LibreOffice: Development and Future ...

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“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
Agenda / outline

- The Hungarian contribution
- people who speak your language …
- Development update & details
- Sample bug fix
- Demos of the future / prototypes
- LibreOffice on-line, on Android, Collaborative editing, liblibreoffice
Hungary's contribution to LibreOffice
LibreOffice: started here

Budapest, Sep 2, 2010

Mokka cafe – thanks: Kálmán Kéménczy
Outstanding Hungarian Contributors ...

✓ Andras Timar
✓ ESC member, l10n leader
✓ Miklos Vajna
✓ superstar interoperability hacker
✓ László Németh
✓ spell, complex text, DTP, LibreLogo & more ...
✓ Gábor Kelemen
✓ exemplary localisation
✓ Kálmán „KAMI” Szalai
✓ Oxygen Office creator
✓ Robert Nagy
✓ OpenBSD hacker
✓ János M. Uray
✓ Gergő Mocsi
✓ Ádám Csaba Király
✓ Tamás Zolnai
✓ Andras Bartek
✓ Istvan Turi
✓ Gábor Stefanik
✓ Bálint Dózsa
✓ Kálmán Kéménczy
✓ Bence Babati
✓ Dávid Vastag
✓ Szabolcs Dezsi
✓ Peter Rabi
✓ Gabor Jenei
✓ Bence Tomcsik
✓ Daniel Mihalyi
✓ Krisztian Pinter
Development distinctives
Permission free, low friction on-ramp

- Easy hacks page
  - We want your first patch to be non-controversial, and easy, so you're up-to-speed and included outright:
  - changes are most welcome!

- Open Mailing lists
  - No subscription required
  - No Reply-To: mangling – 'I get a reply not just the list'
  - Mail your patch and you're done …

- Documentation http://docs.libreoffice.org/
  - 200+ READMEs files with overview in git modules …
  - migration of comments to doxygen format
Gerrit – permission free commits

- Gerrit - https://gerrit.libreoffice.org
- Magic to turn 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
Code contributors ...

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

Active code comitters breakdown by month
Reliable out-of-master builds ...

Lots of big / fast / ccache enabled tinderbox slaves.

Android (x86, ARM), iOS, (many) Linux x86, x86_64, Windows, Mac

Building & up-loading binaries as well for QA.

Thanks to Norbert Thiebaud Bytemark & more
Large, fun and growing community

Many other contributors to enjoy working with:
Making the code readable / hackable
Using a standard make tool (gnumake)

- Now complete work to kill 'dmake' – 4.1 is clean.
- Faster, more standard & hack-able
- Huge parallelism possible for builds on big-iron.
- Enables library merging → one monster lib.

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

![gnumake vs. dmake by module count chart]
Translating German Comments

- Makes things **significantly** easier for non-Germans …
- ~20k lines done - ~20k to go ~40%...
- Making the code more internationally accessible ...
- Lots of comment translators distracted by code hacking...

Detected lines of German comment

With thanks to (recent translators):
Philipp Weissenbacher
Philipp Riemer
Samuel Mehrbrodt
Enrico Weigelt
Lennard Wasserthal
Albert Thuswaldner
Oliver Günther
Markus Maier
Peter Baumgarten
and many more!
Catching up to 1995: layout

- Thanks to Caolan McNamara, Gokul, Joren De Cuyper
- Sizing, positioning, Designer tweaking, much improved l10n
- Start of a long process:
  - 100 (of 500) dialogs converted
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)
Miklos Vjana
Kohei Yoshida
(SUSE)
Artur Dorda
Daniel Bankstone
(GSOC)
Caolan McNamara
Michael Stahl
(Redhat)
And many more
Who got tired of fixing
The same bugs ...
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

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.

Sign in
Component
Details
Description
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
FORMULA
FILTER

Sub component
Version

EDITING
4.0.0.0.beta1

Operating system
Latest known-working version:

All
None

Subject:

Long description:

Problem description:

Steps to reproduce:
1. ....
2. ....
3. ....

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

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Loic Dachary & Rob Snelders

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Release often, and predictably on-time ...

- **A time based, six-monthly** release train ...
- **synchronized** with the Linux distributions cadence
  - ie. a normal Free Software project
- **rapid fire, (monthly)** bug-fix releases: ~1x per 2 weeks.
- **Any bugs only partially fixed**: can be re-fixed in < a month.

### LibreOffice Releases

By using a time-based release schedule and maintaining two parallel branches, LibreOffice will always be available both for early adopters and conservative users, with the most appropriate version for each group's specific needs and habits.

<table>
<thead>
<tr>
<th>3.3 Family</th>
<th>3.3.2</th>
<th>3.3.3</th>
<th>3.3.4</th>
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<tr>
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<td>3.4.0</td>
<td>3.4.1</td>
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<td>3.5 Family</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Developers</th>
<th>daily snapshots of master / self-built versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding Edge</td>
<td></td>
</tr>
<tr>
<td>Stable</td>
<td></td>
</tr>
<tr>
<td>Very Stable</td>
<td></td>
</tr>
<tr>
<td>Rock Solid</td>
<td></td>
</tr>
</tbody>
</table>
Worked examples of a fix
The problem: a bug ...

“My Document doesn't work”

An RTF document it doesn't import properly; missing an image.
CALCIO DELLA TRASMITTANZA CONTROTERRA secondo UNI EN ISO 13370

Pavimento appoggiato su terreno:

Area del pavimento: 67,47 m²
Perimetro disposto del pavimento: 38,80 m
Spezzone pareti perimetrali esterne: 390 mm
Conduttività termica del terreno: 2,00 W/mK

CARATTERISTICHE TERMICHE E IGROMETRICHE DEI COMPONENTI OPACHI secondo UNI EN 12831 - UNI EN ISO 6946 - UNI EN ISO 13370

Descrizione della struttura: copertura

Tabella:

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Descrizione strato</th>
<th>s (mm)</th>
<th>Cond. (W/mK)</th>
<th>R (m²K/W)</th>
<th>M.V. (kg/m³)</th>
<th>C.T. (W/mK)</th>
<th>R.V. (W/m²K)</th>
</tr>
</thead>
<tbody>
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<td>0,030</td>
<td>400</td>
<td>0,89</td>
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<td></td>
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<tr>
<td>3</td>
<td>OS83</td>
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<td>-</td>
<td>615</td>
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<tr>
<td>4</td>
<td>Impregnazione chimica con MVR 200</td>
<td>20,00</td>
<td>0,030</td>
<td>615</td>
<td>2,05</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>ERK Poliplast</td>
<td>9,30</td>
<td>0,030</td>
<td>200</td>
<td>2,78</td>
<td>20</td>
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<tr>
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<td>0,030</td>
<td>940</td>
<td>1,80</td>
<td></td>
<td></td>
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<tr>
<td>9</td>
<td>Leghe di alluminio</td>
<td>25,00</td>
<td>0,030</td>
<td>940</td>
<td>1,80</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td>Leghe di alluminio</td>
<td>25,00</td>
<td>0,030</td>
<td>940</td>
<td>1,80</td>
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<tr>
<td>11</td>
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<td>2,00</td>
<td>0,030</td>
<td>200</td>
<td>2,78</td>
<td>20</td>
<td>-</td>
</tr>
</tbody>
</table>

Legenda simboli:

s: Spessore
Cond.: Conduttività termica, comprensiva di eventuale maggiorezione
R: Resistenza termica
M.V.: Massa volumica
C.T.: capacità termica specifica
R.V.: Riferimento alla diffusione del vapore in capo asciutto
CALCOLO DELLA TRASMITTANZA CONTROTERRA secondo UNI EN ISO 13370

**Spessore su terreno:**

- **Copperta:** 67,47 m²
- **Pavimento:** 38,00 m
- **Perimetro esterno:** 390 mm
- **Resistenza termica del terreno:** 2,00 W/m²

**Descrizione della struttura:**

**Copperta:**

- **Trasmissanza termica:** 0,190 W/m²K
- **Spessore:** 309 mm
- **Temperatura esterna (colco potenza inviamente):** -6,0 °C
- **Pienzezza:** 1,511 m
- **Massa superficiale (sottofondi):** 93 kg/m²
- **Massa superficiale (soprafondi):** 93 kg/m²
- **Trasissanza periodica:** 0,067 W/m²K
- **Fattore attenuazione:** 0,351
- **Sfasamento onda termica:** -11,7 h

**Stratigrafia:**

<table>
<thead>
<tr>
<th>N.</th>
<th>Descrizione strato</th>
<th>s</th>
<th>Cond.</th>
<th>R</th>
<th>N.V.</th>
<th>C.T.</th>
<th>R.V.</th>
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<tr>
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<td>7</td>
<td>MARROCK ENERGY 80 mm</td>
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<td>9</td>
<td>Legno di abete fluente, impregnato</td>
<td>25,00</td>
<td>0,120</td>
<td>459</td>
<td>2,70</td>
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<td></td>
</tr>
<tr>
<td>10</td>
<td>Legno di abete fluente, impregnato</td>
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<td>0,120</td>
<td>459</td>
<td>2,70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legenda simboli:**

- s: Spessore
- Cond: Conduttività termica, complessiva di eventuale maggotazione
- R: Riuscienza termica
- N.V.: N. Volumetrico
- C.T.: Capacità termica specifica
- R.V.: Rappresentaizione della resistenza alla diffusione del vapore in capo asciutto

**Sistema Design**

Visita della Stazione, 18 - Chio (PI)
Digging deeper for a solution:

Turns out to be un-related to RTF
A badly formed PNG image …
Data chunk has a completely bogus length

+    // fdo#61847 truncate over-long, trailing chunks
    const sal_Size nStreamPos = mrPNGStream.Tell();
    if( nStreamPos + mnChunkLen >= mnStreamSize )
      return false;
+    mnChunkLen = mnStreamSize - nStreamPos;
A satisfying fix on master. Not all that easy of course.
Future / research pipeline ... 
(or some things we're slowly working on)
Targetting many platforms …

Current tinderbox targets: not all shipping

LibreOffice

Android – X86 + ARM

Mac OS X

iOS

Raspberry Pi®
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 ...

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

The man himself...
The UI is not ideal even for a desktop. This is a proof of porting / concept hack not the headline.
Iain Billett's GSOC project

- an android viewer app ...
- with a document collection manager / shell
Pages are rendered to textures by something like a 'liblibreoffice'

The Java native app renders textures / page numbnnails etc.
Interactive Collaboration

with a rare view of our architecture
Actual simplified internals diagram

Not quite the amusing:

```java
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.

View

Model

Controller

Instant Messaging
ordered bus

Telepathy for our bus
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 typing
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

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:

Persistent Sins

[Colors: 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.
LibLibreOffice ...

Encouraging wider re-use ...
LibLibreOffice – prototype ...

- A tiny static library
- At run-time, dynamically links / exposes LibreOffice functionality
- A virtual / abstract & much simplified programming interface:
  ```cpp
  class LibLibreOffice {
  public:
    virtual bool initialize (const char *installPath) = 0;
    virtual LODocument *documentLoad (const char *url) = 0;
    virtual bool documentSave (const char *url) = 0;
  ...
  }
  LibLibreOffice *lo_init (const char *install_path);

- Planned for document conversion, Document indexing
- Ultimately for a tiled document renderer for 'Documents'
Conclusions ...

- 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