



# LibreOffice Development

## Kohei Yoshida

# Who am I?

- ▼ Volunteer code contributor to OpenOffice.org (OOo) since 2004.
- ▼ Core developer on OOo/LibreOffice (2007-2015)
  - ▼ Employed by Novell/SUSE to work on OOo and later LibreOffice (2007-2013).
  - ▼ Contracted by Collabora Productivity to work on and maintain LibreOffice (2013-2015).
- ▼ Currently at Align Technology, doing machine learning related stuff.
- ▼ Still volunteers for LibreOffice.



# What is LibreOffice?

- ▼ <https://www.libreoffice.org/discover/libreoffice/>
- ▼ Free office suite, both as in freedom and as in beer.
- ▼ Cross-platform: Windows, Mac, Linux, FreeBSD, OpenIndiana, etc.
- ▼ Governed by The Document Foundation (TDF).
  - ▼ Give everyone access to office productivity, to enable them as full digital citizens.



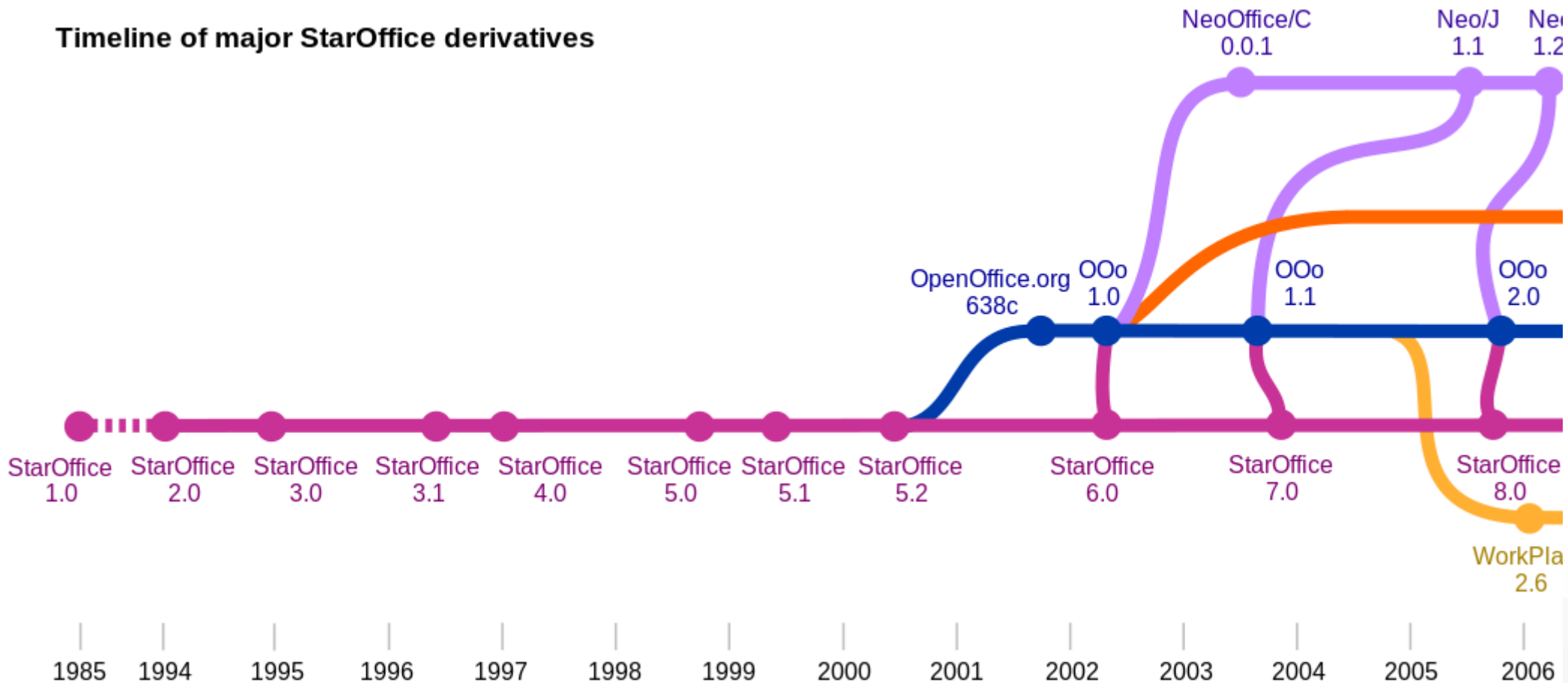
# Agenda

- ▼ LibreOffice History
- ▼ LibreOffice Today
- ▼ Key Hackers
- ▼ LibreOffice FAQ

# LibreOffice History

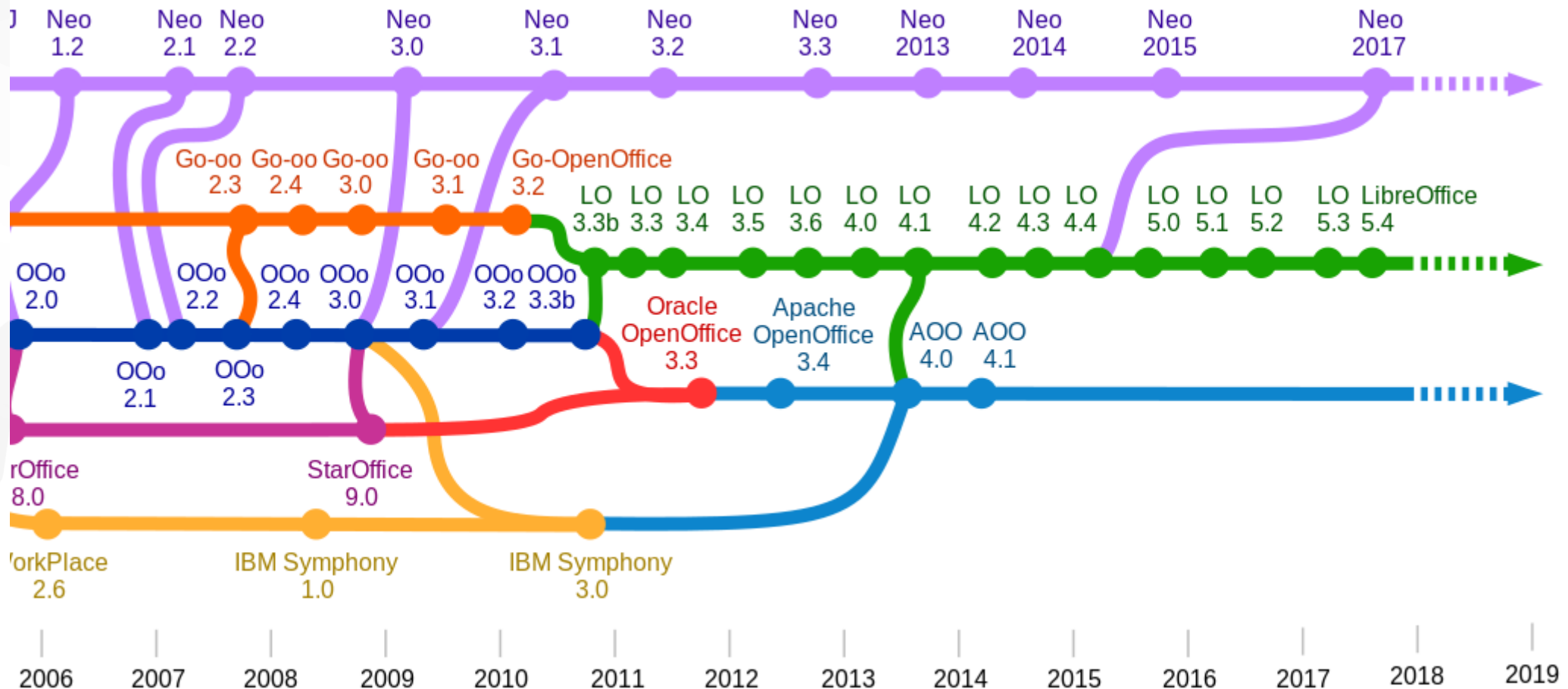
# LibreOffice Timeline (1985-2006)

Timeline of major StarOffice derivatives



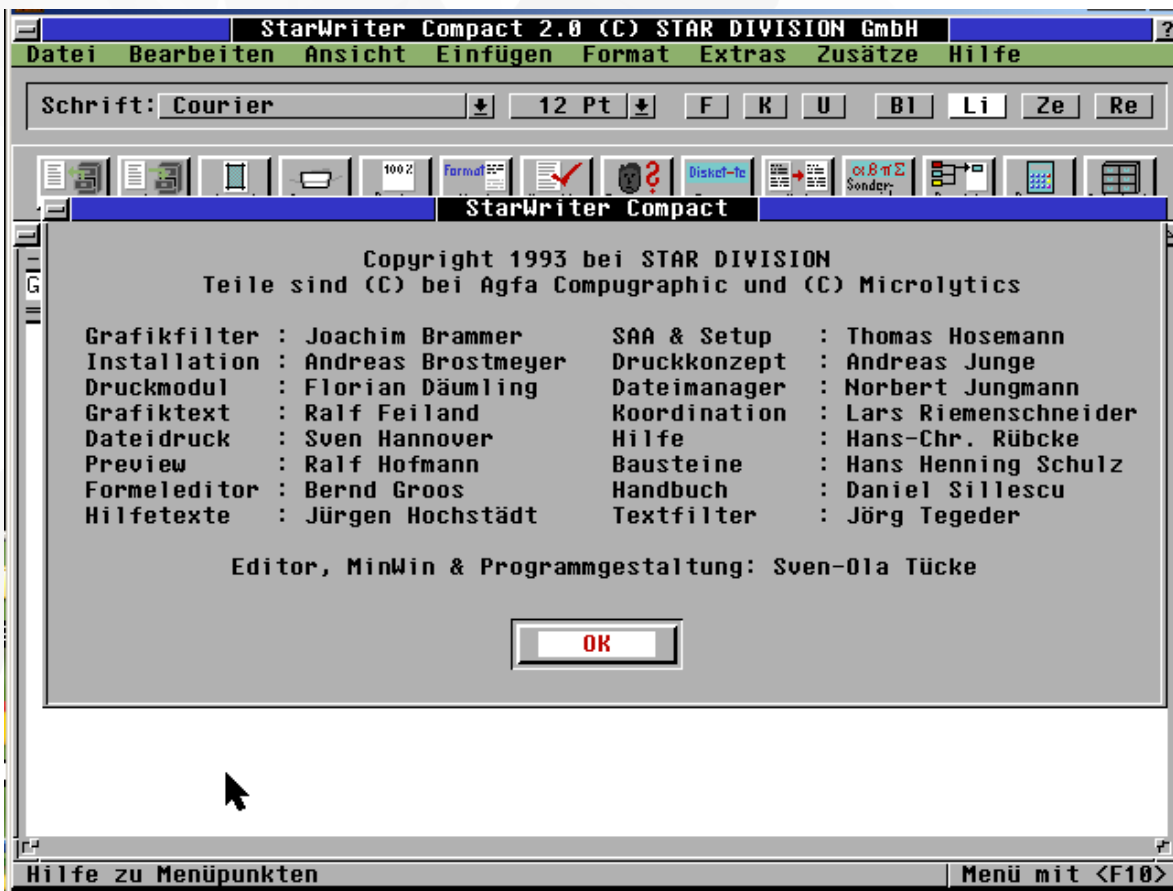
Source: <https://en.wikipedia.org/wiki/LibreOffice>

# LibreOffice Timeline (2006-)



Source: <https://en.wikipedia.org/wiki/LibreOffice>

# StarWriter, where it all began.

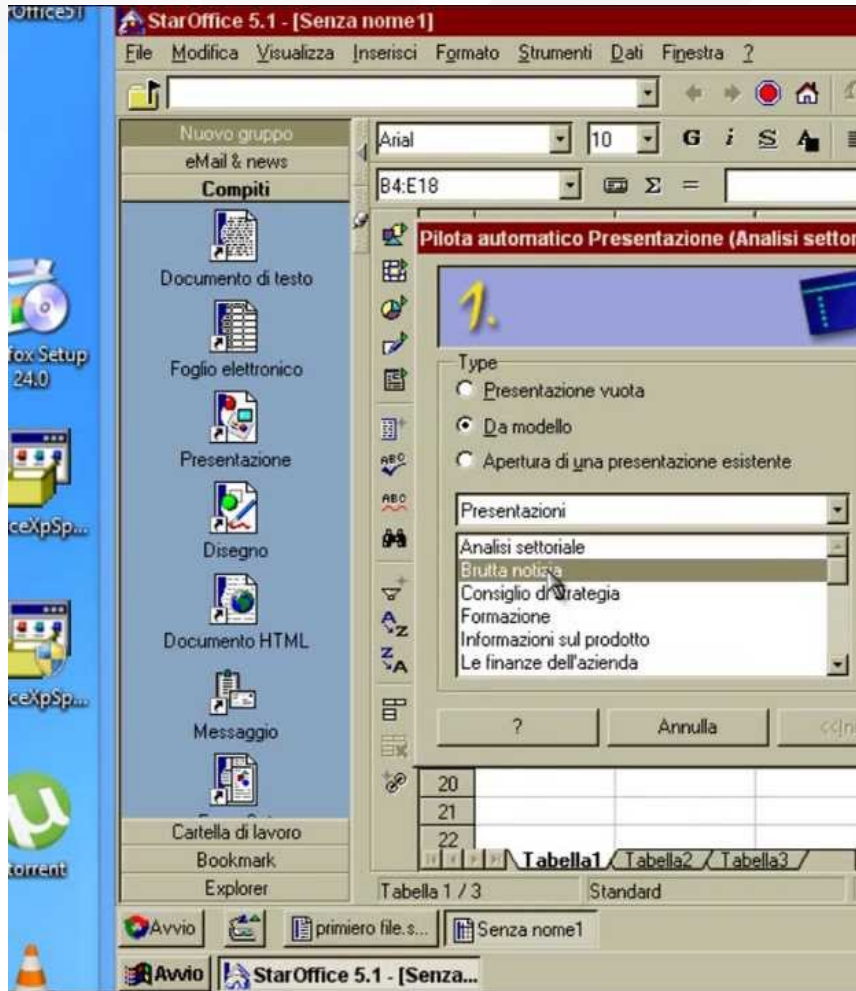


- Developed by Star Division.
- Only in Germany.
- Only Word-processing.
- Other programs to be added later.

Source image from: <https://en.wikipedia.org/wiki/StarOffice>



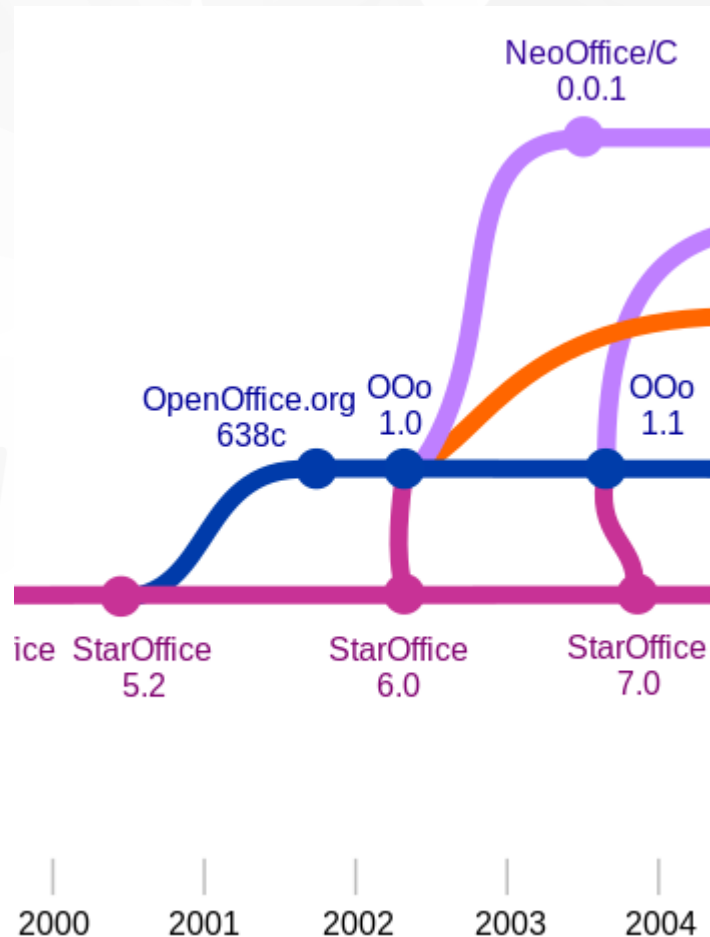
# StarOffice 5.x (1998-2000)



- Windows 95 like desktop, to take over your original desktop.
- Contains word processing, spreadsheet, presentation, drawing, HTML editor, email client, database, and math formula editor.
- Takes a few minutes to launch.

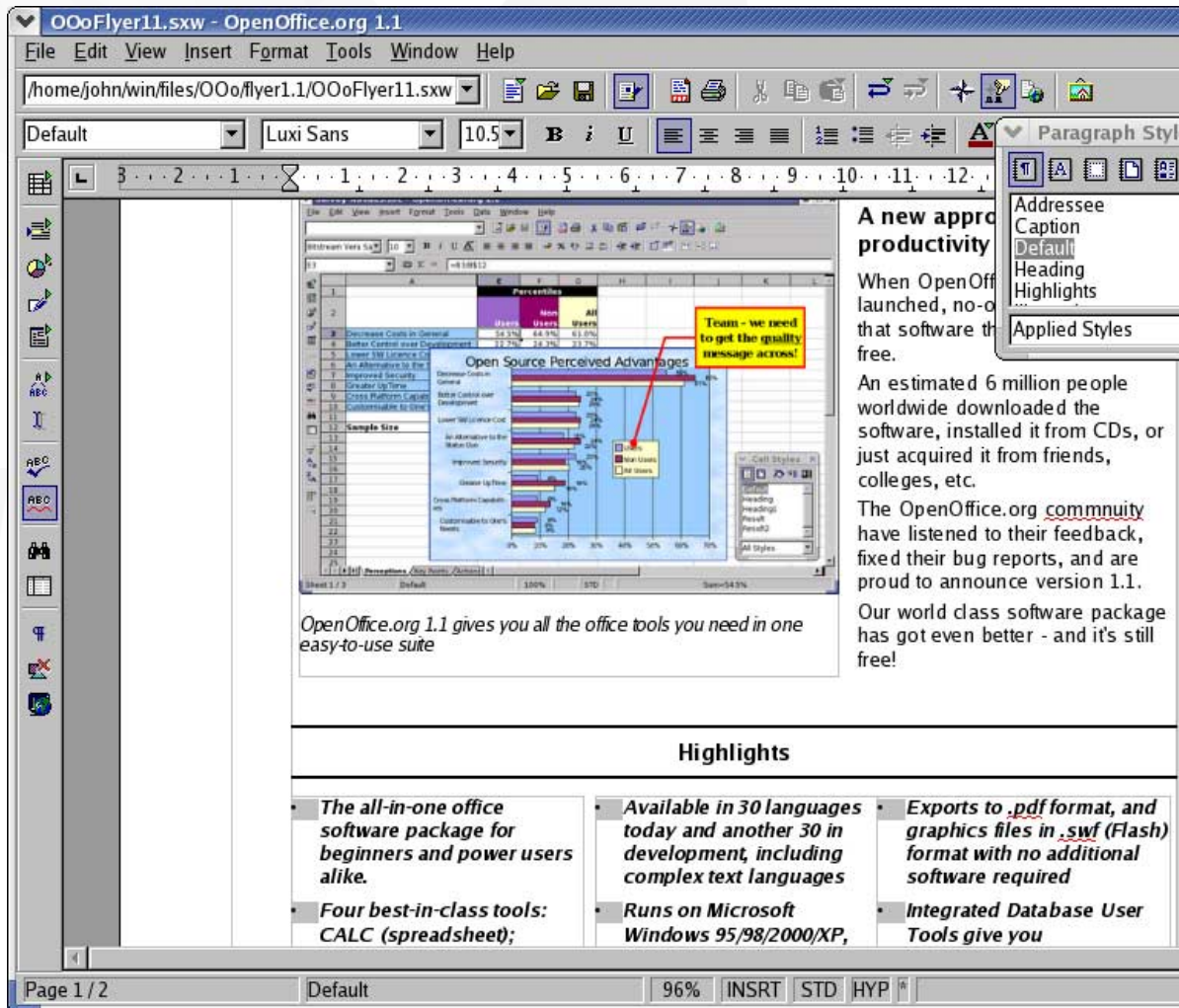
Screenshot from: <http://youtu.be/ojbP19mfZ2Q>

# OpenOffice.org Early Period (2000 ~)



- ▼ Sun to acquire Star Division in 1999, and to open-source StarOffice as OpenOffice.org in 2000.
- ▼ Engineers at Sun Microsystems dominates.
- ▼ Ximian joins as second corporate sponser, to focus on the Linux version.

# OOo 1.1



- ▶ No more integrated desktop.
- ▶ Linux version to use X11 directly for rendering (no GTK or Qt).
- ▶ Look-n-feel of Windows 95 app.

Image source: [https://www.openoffice.org/dev\\_docs/features/1.1/images/writer.jpg](https://www.openoffice.org/dev_docs/features/1.1/images/writer.jpg)

# Who is Ximian...?

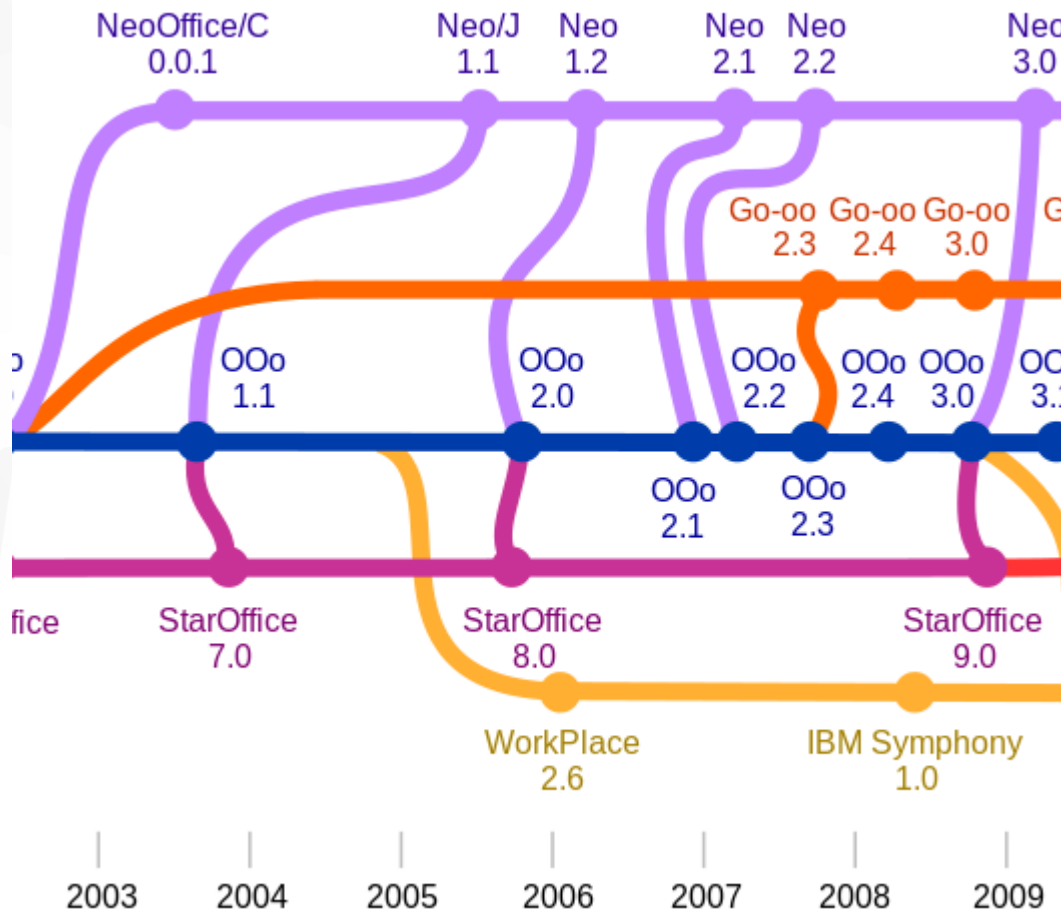


- ▼ Founded by Nat Friedman and Miguel de Icaza.
- ▼ Michael Meeks joins in 2000.
- ▼ Focused on polishing GNOME desktop.
- ▼ Ximianized OpenOffice.org - OpenOffice.org with tight GNOME integration.
  - ▼ GTK-based rendering & GNOME-themed icons.
  - ▼ GNOME accessibility framework.

Nat and Miguel later found another company called Xamarin, to focus on Mono development. Xamarin later gets acquired by Microsoft in 2016.

Image source: <https://en.wikipedia.org/wiki/Ximian>

# OpenOffice.org Period (2003 ~ 2009)

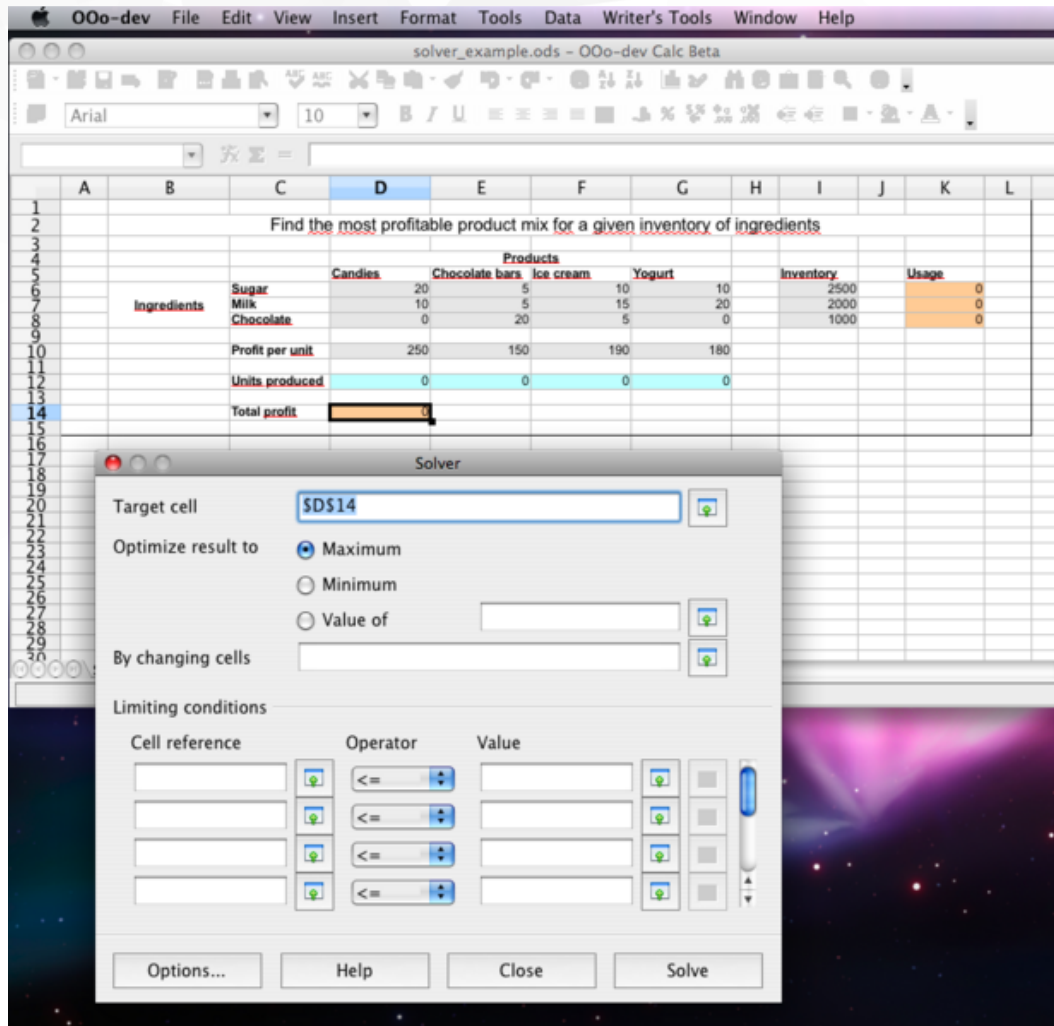


- ▼ Novell to acquire Ximian in 2003, to improve Novell Linux Desktop (NLP).
- ▼ Novell to staff 12 developers to work on OOo full-time.
- ▼ Go-OO project starts.
- ▼ OOo Novell Edition, based on Go-OO.

I join Novell in February 2007.

# OOo 3.0 / Go-OO

Image source: [https://www.openoffice.org/dev\\_docs/features/3.0/](https://www.openoffice.org/dev_docs/features/3.0/)



- ▶ Native look on all major platforms: Windows, Mac, Linux (GNOME & KDE).
- ▶ OOo mainline vs Go-OO branches.



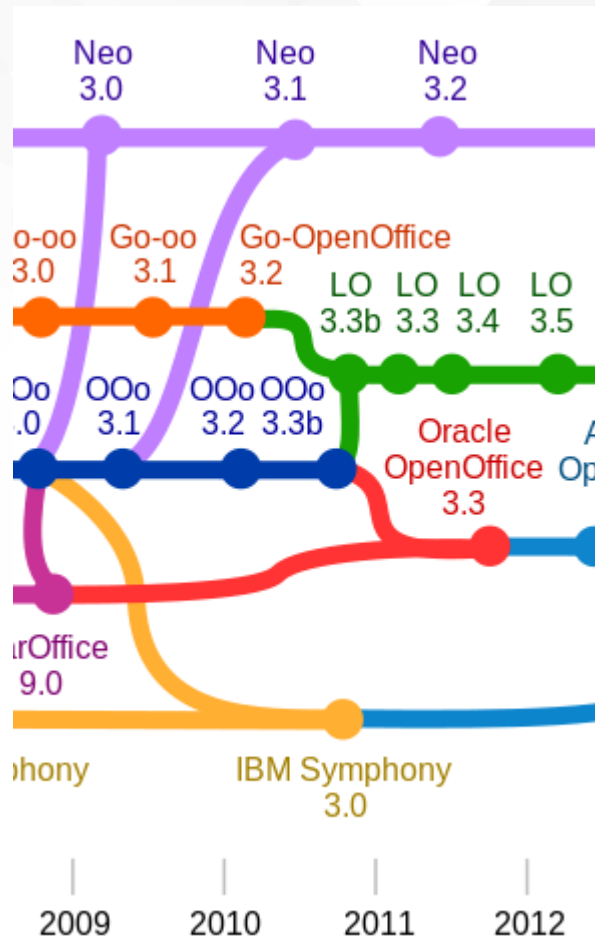
# What is Go-OO?

- ▶ Previously known as ooo-build - manually crafted build and patch-management system with patches Sun has not yet applied.
- ▶ Renamed to Go-OO to make it sound more "official".
- ▶ Effectively a semi-fork - a manifestation of community frustration against Sun-centric release/feature planning.
- ▶ Designed to be friendly for Linux distro packagers.



Image source (top): <https://lifehacker.com/5084510/go-oo-takes-the-bloat-out-of-openofficeorg>  
Image source (bottom): <https://www.dedoimedo.com/computers/oo-converters.html>

# OpenOffice.org Late Period (2010 ~)



- ▶ Oracle acquires Sun Microsystems in January 2010.
- ▶ Make Oracle OpenOffice profitable, or else...
- ▶ Communication with the outside community members ceases to exist.
- ▶ Early 2010, Novell moves OOo team to SUSE R&D.

Some key community members get together and start talking about creating a new project to "free" it out of Oracle's hands.



# LibreOffice forks... (September, 2010)

- ▼ LibreOffice forks from OOo in September 2010.
- ▼ Governed by The Document Foundation (TDF) based in Germany.
- ▼ Create community-centric governance model, to learn from the mistakes from the OOo project.
- ▼ Initial corporate sponsors: SUSE (12), Red Hat (5), Canonical (1).

# SUSE to Collabora (September, 2013)

- ▼ SUSE decides to discontinue support for LibreOffice.
- ▼ SUSE's LibreOffice team members mostly move to Collabora, to form Collabora Productivity. A few remains with SUSE.
- ▼ From R&D to for-profit consultancy.
- ▼ Focus on OpenCL and OpenGL related enhancements in Calc.
  - ▼ OpenCL formula engine.
  - ▼ OpenGL chart engine.

I leave Collabora in January 2015.

Their current focus is on Collabora Online.

<https://www.collaboraoffice.com/collabora-online/>

# Who is Collabora?

- ▼ Open-source consultancy and engineering.
- ▼ Linux kernel, X11, Wayland, GStreamer, WebKit, PulseAudio, BlueZ ...
- ▼ Automotive, embedded TV, ...
- ▼ Have **Collabora Productivity** as its subsidiary, to support LibreOffice-related consultancy. **Michael Meeks** as its managing director.



Image from <https://en.wikipedia.org/wiki/Collabora>

# What happened to OpenOffice.org ?

- ▼ In 2011, Oracle decides to:
  - ▼ Discontinue its own OOO team, and
  - ▼ Transfer the naming rights to Apache Foundation.
- ▼ Name changes from OpenOffice.org to Apache OpenOffice.
- ▼ Initially backed by IBM, but IBM silently withdraws in 2014.
- ▼ Not much development activities since then. Occasional discussions happen.

# LibreOffice Today

# Hosted on freedesktop.org (well, mostly)

- ▼ git clone git://anongit.freedesktop.org/libreoffice/core. Read-only repo.
- ▼ Mirrored on github (<https://github.com/LibreOffice>). No pull requests accepted.
- ▼ All patches go to gerrit (<https://gerrit.libreoffice.org/>) for review.



# Bug reports?

- ▼ Bugzilla on freedesktop.org (fdo) used to handle LibreOffice bugs.
- ▼ Now we have our own: <https://bugs.documentfoundation.org/>

LibreOffice bugs ended up being the vast majority in freedesktop.org's bug reports.

Bug report maintenance too much for the fdo bugzilla admin to handle.

# Continuous Integration

- ▼ Jenkins (<https://ci.libreoffice.org/>)
- ▼ Volunteers to provide hardware, for common as well as esoteric build configurations.
- ▼ Integrated with gerrit - Jenkins starts on every patch submission.



# Coverity Scan

- ▼ Free for open-source projects.
- ▼ <https://scan.coverity.com/dashboard> Requires accounts to view, not public.
- ▼ Example report snippet:  
<https://lists.freedesktop.org/archives/libreoffice/2017-December/079040.html>

# Key Hackers

that I interact with most often

# Michael Meeks

- ▼ Based in England.
- ▼ VP of Collabora Productivity.
- ▼ Long-time hacker via Ximian, Novell, SUSE, Collabora.
- ▼ Distinguished engineer at Novell.
- ▼ Contributed to GNOME, gcc, valgrind etc.
- ▼ Has his own wikipedia entry:  
[https://en.wikipedia.org/wiki/Michael\\_Meeks\\_\(software\\_developer\)](https://en.wikipedia.org/wiki/Michael_Meeks_(software_developer))



Image source: [https://en.wikipedia.org/wiki/Michael\\_Meeks\\_\(software\\_developer\)](https://en.wikipedia.org/wiki/Michael_Meeks_(software_developer))

# Markus Mohrhard

- ▼ Based in Germany.
- ▼ Key Calc hacker.
- ▼ Conditional formatting rework.
- ▼ OpenGL chart work.
- ▼ Crash reporter.
- ▼ Unit test framework.
- ▼ Others too numerous to mention.



Screenshot from: <https://www.youtube.com/watch?v=QW1BNokvsQg>

# Caolán McNamara

- ▼ Based in Ireland.
- ▼ Red Hat engineer, previously with Sun Microsystems.
- ▼ GTK+ backend.
- ▼ Dialog framework re-work: static-sized to dynamic-sized.
- ▼ His contributions to OOo/LibreOffice too numerous to mention.



Image source: <https://conference.libreoffice.org/2014/speaker/>

# Stephan Bergmann

- ▼ Based in Germany.
- ▼ Red Hat engineer, previously with Sun, and with Star Division.
- ▼ In-house C++, ABI master.
- ▼ Modernization of code base with C++11/14/17 and beyond.
- ▼ Clang plugins.



Image source: <https://conference.libreoffice.org/2014/speaker/>

# Eike Rathke

- ▼ Based in Germany.
- ▼ Red Hat engineer, formerly with Sun, and with Star Division.
- ▼ Calc's boss. Formula engine, number formatting, etc.
- ▼ Maintains i18n framework and locale data, for over 100 locales.



Image source: <https://conference.libreoffice.org/2014/speaker/>

# Thorsten Behrens

- ▼ Based in Germany.
- ▼ Currently with CIB labs, formerly with SUSE, Novell, Sun, and Star Division.
- ▼ Graphics sub-systems incl. VCL.
- ▼ Impress and Writer experts.
- ▼ 16+ years with the code base.



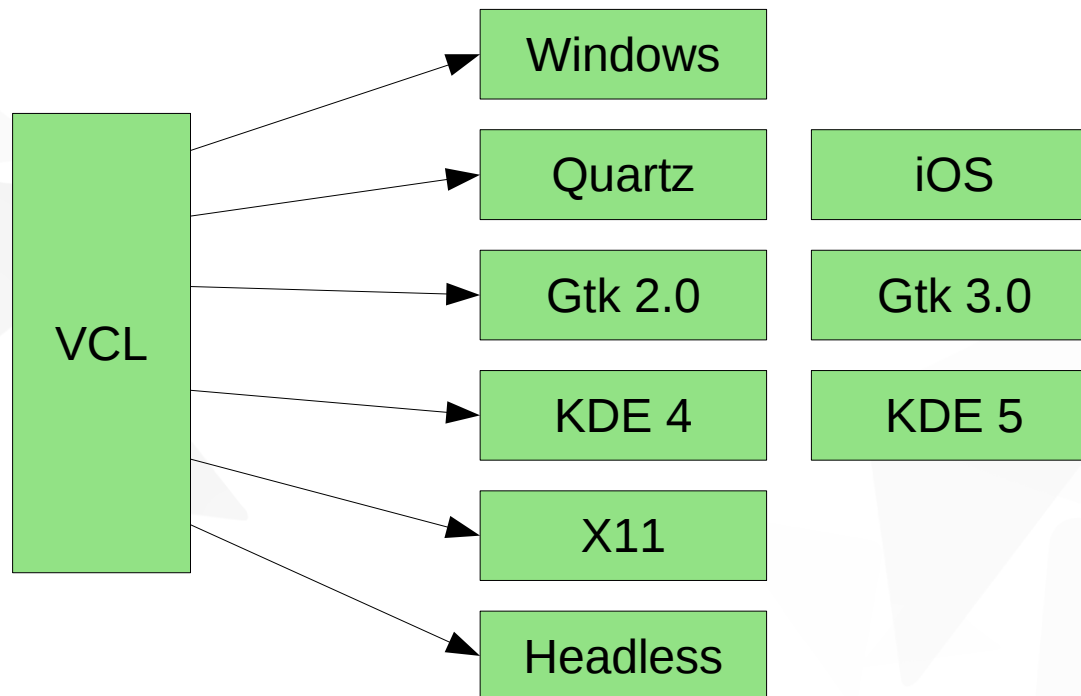
Image source: [https://archive.fosdem.org/2015/schedule/speaker/thorsten\\_behrens/](https://archive.fosdem.org/2015/schedule/speaker/thorsten_behrens/)



# LibreOffice FAQ

# What GUI framework does it use?

- ▼ It has its own, called Visual Class Library (VCL).
- ▼ Provides cross-platform GUI abstraction.
- ▼ It predates both GTK+ and Qt.



Do you plan on replacing VCL with Qt?

**NO**

# What build system does it use?

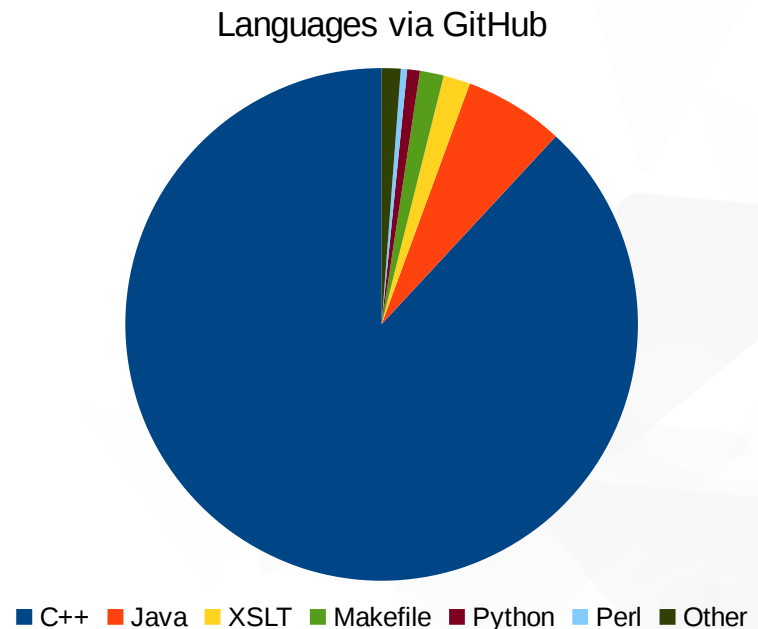
- ▼ Plain old GNU Make with autoconf.
- ▼ It used to use dmake back in the old days.
- ▼ Not perfect, not the fastest build system, but is good enough.

# Replace GNU make with cmake/meson/etc ?

- ▼ Highly unlikely.
- ▼ Large investment in GNU Make, for training, optimization etc.
- ▼ Lots of custom targets. Hard to replace them all.
- ▼ It works.

# Is it mostly written in Java?

- ▼ No. It's mostly written in C++.
- ▼ Some Java components.
  - ▼ Database connectivity.
  - ▼ Calc's non-linear optimization solver.
- ▼ Some Python components.
  - ▼ Wizards.
  - ▼ Automated UI testing.





Thanks!



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