LibreOffice on Android

struggles of a largish native app
Introduction

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- AKA cloph on irc/elsewhere
- part of the project since the very beginning (infra side)
- since a few years employed by TDF
  - initially part-time as infrastructure administrator
  - later fulltime as sysadmin and release engineer
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Timeline

- September 2011: first successful cross-compilation with the NDK (efforts did start in May)
- alongside: August 2011: start of mergelibs feature
- April 2012 first pokes at a UI (Impress Remote App accepted as GSoC project as well as the LibreOffice for Android project)
First hurdles

- linking time
- text relocations / non-PIC from external libraries
- buildsystem still in rework to gbuid (gnu make)
Timeline (cont)

- May 2012: DocumentLoader – renders a predefined sample document to a bitmap to display, android bugs along the way [https://issuetracker.google.com/issues/36949059](https://issuetracker.google.com/issues/36949059)
- birth of tiled rendering API effort
- June 2012: had the DocumentLoader and an experimental UI → LibreOffice4Android to combine the two
- July 2012: start of x86 support
- August 2012 ndk 8 with gold linker
- yet another “desktop” frontend
Where to go?

- multiple UI efforts started, still unclear where it will lead to, all gates open for experiments
- different coding styles/philosophies right from the get-go
Timeline (cont)

- February 2013: text input and touch events
- March 2013: zooming
- refining what was already there rework scaling, add scrolling, similar stuff
Problems

- kinda isolated, not much other people payed attention
- Impress remote was much easier to get into and see results with
- build system still undergoing restructuring
Timeline (cont)

- June 2014: Android Viewer project landed, using mozilla's Fennec (LOAndroid)
- also June 2014: LOAndroid2 using GLES2 (mozilla gecko)
- also June 2014: LOAndroid3 (based on LibreOffice4Android) use ant/make to get and apk…
Problems

- choices everywhere….
- how do others deal with it?
Timeline (cont)

- **July 2014:**
  - use LibreOfficeKit
  - use tiledrendering
- **September 2014:**
  - merge LibreOffice4Android & LOAndroid3
- **October 2014:**
  - redraw on orientation change
- **December 2014:**
  - obsolete DocumentLoader
  - dump LOAndroid and LOAndroid2
  - priority based rendering (low-res tiles)
  - support Draw documents
Problems

- yay – LibreOfficeKit! now there is a plan on how to deal with rendering/interaction
- first taste of Lifecycle issues
- consolidating work
Timeline (cont)

- January 2015: callbacks from LibreOfficeKit to JNI/Java add Calc documents handle keyboard input
- February 2015: swipe gesture for presentation text selections
- March 2015: select graphic objects use appcompat-v7 introduce editing toolbar
Timeline (cont)

- April 2015:
  bin old eclipse workspace/UI form 2012
  handle italics/strikeout/underline

- May 2015:
  editing as opt-in, settings for sort/filter options
  bin “desktop” app and documentloader

- Android port “matures”
  android/experimental/LOAndroid3
  → android/source
All good, right?

- kinda – progress was mostly due to a tender
- but laid the foundation for current workings
Timeline (cont)

- June 2015:
  owncloud provider

- September 2015:
  save to owncloud
  also refactor, fix obsoleted stuff to bump
  appcompat-v7 version

- October 2015:
  Android Studio layout editor improvements
  cleanups
  migrate to gradle!
  AssetsManager in java and native code
Timeline (cont)

- November 2015:
  fix corner cases with some docs
  add bottom formatting toolbar
  search, undo/redo

- December 2015:
  storage access once more (OTG/external storage)

- 2016 was a slow year
  mostly fixing document provider bugs, struggle with different devices
  refresh using material guidelines and icons

- November 2016:
  gradle with instant-run
  confirm save when closing
Problems

- tender was over, laid foundation, so that gained some interest, but still kinda hard to work and debug it
- volunteer priorities not necessarily those of endusers
- Fix my bug!!einsel!
Timeline (cont)

- January 2017: revamt document selector once more reduce use of static context objects
- February 2017: add recently used documents yet another change to document providers
- March 2017: insert numbering/bullets bottom toolbar refresh increase/decrease font size and similar add way to create new document
Timeline (cont)

- April 2017:
  android lint fixes
  search: move view to result
  add page count indicator
  redo creation of documents (backwards compatibility)
  double-tap zoom in/out

- May 2017:
  presentation mode

- June 2017:
  start of calc UI

- July 2017:
  resize/change width/hide columns/rows
Timeline (cont)

- August 2017:
  Font color, color picker support for password protected documents
  `extractNativeLibs="false"`

- September 2017:
  drop workarounds for ndk-gdb

- November 2017:
  insert pictures (but not in writer)
Problems

- mostly minor things
- still struggling with the size of the project (hitting the 100MB limit)
- external libs also need updates (removal of ant support)
Timeline (cont)

- January 2018:
  - option to show hidden files/folders
  - fix timing related crashes
    - unified headers and llvm-c++
    - dynamic permissions (AKA yet another rework of the storage stuff)
    - further removal of static context usage
  - add slides to presentation
  - font background color

- February 2018:
  - add sheets to calc
Timeline (cont)

- March 2018: clipboard actions
- April 2018: improvements to dynamic permission handling
- May 2018: insert/delete tables in Writer
- July 2018: more unhandled exceptions
  developer mode
  rename/delete worksheets and slides
- August 2018:
  store edited document when switching apps/resume with the edited document
  pdf export, printing
  clear format
Problems

- People picked up interest again
- too bad that there we're still lacking behind