LibreOffice's Android port
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What has been done
Cross-compiling, single .so

- Need to decide what will be run on the machine building LO (build) and on the target platform (host)
- Need a single liblo-native-code.so, due to stupid Android linker limitation (128 libs)
- Need to bypass all unit tests
- Mostly done by Tor Lillqvist back in the SUSE times
DocumentLoader prototype

- This was a viewer application
  - Writer-only
- Rendered each page as a bitmap
  - Problem: what resolution to use
  - Too large: out of the memory
  - Too small: unreadable if you zoom in
- Again mostly done by Tor Lillqvist
DocumentLoader prototype
Desktop prototype

- This was an editing application
  - Still Writer-only
- Idea: in case the Android device has a real keyboard / mouse attached
- Rendered the whole desktop to a bitmap
  - Again and again … :-)
- Initially by Michael Meeks
Desktop prototype

LibreOffice / Android

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.

Of course, this is a terrible UI experience – it shows the cross-compile works and we can render....

hack.
Document browser

- Idea: most Android phones have no built-in file manager
- Let's add one that uses DocumentLoader for viewing files supported by LO
- Initially by Ian Billet (GSoC)
  - Improvements by Igalia
  - See An update on LibreOffice for Android
Document browser
Tiled rendering

- Idea: render many 256x256px tiles
  - Instead of using UNO to render a single huge bitmap
  - Used by Firefox for Android successfully
- Initially for Writer
  - Mostly by Jan Holesovsky (Collabora)
Tiled rendering for Impress

- If we can do it for Writer, it must be possible for Impress and Calc, too
- Tiled rendering for Impress
  - Initially by Andrzej Hunt (GSoC)
- And Calc... no so easy
  - Was done on a feature branch, never merged to master
Tiled rendering for Impress

Applications...

- desktop: - legacy name, StarOffice 5 had a 'desktop' complete with 'Start' menu etc.
  here lives the real 'main'
  desktop/source/app/app.cxx

- sd: - Star Draw (Impress)
  Drawings + Presentations

- sw: - 'Star Writer'
  Word processor

- sc: - Star Calc
  Spreadsheet
Tiled rendering on Android

- We use a subset of Fennec
  - Firefox for Android
- Via LibreOfficeKit
  - The tiled rendering API is currently declared unstable
  - C + C++ wrapper + JNI
- Initially by Tomaž Vajngerl (Collabora)
- Thanks to Smoose
Tiled rendering on Android
Play store release

- LibreOffice is for end-users
- One could build from source
- There were even tinderbox daily builds
- The real release is still what's available from the play store
- Several last-minute fixes
What about editing?
Tiled rendering / Calc

- Basic problem: pixels, not twip / 100\textsuperscript{th} MM
- Second try by Kohei Yoshida (Collabora) in a few days
  - Separate code, no handling of charts, etc.
- Next: got it into master, without breaking desktop rendering
  - Further improvements: see work by Krisztián Pintér
Tiled editing

- If we have a viewer, why not allow editing, too?
- Needs input handling and lifecycle management for tiles
- Firefox renders webpages
  - Javascript → they need to update rendered webpages as well
gtktiledviewer

- Android wants a whole .apk each time
  - See also the mentioned single .so
  - Development not productive
- Let's sort out core + sample LOK client via GTK
- Real 256x256px tiles there by me
Basic editing framework, selections

- Kindly sponsored by TDF
- Since doing all the heavy-lifting for free did not happen for quite some time
- Not a product, but enough that the rest can be done as usual development
- Selections, as that requires a working overlay
Hello world: Blinking text

- Example of changing document
- Without input handling
Keyboard and mouse/touch

- Keyboard: Unicode + control characters
- Need to map backspace to e.g. .uno:SwBackspace
  - Requires a fully working SfxDispatcher
- Mouse/touch
  - Tap somewhere → blinking cursor appears
  - Long push → selects words
Native overlay

- Content that should be outside the tiles
- E.g. blinking cursor
- Selection, handles to adjust it
- And then: the same for Calc, Impress :-}
Writer Android Demo
Calc Android Demo
Plans for the future
Easy hacks

- Support for flat ODF
  - Find what services are missing and enable them
- Support for Search
  - LOK API is there
- Support copying of text
  - LOK API is again ready to use
- Feedback about save
  - Error reporting, when it is complete
Thanks

• Collabora is an open source consulting company
  • What we do and share with the community has to be paid by someone

• SUSE, Smoose and TDF sponsored this work

• Credits: Henry Castro, Jan Holesovsky, Kohei Yoshida, Michael Meeks, Miklos Vajna, Siqi Liu, Tomaz Vajngerl
Summary

● LibreOffice on Android is in progress since 2010
  ● Viewer now available in the Play store
  ● Editing is an experimental feature
  ● Sounds interesting?
  ● Plenty of easy hacks around the document browser in the bugzilla

● Thanks for listening! :-)

● Slides: http://vmiklos.hu/odp