect, Works, Visio, Corel Draw ...

The screenshot shows a presentation slide within a software interface. The slide features a central image of a child's hands holding yellow daffodils. To the right of the image is a yellow box containing the text: "Развивать коммуникативность. Формировать основы нравственных знаний." Below the image is another yellow box with the text: "Партнёрские способы взаимодействия взрослого и ребёнка." To the right of this box is a third yellow box with the text: "Обучение детей средствам общения через игру." Below that is a fourth yellow box with the text: "Усвоение социальных норм и правил поведения." At the bottom left of the slide is an illustration of a man in a white lab coat pointing at a green chalkboard. To the right of the slide is a large white box containing the text: "Microsoft Publisher import thanks to Brennan Vincent (GSOC) Valek Filippov Fridrich Strba". The software interface includes a menu bar (File, Edit, View, Insert, Format, Tools, Modify, Window, Help), a page number indicator (1-30), and a status bar at the bottom showing "Layout / Controls / Dimension Lines", "16.49 / -2.03", "0.00 x 0.00", "Slide / Default", and "116%".

Visio: all file formats now imported

The screenshot shows the LODEV application window titled "Rack.vsdX - LODEV Draw". The main workspace displays a server rack diagram for "Site 5 Building F First Floor". The rack is 42 U high and contains the following components from top to bottom:

- 1 U: Patch Panel
- 2 U: Patch Panel
- 5 U: Patch Panel
- 1 U: Monitor
- 1 U: Keyboard
- 8 U: Server 1 (10.1.1.20)
- 8 U: Server 3 (10.1.1.24)
- 8 U: Server 4 (10.1.1.26)
- 8 U: Primary Router (Mgmt Port: 10.1.1.15)
- 8 U: Primary Router (Addresses: 10.1.1.0/255.255.255.0, 10.1.2.0/255.255.255.0, 10.1.6.0/255.255.255.0, 10.1.7.0/255.255.255.0)
- 2 U: Power Supply

An LODEV version dialog box is open in the foreground, displaying the following information:

LODev
Version 4.0.0.0.beta1 (Build ID: 87906242e87d3ddb2ba9827818f2d1416d80cc7)
LODev is a modern, easy-to-use, open source productivity suite for word processing, spreadsheets, presentations and more.
This release was supplied by The Document Foundation
Copyright © 2000 - 2012 LibreOffice contributors and/or their affiliates
LODev is derived from LibreOffice which was based on OpenOffice.org

Buttons: Credits, Website, Close

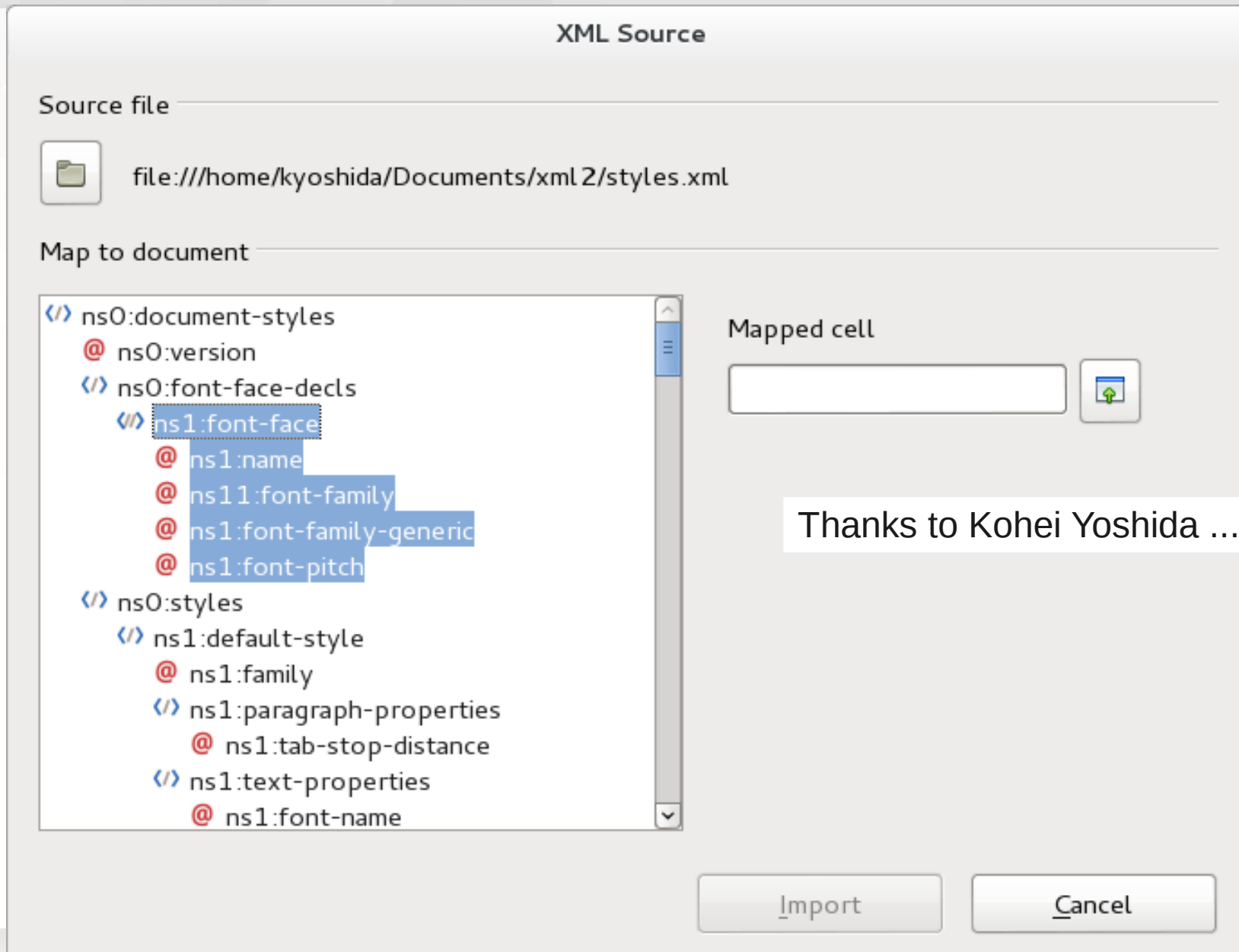
Thanks to
Fridrich Strba
Valek Filippov

Includes the **un-released**
Visio 2013 format.

Calc improvements ...





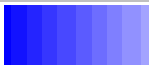





a few details on one component

Arbitrary XML → spreadsheet



Thanks to Kohei Yoshida ...

Conditional fmts: bars + icons

	A	B	C
1	Name	Score A	Score B
2	Mary	 16.38%	 65.98%
3	Bob	 22.35%	 32.36%
4	Abdul	 22.61%	 13.90%
5	Holly	 49.00%	 77.50%
6	Oak	 17.57%	 18.98%
7			

Many thanks to:
*Markus Mohrhard &
Stefan 'Astron' Knorr*

Stock option pricing formulae ...

pricing.ods - LibreOffice Calc

File Edit View Insert Format Tools Data Window Help

Sans 10

MAX =E\$17*OPT_BARRIER(B\$7,B\$8,B\$12,B\$13,E\$9,E\$10,E\$11,E\$12,E\$13,E\$14,E\$15,E\$16,H12)

OPT_BARRIER(spot, vol, r, rf, T, strike, barrier_low, barrier_up, rebate, put/call, knock in/out, barrier_type, greek)

1 **Black Scholes Model: $dS/S = (r-rf) dt + vol dW$**

2 **Option value: $exp(-r T) E[payoff(S_T)]$**

3 valuation of barrier options

4 payment happens at maturity T

market		contract		market quotation		
				domestic	foreign	
spot	1.2	today	1-Oct-2012	vanilla put/call	96.924	80.770
vol	12.0%	maturity	1-Dec-2012	price	96.923	80.769
rate (domestic)	1.0%	T		d/dS	953.472	1144.166
rate (foreign)	3.0%	strike K		pre adj delta	872.703	1047.243
		barrier lower		gamma	1497.247	17.967
		barrier upper		d/dt	7.876	0.022
		rebate		d/dvol	43.239	0.360
		(p)ut or (c)all		d^2/dS^2		
		knock-in or knock-out		d/dt		
		(c)ontinuous or at the (e)nd barrier		d^2/dvol^2		
		notional		d^2/dSdvol		
				d/dt		
				d/dt		
				hit barrier		
				S_T in money		

Thanks to Tino Kluge

=E\$17*OPT_BARRIER(B\$7,B\$8,B\$12,B\$13,E\$9,E\$10,E\$11,E\$12,E\$13,E\$14,E\$15,E\$16,H12)

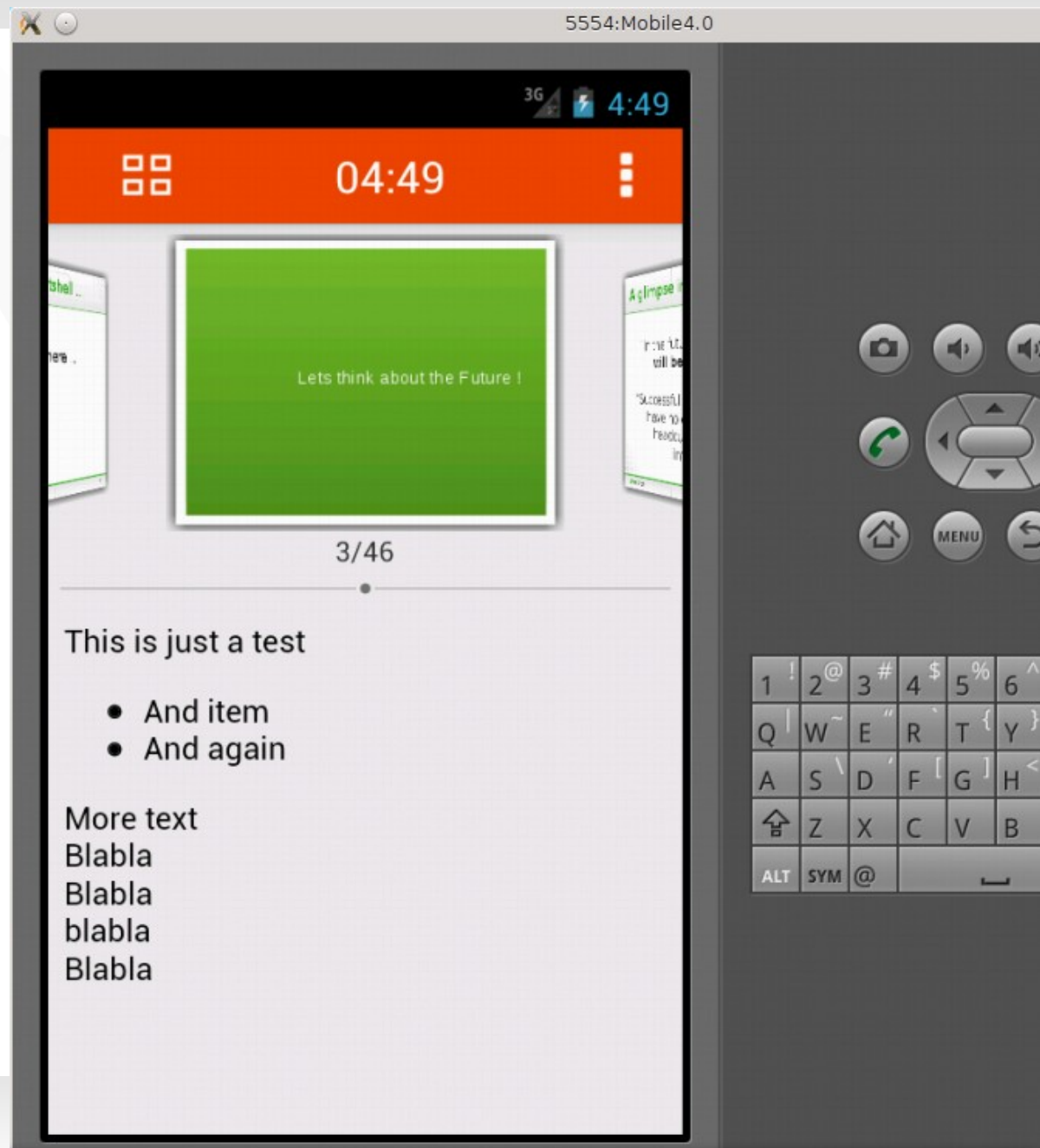
Sheet 2 / 4 PageStyle_barrier Sum=1013.769 100%

Fun improvements ...

Those features that make life better

Android remote control ...

- ▶ Thanks to *Andrzej J. R. Hunt (and GSOC)*
- ▶ Use your smart-phone as a powerful remote control
 - ▶ see your notes
 - ▶ switch slides
 - ▶ up-load your slides ?



Android remote control ...

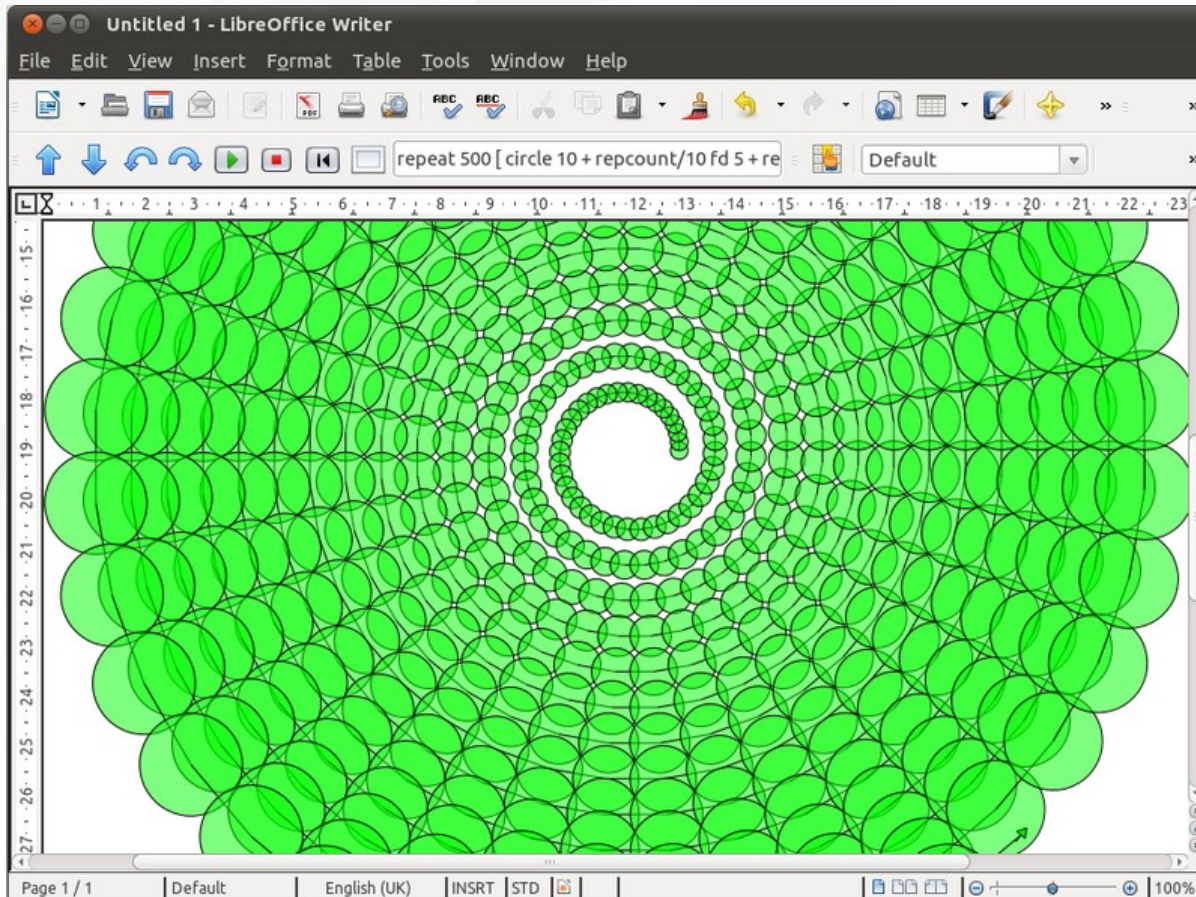
5554:Mobile4.0

- ▶ Pretty slide sorter / selector
- ▶ Clock / count-down etc.
- ▶ Potential future work
 - ▶ accelerometer / laser pointer ?
- ▶ fuse with viewer code to allow projection from a tablet ?
- ▶ Should ship in 3.7/4.0

Lets think



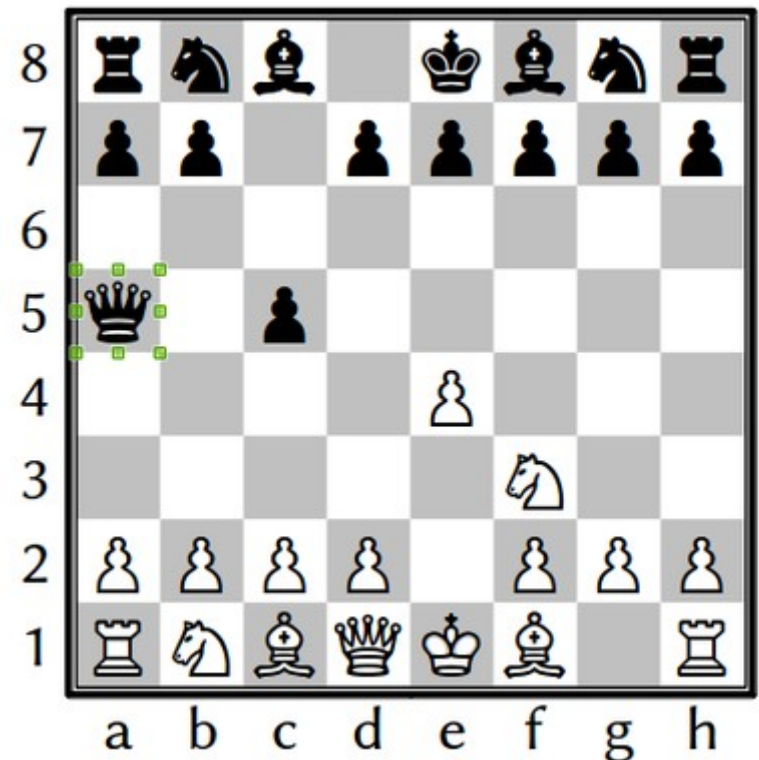
Schools: LibreLogo integration ...



A tiny Python implementation

Includes a complete schools beginner / training primer for Logo with some beautiful designs.

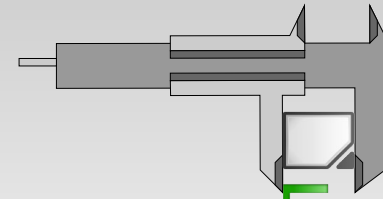
Thanks to Laszlo Nemeth



Infrastructure improvements

Fixing some of the really stupid stuff

Reliable out-of-master builds ...



tinderbox.libreoffice.org/MASTER/status.html

Tinderbox Status Page tree: MASTER
Created at: Sun Jul 29 03:55

View in French Page
Page in English Page
Download the tree as PDF file
View the tree

× Find: < Previous > Next Highlight all Match case Reached end of page, continued from top

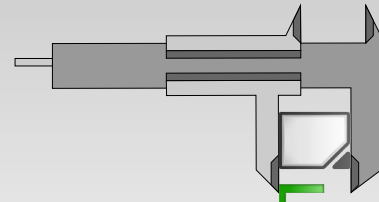
Lots of big / fast /
ccache enabled
tinderbox slaves.

All major platforms

Building &
up-loading binaries
as well for QA.

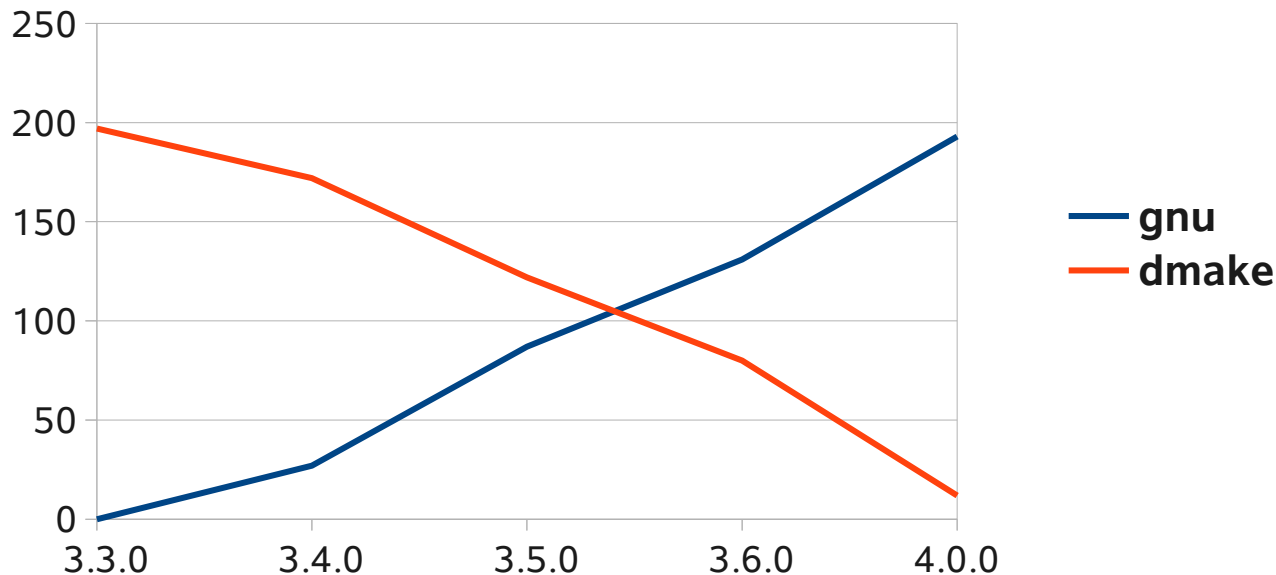
Thanks to
Norbert Thiebaud
Bytemark & more

Using a standard make tool (gnumake)



- ▼ Ongoing work to kill '**dmake**'
 - ▼ Faster, more standard & hack-able
 - ▼ Huge parallelism possible for builds on big-iron.
 - ▼ Enables library merging → one monster lib.

gnumake vs. dmake by module count



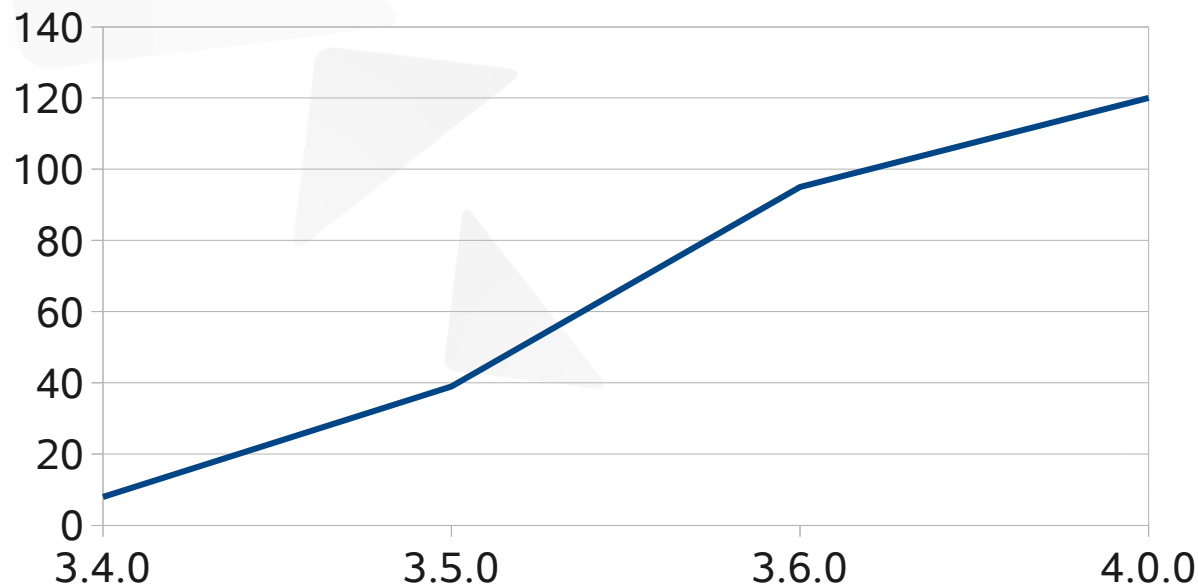
With thanks to
David Tardon
(RedHat)
Matúš Kukan
David Ostrovsky
Pierre-Eric
Pelloux-Prayer
(Lanedo)
and more ...

Unit testing for quality ...



- ▼ Improved quality through unit testing
 - ▼ Coverage & number of tests increasing rapidly
 - ▼ security regressions, document layout, formulae calcs etc.

Count of types of gnumake enabled unit tests
(each runs a battery of tests)



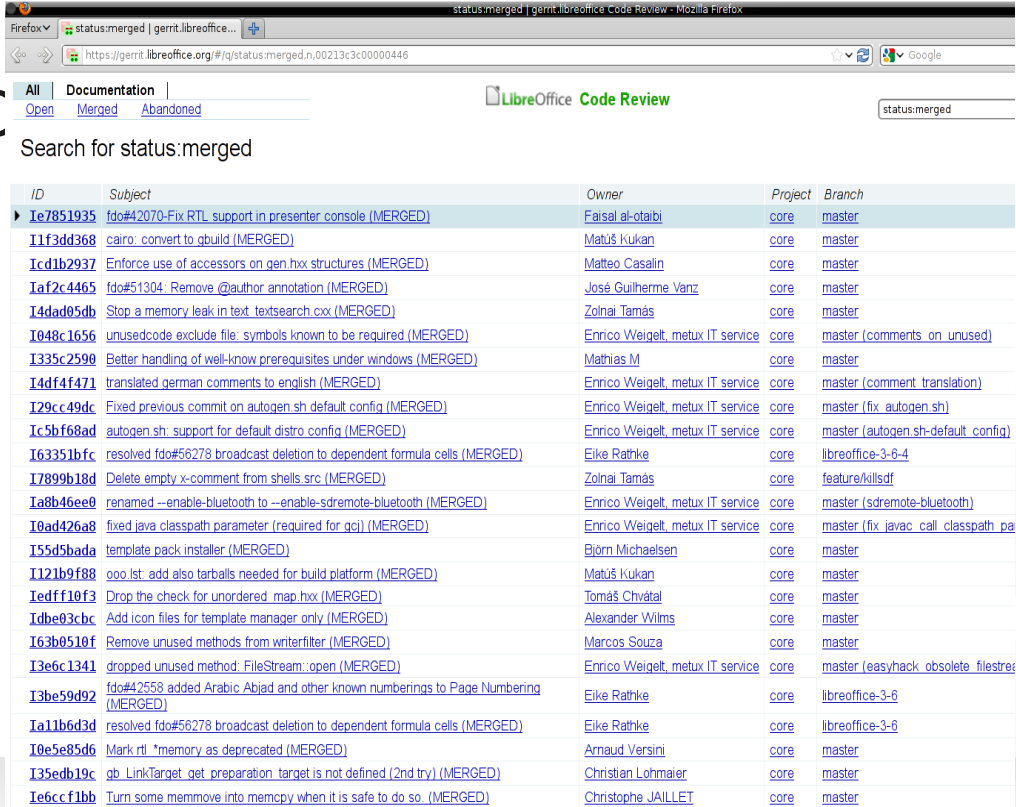
With many thanks to
Markus Mohrhard
(above)
Artur Dorda
Daniel Bankstone
(GSOC)
Kohei Yoshida
Miklos Vjana
(SUSE)
Caolan McNamara
Michael Stahl
(Redhat)
And many more
Who got tired of fixing
The same bugs ...

Gerrit – easy to contribute ...

▼ Gerrit - <https://gerrit.libreoffice.org>

- ▼ Magic to turns an openID account (eg. Gmail)
- ▼ Into no-ask git commit / push access to gerrit
- ▼ Submit to patch queue backed by mailing-list
- ▼ Code inclusion is: git fetch / cherry-pick FETCH_HEAD
- ▼ Test build integration on it's way.

▼ *Thanks to*
Norbert Thiebaud
Bjoern Michaelsen
David Ostrovsky



The screenshot shows a web browser window displaying the LibreOffice Code Review interface. The page title is "status:merged | gerrit.libreoffice.org". The URL is "https://gerrit.libreoffice.org/#/q/status:merged,n:00213c3c00000446". The page has a search bar with "status:merged" entered. Below the search bar is a table of merged patches. The table has columns for ID, Subject, Owner, Project, and Branch. The patches listed are:

ID	Subject	Owner	Project	Branch
Ie7851935	fdo#42070-Fix RTL support in presenter console (MERGED)	Faisal al-otaibi	core	master
I1f3dd368	cairo: convert to qbuild (MERGED)	Matuš Kukan	core	master
Icd1b2937	Enforce use of accessors on gen.hxx structures (MERGED)	Matteo Casalin	core	master
Iaf2c4465	fdo#51304: Remove @author annotation (MERGED)	José Guilherme Vanz	core	master
I4dad05db	Stop a memory leak in text_textsearch.cxx (MERGED)	Zolnai Tamás	core	master
I048c1656	unusedcode exclude file_ symbols known to be required (MERGED)	Enrico Weigelt, metux IT service	core	master (comments on unused)
I335c2590	Better handling of well-know prerequisites under windows (MERGED)	Mathias M	core	master
I4df4f471	translated german comments to english (MERGED)	Enrico Weigelt, metux IT service	core	master (comment translation)
I29cc49dc	Fixed previous commit on autogen.sh default config (MERGED)	Enrico Weigelt, metux IT service	core	master (fix autogen.sh)
Ic5bf68ad	autogen.sh: support for default distro config (MERGED)	Enrico Weigelt, metux IT service	core	master (autogen.sh-default_config)
I63351bfc	resolved fdo#56278 broadcast deletion to dependent formula cells (MERGED)	Eike Rathke	core	libreoffice-3-6-4
I7899b18d	Delete empty x-comment from shells.src (MERGED)	Zolnai Tamás	core	feature/killsdf
Ia8b46ee0	renamed --enable-bluetooth to --enable-sdremote-bluetooth (MERGED)	Enrico Weigelt, metux IT service	core	master (sdremote-bluetooth)
I0ad426a8	fixed java classpath parameter (required for qci) (MERGED)	Enrico Weigelt, metux IT service	core	master (fix javac call classpath)
I55d5bada	template pack installer (MERGED)	Bjoern Michaelsen	core	master
I121b9f88	ooo.lst: add also tarballs needed for build platform (MERGED)	Matuš Kukan	core	master
Iedff10f3	Drop the check for unordered_map.hxx (MERGED)	Tomaš Chvátal	core	master
I0be03cbc	Add icon files for template manager only (MERGED)	Alexander Wilms	core	master
I63b0510f	Remove unused methods from writerfilter (MERGED)	Marcos Souza	core	master
I3e6c1341	dropped unused method: FileStream::open (MERGED)	Enrico Weigelt, metux IT service	core	master (easyhack_obsolete_filestream)
I3be59d92	fdo#42558 added Arabic Abjad and other known numberings to Page Numbering (MERGED)	Eike Rathke	core	libreoffice-3-6
Ia11b6d3d	resolved fdo#56278 broadcast deletion to dependent formula cells (MERGED)	Eike Rathke	core	libreoffice-3-6
I0e5e85de	Mark rtl_*memory as deprecated (MERGED)	Arnaud Versini	core	master
I35edb19c	qb_LinkTarget_get_preparation_target is not defined (2nd try) (MERGED)	Christian Lohmaier	core	master
Ie6ccf1bb	Turn some memmove into memcpy when it is safe to do so. (MERGED)	Christophe JAILLET	core	master

Bugzilla Assistant on freedesktop

- ▶ Connected to Help menu “Send Feedback”
 - ▶ pre-populates version, component, etc. for you
- ▶ Avoids ~unusable default bugzilla / file bug UI
- ▶ Thanks to:
Loic Dachary & Rob Snelders

Bug

Bug Submission Assistant

Thank you for using LibreOffice. We regret that you seem to have found a bug in our software, but we are glad that you decided to report it. This assistant will lead you step by step through the bug reporting process.

1 Sign in

2 Component

3 Details

4 Description

5 Submit

Select component Spreadsheet

Component Spreadsheet

For problems concerning the spreadsheet application. If applicable, please use one of the following key words in the Summary for more detailed specification: [CONFIGURATION](#), [EDITING](#), [FILEOPEN](#), [FILESAVE](#), [FILTER](#), [FORMCONTROLS](#), [FORMATTING](#)... [Read more ... >](#)

Sub component EDITING

Version 4.0.0.0.beta1

Operating system All

Latest known-working version: None

Subject:

Long description:

Problem description:

Steps to reproduce:

1.
2.
3.

All your contributions will be public in WWW! By clicking the 'Submit' button you irrevocably agree to release your contribution under the CC-BY-SA 3.0 License and the GFDL. If you can't agree to these terms for documents you planned to attach you can state in this report that such a document exists. QA team will discuss with you further proceeding in the bug.

Bug Submission Assistant is published under GNU GPLv2+. Download the sources with git clone <http://cgit.freedesktop.org/libreoffice/website>.

Misc. improvements ...

- ▼ Mork Driver – don't build/bundle an ancient Thunderbird snapshot (*David Ostrovsky*)
- ▼ 20Mb download size reduction – 205Mb → 184Mb (*Istvan Turi & others*)
- ▼ All legacy containers ported to STL (Noel Grandin, Michael Stahl and more)
- ▼ Performance improvements
 - ▼ ODS, XLSX import (Daniel Bankstone)
 - ▼ Large autocorrect tables (Tomaž Vajngerl)
 - ▼ RTF import (Miklos Vajna, Michael Meeks)
 - ▼ ODP import (Michael Meeks)

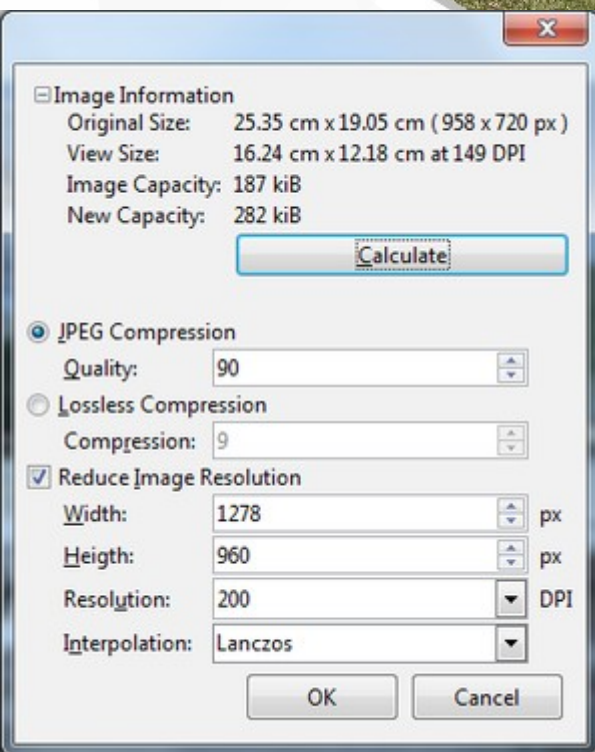
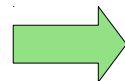
UI improvements ...
or how we're looking less awful

Improved graphics scaling

OLD:



NEW:



Higher quality image rendering

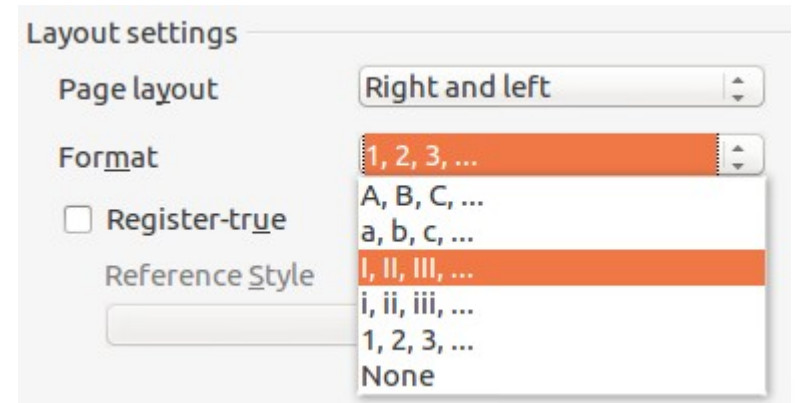
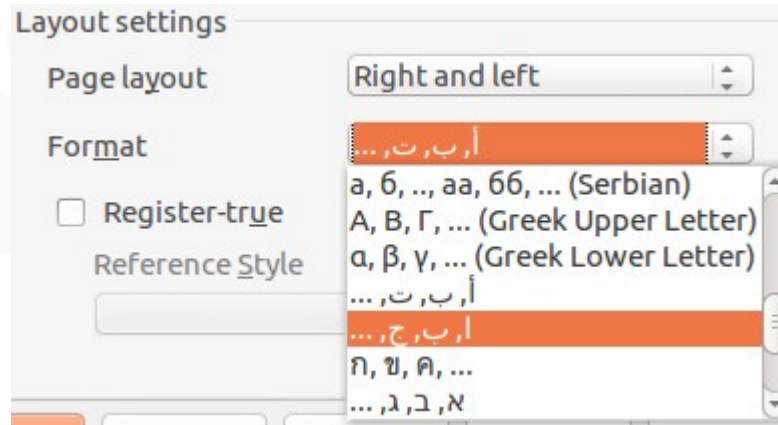
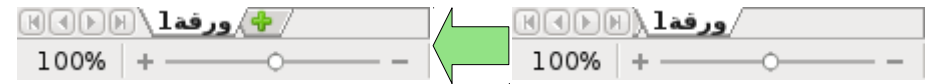
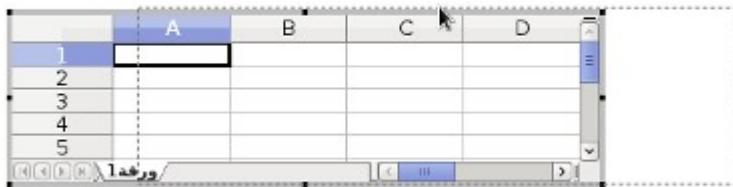
Improved image smoothing tool

Re-sizing, re-scaling, and adapting compression of embedded objects now possible during editing.

Thanks to Tomáš Vajngerl

Snapshots of the great work from KACST : Motah Getting Arabic & Right-To-Left right.

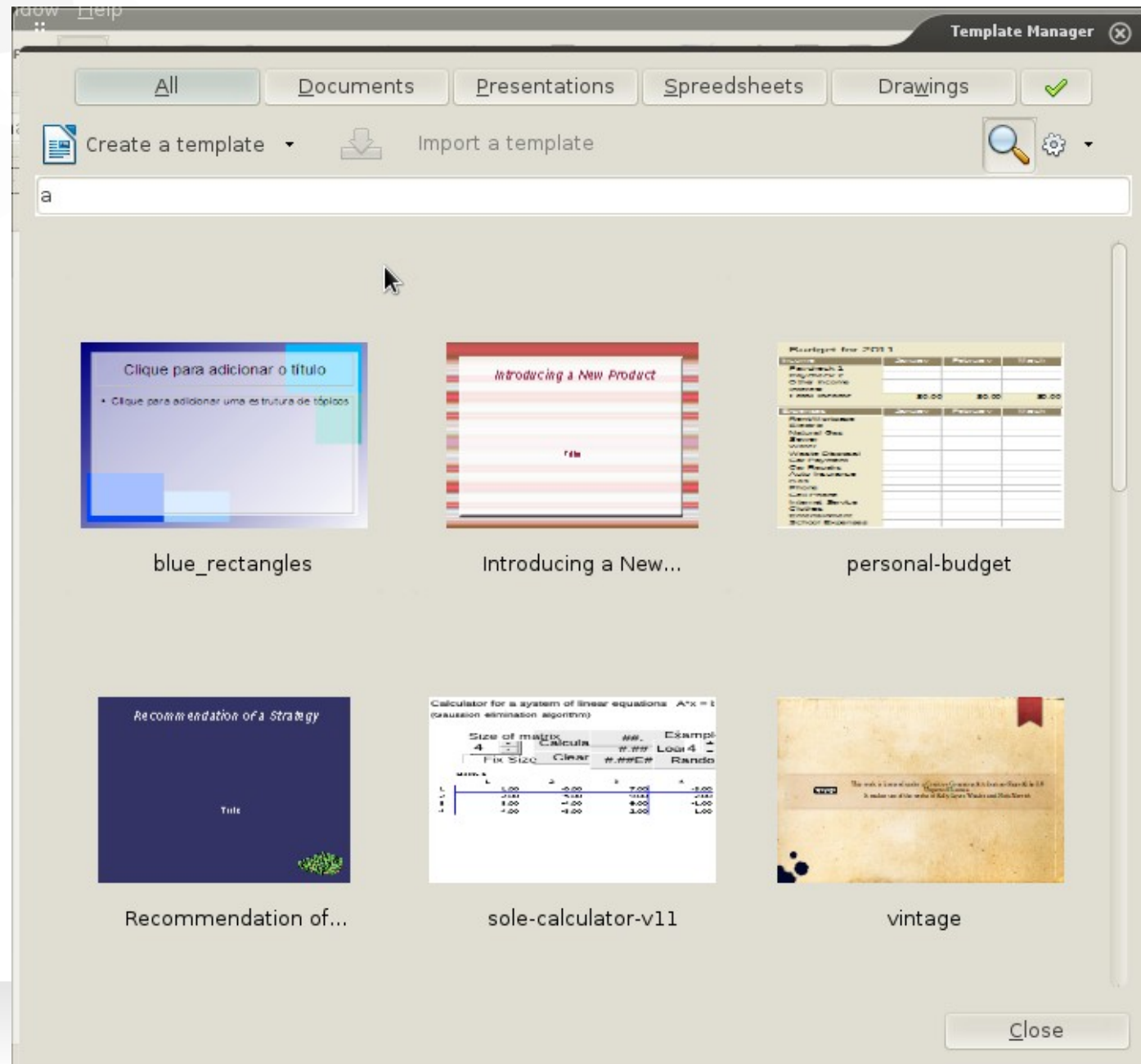
Funky OLE object dragging fixed.



And much more; see above link.

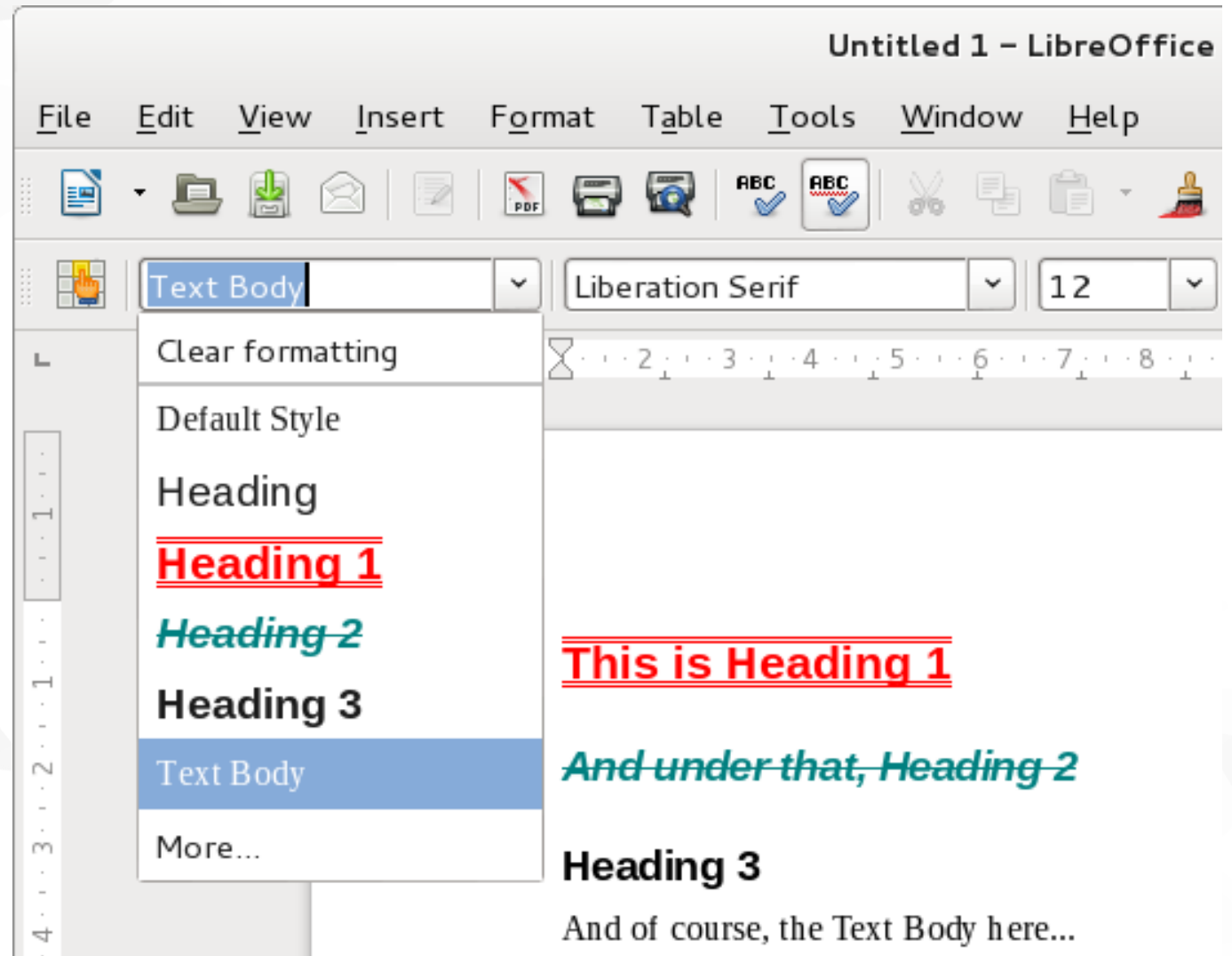
New Template selection UI

- Thanks to *Rafael Dominguez (GSOC)* and *Cedric Bosdonnat & Design team*
- Making template selection and search prettier & simpler.

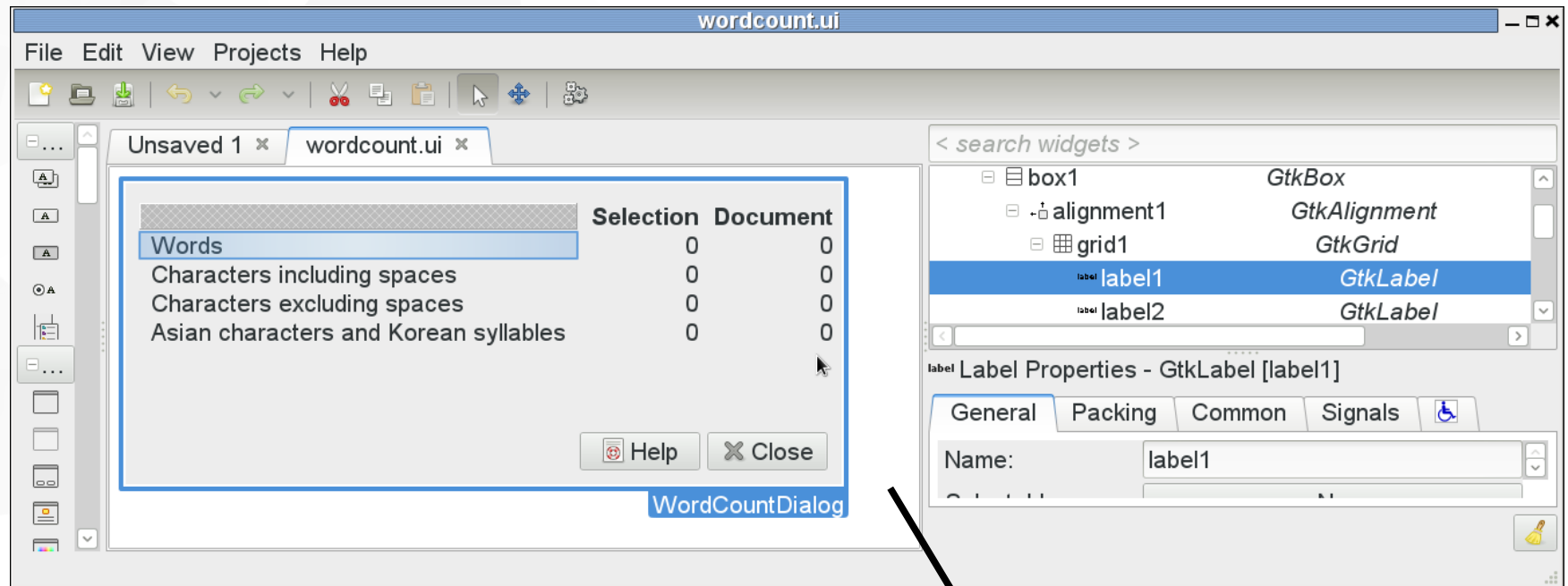


Style previews in drop-down

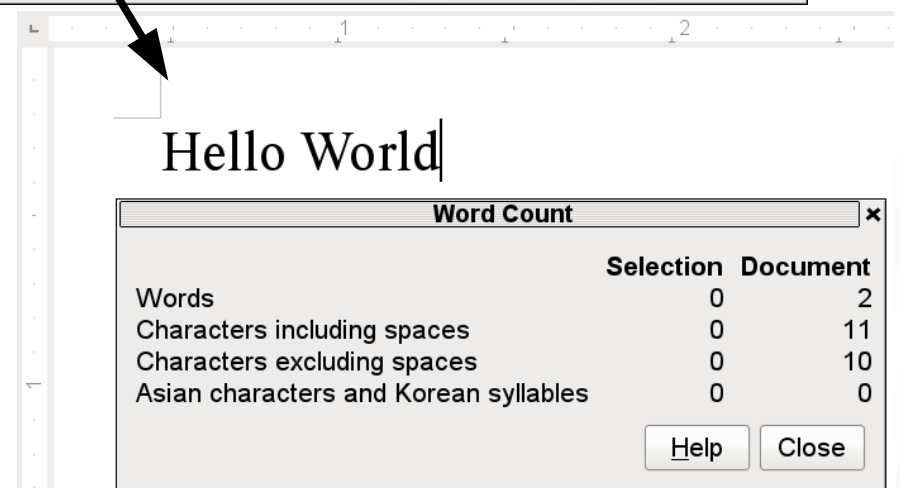
- Thanks to *Jan Holesovsky*
- Making styles easier to use.



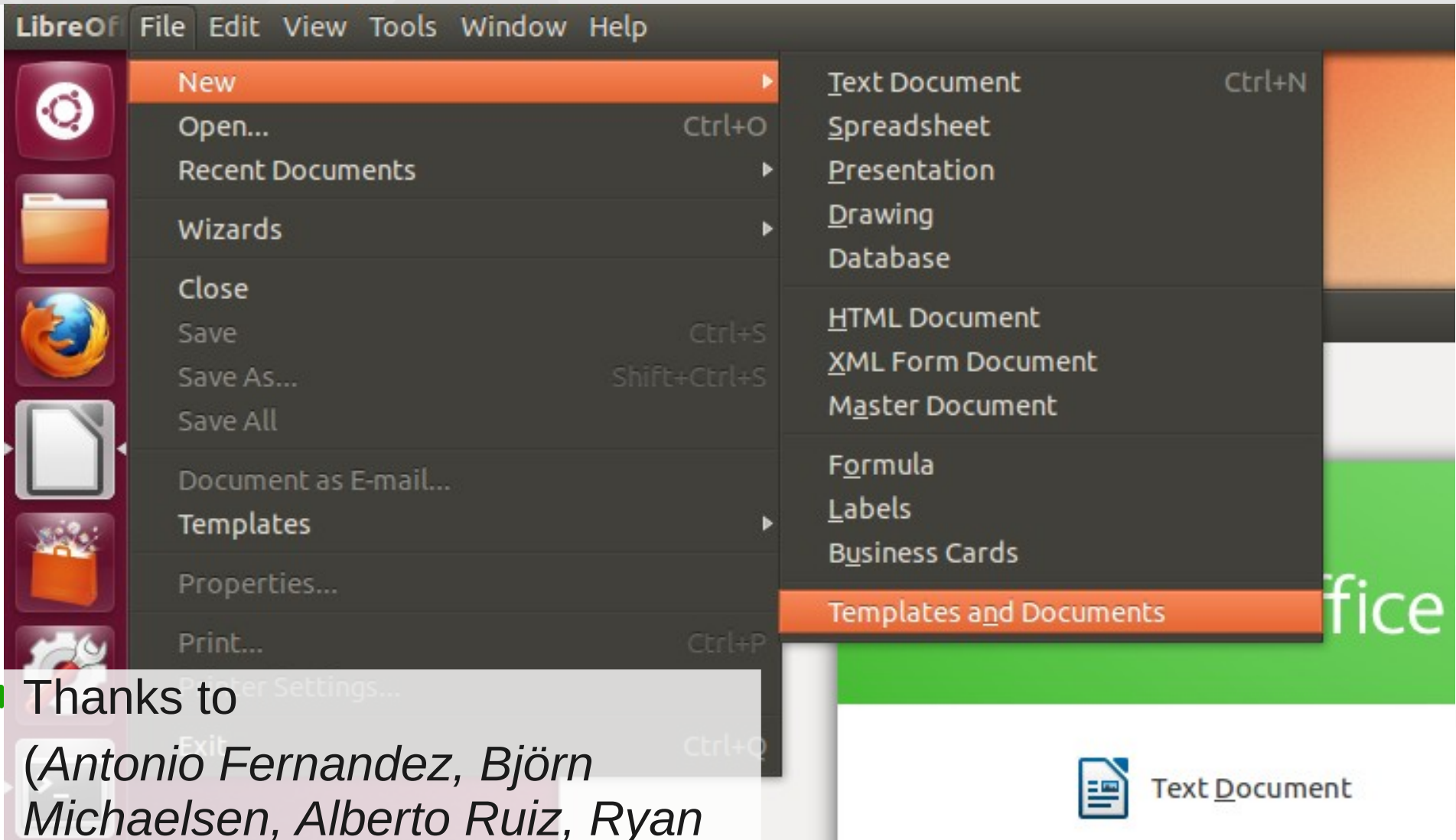
Catching up to 1995: widget layout



- Thanks to **Caolan McNamara**
- Sizing, positioning, Designer tweaking, much improved l10n
- Start of a long process:
 - 94 dialogs converted so far ...

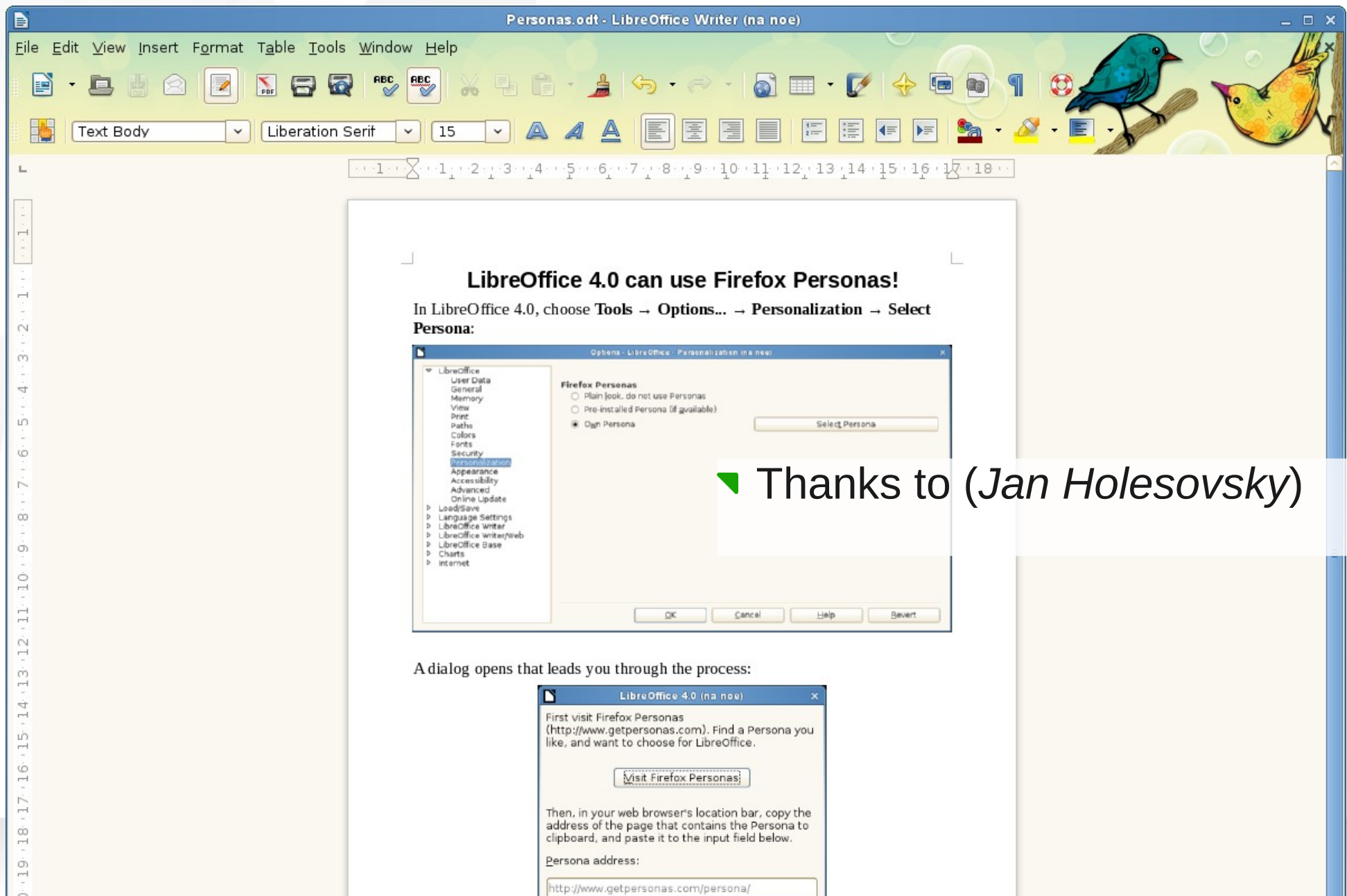


Unity menu integration



Thanks to
(Antonio Fernandez, Björn
Michaelsen, Alberto Ruiz, Ryan
Lortie, Ted Gould)

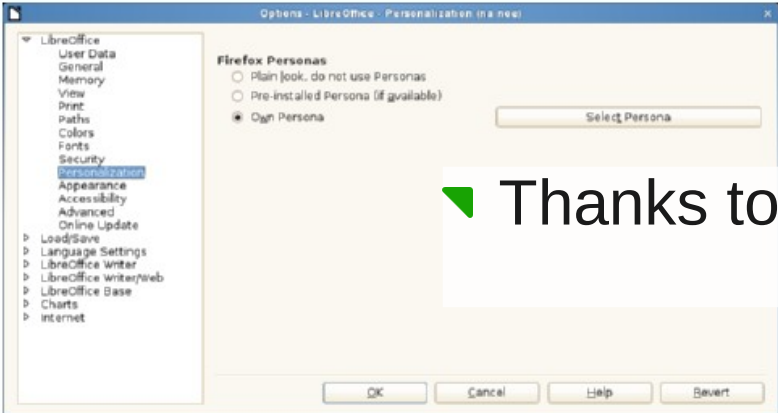
Personas ... shared with Firefox



The image shows a screenshot of the LibreOffice Writer application window. The title bar reads "Personas.odt - LibreOffice Writer (na noe)". The menu bar includes "File", "Edit", "View", "Insert", "Format", "Table", "Tools", "Window", and "Help". The toolbar contains various icons for file operations and editing. The document content is as follows:

LibreOffice 4.0 can use Firefox Personas!


In LibreOffice 4.0, choose **Tools** → **Options...** → **Personalization** → **Select Persona**:



The dialog box shows a tree view on the left with "Personalization" selected. On the right, under "Firefox Personas", the "Own Persona" radio button is selected. A "Select Persona" button is visible.

▼ Thanks to *(Jan Holesovsky)*

A dialog opens that leads you through the process:



The dialog box contains the following text:

First visit Firefox Personas (<http://www.getpersonas.com>). Find a Persona you like, and want to choose for LibreOffice.

[Visit Firefox Personas](#)

Then, in your web browser's location bar, copy the address of the page that contains the Persona to clipboard, and paste it to the input field below.

Persona address:

Future / research pipeline ...
(or some things we're slowly working on)

Android & mobile platforms (something in your pocket)

Who did all of this ?

- ▶ I'm a fraud ! The real work & glory should be addressed to:
Tor Lillqvist's hours of toil
- ▶ Why do it ? - futures ...



The man himself ...

Thanks to:
<http://trends.google.com/>

File Edit View Insert Format Table Tools Window Help



LibreOffice / Android

Editable in-place ... hack.

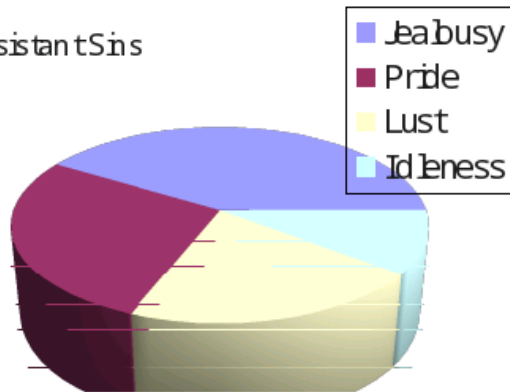
A small table with an embedded drawing.



This is a picture of our wedding with some nice text flow going on around it, of course you can edit a custom contour as well as having a crude ellipse, which makes for a very nice look. Below it is an alpha blended free-hand, filled spline with drop shadow and gradient.



PersistentSins



▼ The UI is not ideal even for a desktop.

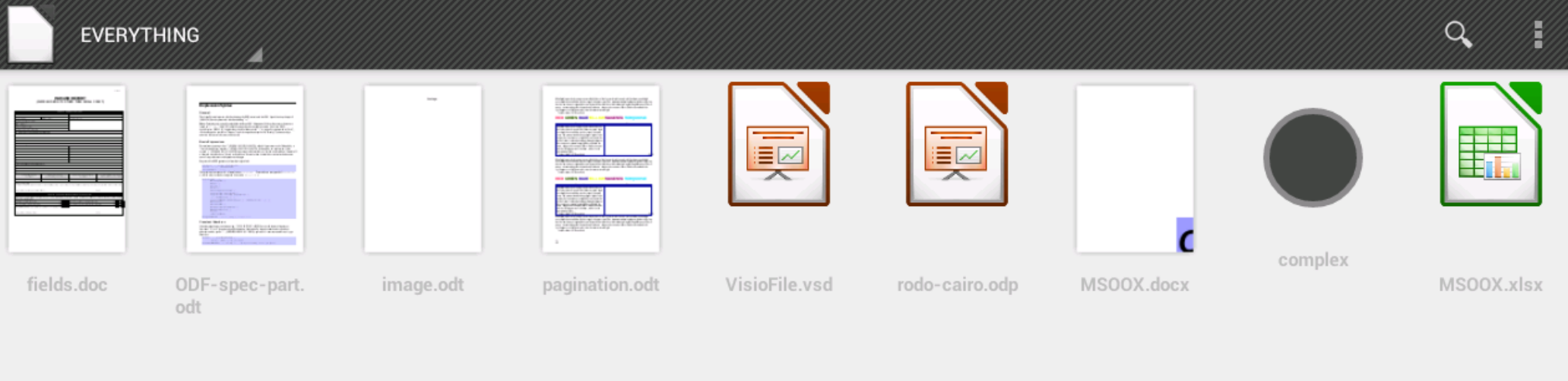
Of course, this is a terrible UI

▼ This is a proof of porting / concept hack not the headline

Page 1 / 1 Default STD 120%



5:04 3G



- ▼ *Iain Billett's GSOOC* project
 - ▼ an android viewer app ...
 - ▼ with a document collection manager / shell

Flower Office Presentation

Date: Freitag, 21. Juli 2006

Time: 10:00 - 12:30 a.m.

Location: Room 103
Saargalerie Building A3
66125 Saarbrücken

Type of meeting First Presentation

Meeting called by Flower Power Company

Chairperson Product Manager

Attendees IRMs of the European Commiss

Topics

Num	Topic	Responsible	Time
1.	Presentation of the company	Executive director	10:00
2.	Presentation of Flower Office	Product manager	10:30
3.	Demonstration of Flower Office	Marketing staff	11:30
4.	Answers and Questions	Product manager	12:00

- Pages are rendered to textures by something like a 'liblibreoffice'
- The Java native app renders textures / page numbnails etc.



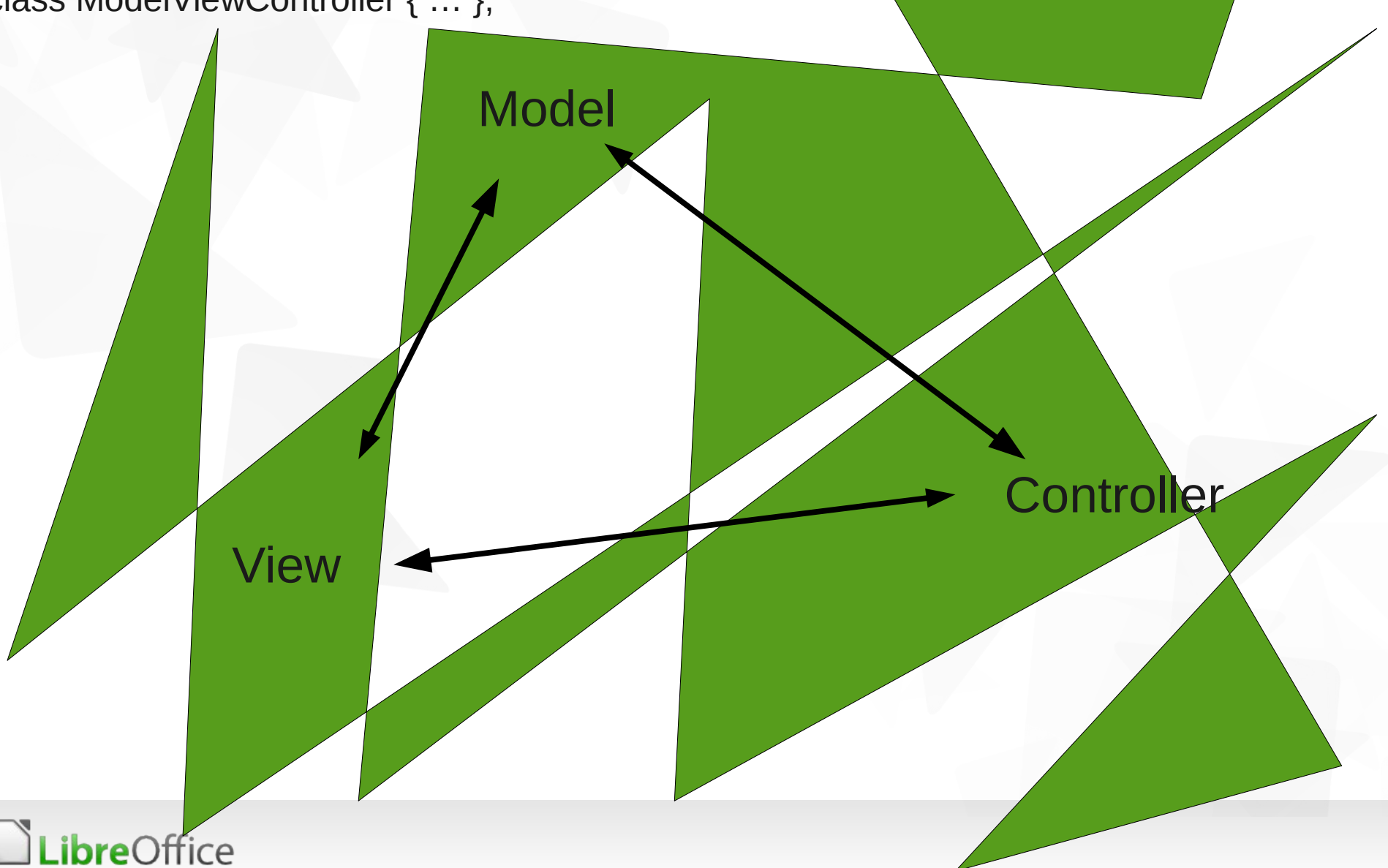
Interactive Collaboration

with a rare view of our architecture

Actual simplified internals diagram

Not quite the amusing:

```
class ModelViewController { ... };
```

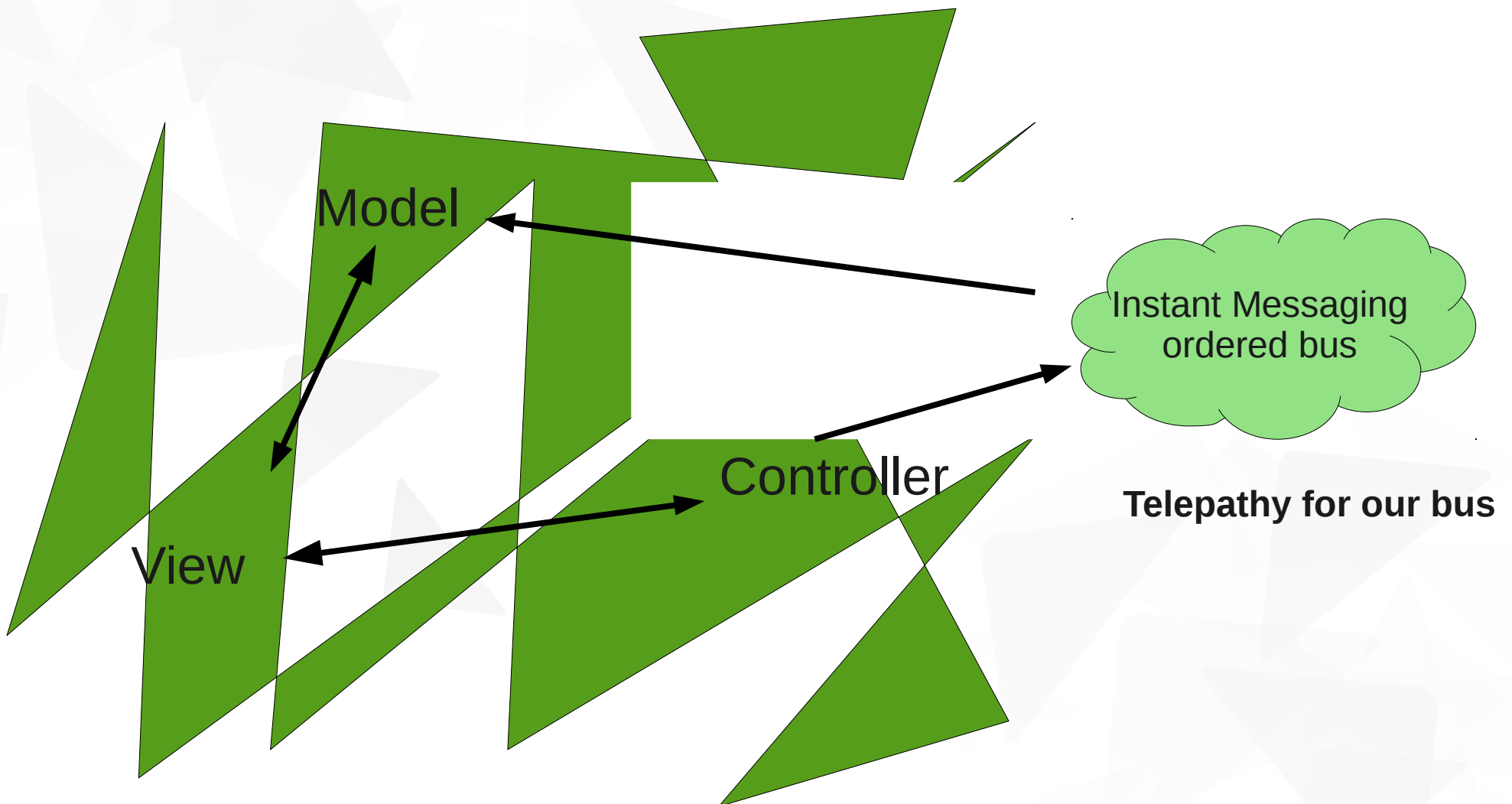


So what can we do ?

- ▼ Make some hard up-front design decisions:
 - ▼ Ordering is King
 - ▼ It doesn't matter what you do **but**
 - ▼ **always** do everything, everywhere in the same order, on every client – and we will have consistent documents.
 - ▼ Interactive conflicts can be dealt with by users as they occur: both edit the same cell, and see who wins ...

Collaboration prototype design:

By no means perfect but functional.



Some consequences

- ▼ Constraints:
 - ▼ cell editing is applied asynchronously ...
 - ▼ eg. enter “foo” in A1
 - ▼ edit sent to the IM bus
 - ▼ user moves to another cell
 - ▼ apply all messages from IM bus in order
 - ▼ “foo” entered into A1 ...
 - ▼ Potential latency issue
 - ▼ Implementable is feasible in linear time
 - ▼ No blue-sky monster re-work necessary ...
 - ▼ **DEMO – Thanks to:**
 - Matus Kukan (GSOC), Will Thompson (Collabora),
Eike Rathke (RedHat), Michael Meeks (SUSE)*

LibreOffice on-line ...
(getting pixels to users)

Cloud Office / HTML5 prototype ...

- ▼ Rendering using the **HTML5 Canvas** ...
- ▼ Communication using Web-Sockets (**now with v7**)
 - ▼ very simple plain-text event / control protocol
 - ▼ **compressed png** for screen updates ...
- ▼ Bandwidth usage **low** for simple tasks:
 - ▼ We can see what is re-rendered as we type:
 - ▼ But really as we type a character: only **this** is sent:
 - ▼ And that tiny rectangle is png compressed ...
 - ▼ CopyArea on the client for scrolling.

Hello World this is me typi



Cloud Office ... technologies ...



- ▼ Uses gtk+ 3's / broadway backend to render (via some javascript shims) in the browser:
 - ▼ All intelligence and rendering on the 'server' app.
 - ▼ **broadway.js - < 3k LOC ...**
- ▼ **Still a prototype**
 - ▼ rendering performance improving, but lumpy in places.
- ▼ This approach allows a full-feature experience
 - ▼ ie. complex text-layout, large, complex spreadsheets, WYSIWYG (eg. edit your footnotes on the page), VBA macros, Pivot Tables etc.
- ▼ Also a number of challenges:
 - ▼ Good APIs for printing etc.

Example:

Custom contoured picture, with text fill

File Edit View History Bookmarks Tools Help

broadway 2.0


http://localhost:8080/

File Edit View Insert Format Table Tools Window Help

Gnome/OpenOffice 1.1

A small table with an embedded imager

This is a picture of our wedding with some nice text flow going on around it, of course you can edit a custom contour as well as having a crude ellipse, which makes for a very nice look. Below it is an alpha blended free-hand, filled spline with drop shadow and gradient.



And chart of the week:

Persistant Sins

- Jealousy
- Pride
- Lust
- Idleness

It can't possibly perform!

- ▶ LibreOffice in-use in multi-user remote/X environments
- ▶ Load avg 0.05/0.3/0.34 for 73 live users in writer, and 10 in calc.
- ▶ 4 CPU Quad-Core estimated 200-300 concurrent users.
- ▶ If rented servers in the cloud are truly cheaper it should be cheap.

```
xterm (on linux-i3od)
top - 12:11:29 up 5:35, 2 users, load average: 0.05, 0.30, 0.34
Tasks: 693 total, 1 running, 687 sleeping, 0 stopped, 5 zombie
Cpu0  : 30.5%us, 4.4%sy, 0.0%ni, 63.8%id, 0.0%wa, 0.3%hi, 1.0%si, 0.0%st
Cpu1  : 1.3%us, 0.3%sy, 0.0%ni, 98.4%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu2  : 5.9%us, 1.3%sy, 0.0%ni, 92.8%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu3  : 2.3%us, 1.0%sy, 0.0%ni, 96.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu4  : 13.3%us, 2.3%sy, 0.0%ni, 84.1%id, 0.0%wa, 0.0%hi, 0.3%si, 0.0%st
Cpu5  : 0.7%us, 0.3%sy, 0.0%ni, 99.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu6  : 4.0%us, 1.0%sy, 0.0%ni, 96.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu7  : 0.3%us, 0.0%sy, 0.0%ni, 99.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu8  : 5.6%us, 1.0%sy, 0.0%ni, 93.5%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu9  : 0.3%us, 2.0%sy, 0.0%ni, 97.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu10 : 5.3%us, 2.6%sy, 0.0%ni, 92.1%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu11 : 1.0%us, 0.3%sy, 0.0%ni, 98.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu12 : 1.3%us, 0.3%sy, 0.0%ni, 98.3%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu13 : 0.3%us, 0.3%sy, 0.0%ni, 99.3%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu14 : 0.3%us, 0.0%sy, 0.0%ni, 99.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu15 : 0.3%us, 1.6%sy, 0.0%ni, 98.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem:  48394M total, 34196M used, 14198M free, 263M buffers
Swap: 20489M total, 0M used, 20489M free, 1845M cached

  PID USER      PR  NI  VIRT  RES  SHR  S %CPU %MEM    TIME+  COMMAND
 27496      20    0 631m 104m 68m  S   43  0.2    0:01.31 soffice.bin
26196      20    0 12.8g 1.6g 91m  S   5  3.4    2:28.24 soffice.bin
 2313      20    0 12.7g 238m 89m  S   4  0.5    0:13.94 soffice.bin
27547      20    0 160m 19m 10m  S   3  0.0    0:00.10 oooorunning.py
  412      20    0 12.8g 1.6g 85m  S   3  3.4    2:48.94 soffice.bin
27489      20    0 157m 19m 10m  S   3  0.0    0:00.09 ooolaunching.py
32029      20    0 12.8g 363m 92m  S   3  0.8    0:41.87 soffice.bin
13937      20    0 1069m 484m 91m  S   2  1.0    0:41.75 soffice.bin
27175      20    0 655m 122m 76m  S   2  0.3    0:03.40 soffice.bin
23915      20    0 13.0g 419m 96m  S   2  0.9    0:18.95 soffice.bin
15997      20    0 12.8g 451m 92m  S   1  0.9    1:47.29 soffice.bin
17200      20    0 12.7g 254m 87m  S   1  0.5    0:50.27 soffice.bin
18159      20    0 13.1g 561m 93m  S   1  1.2    9:23.87 soffice.bin
21149      20    0 12.9g 1.7g 108m S   1  3.6    2:55.13 soffice.bin
26885      20    0 653m 117m 73m  S   1  0.2    0:03.79 soffice.bin
32663      20    0 12.9g 353m 96m  S   1  0.7    1:19.61 soffice.bin
27434      20    0 8940 1672 852  R   1  0.0    0:00.39 top
  819      39   19    0    0    0  S   0  0.0    0:04.30 kipmi0
 1677      20    0 12.8g 257m 90m  S   0  0.5    0:37.73 soffice.bin
2805      20    0 69968 4820 2772 S   0  0.0    0:14.48 cupsd
2813      20    0 12.8g 320m 82m  S   0  0.7    0:14.27 soffice.bin
2826      20    0 3840 516 372  S   0  0.0    0:08.05 nsod
 4783      20    0 12.8g 372m 81m  S   0  0.8    0:18.36 soffice.bin
 5916      20    0 12.8g 327m 86m  S   0  0.7    0:23.40 soffice.bin
11115      20    0 12.7g 200m 87m  S   0  0.4    0:17.43 soffice.bin
12105      20    0 12.9g 331m 92m  S   0  0.7    0:14.43 soffice.bin
12279      20    0 662m 120m 69m  S   0  0.2    0:07.60 soffice.bin
12412      20    0 1098m 551m 86m  S   0  1.1    0:38.52 soffice.bin
19568      20    0 13.0g 1.7g 96m  S   0  3.6    2:06.37 soffice.bin
20246      20    0 12.8g 528m 82m  S   0  1.1    0:22.29 soffice.bin
21063      20    0 833m 292m 79m  S   0  0.6    0:32.10 soffice.bin
26972      20    0 13.2g 607m 99m  S   0  1.3    1:37.90 soffice.bin
27879      20    0 12.8g 382m 98m  S   0  0.8    1:32.71 soffice.bin
29839      20    0 690m 151m 80m  S   0  0.3    0:50.05 soffice.bin
32005      20    0 12.8g 420m 96m  S   0  0.9    1:05.29 soffice.bin
   1 root      20    0 8072 748 628  S   0  0.0    0:02.45 init
   2 root      15  -5    0    0    0  S   0  0.0    0:00.00 kthreadd
   3 root      RT -5    0    0    0  S   0  0.0    0:00.01 migration/0
   4 root      15  -5    0    0    0  S   0  0.0    0:07.35 ksoftirqd/0
   5 root      RT -5    0    0    0  S   0  0.0    0:00.00 watchdog/0
   6 root      RT -5    0    0    0  S   0  0.0    0:00.02 migration/1
   7 root      15  -5    0    0    0  S   0  0.0    0:07.57 ksoftirqd/1
   8 root      RT -5    0    0    0  S   0  0.0    0:00.00 watchdog/1
   9 root      RT -5    0    0    0  S   0  0.0    0:00.05 migration/2
  10 root     15  -5    0    0    0  S   0  0.0    0:02.41 ksoftirqd/2
  11 root      RT -5    0    0    0  S   0  0.0    0:00.00 watchdog/2
  12 root      RT -5    0    0    0  S   0  0.0    0:00.10 migration/3
  13 root     15  -5    0    0    0  S   0  0.0    0:01.81 ksoftirqd/3
  14 root      RT -5    0    0    0  S   0  0.0    0:00.00 watchdog/3
  15 root      RT -5    0    0    0  S   0  0.0    0:00.10 migration/4
  16 root     15  -5    0    0    0  S   0  0.0    0:03.08 ksoftirqd/4
  17 root      RT -5    0    0    0  S   0  0.0    0:00.00 watchdog/4
```


Getting involved ...
how you can make a difference

Easy Hacks / Gerrit / QA ...

- ▼ Easy hacks page
 - ▼ Generated from simple whiteboard annotation in bugzilla
 - ▼ http://wiki.documentfoundation.org/Development/Easy_Hacks
 - ▼ changes welcome !
 - ▼ *Thanks to **Bjoern Michaelsen** (Canonical) and others.*
- ▼ Gerrit - <https://gerrit.libreoffice.org>
 - ▼ Magic to turns an openID account (eg. Gmail)
 - ▼ Into no-ask git commit / push access to gerrit
- ▼ QA / Bug Triage: [**bibsect**]
 - ▼ Keeping on-top of the incoming bug flow ...
 - ▼ See <http://wiki.documentfoundation.org/BugTriage>
 - ▼ Get involved in testing **master** or release-candidates

Conclusions & Thanks ...



- **LibreOffice is growing & executing**
 - Improving for developers: still lots to do ...
 - Improving for users: still a long way to go ...
- **We have fertile work for new contributors**
 - Want to make a real difference ? Apply here ...
- **Please do get involved in whatever way you can:**
 - Bug triage, QA, coding, web-design ... appreciated.
- **Thank you for your support !**

Oh, that my words were recorded, that they were written on a scroll, that they were inscribed with an iron tool on lead, or engraved in rock for ever! I know that my Redeemer lives, and that in the end he will stand upon the earth. And though this body has been destroyed yet in my flesh I will see God, I myself will see him, with my own eyes - I and not another. How my heart yearns within me. - Job 19: 23-27



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