

LibreOffice

Architecture, accessibility and QA

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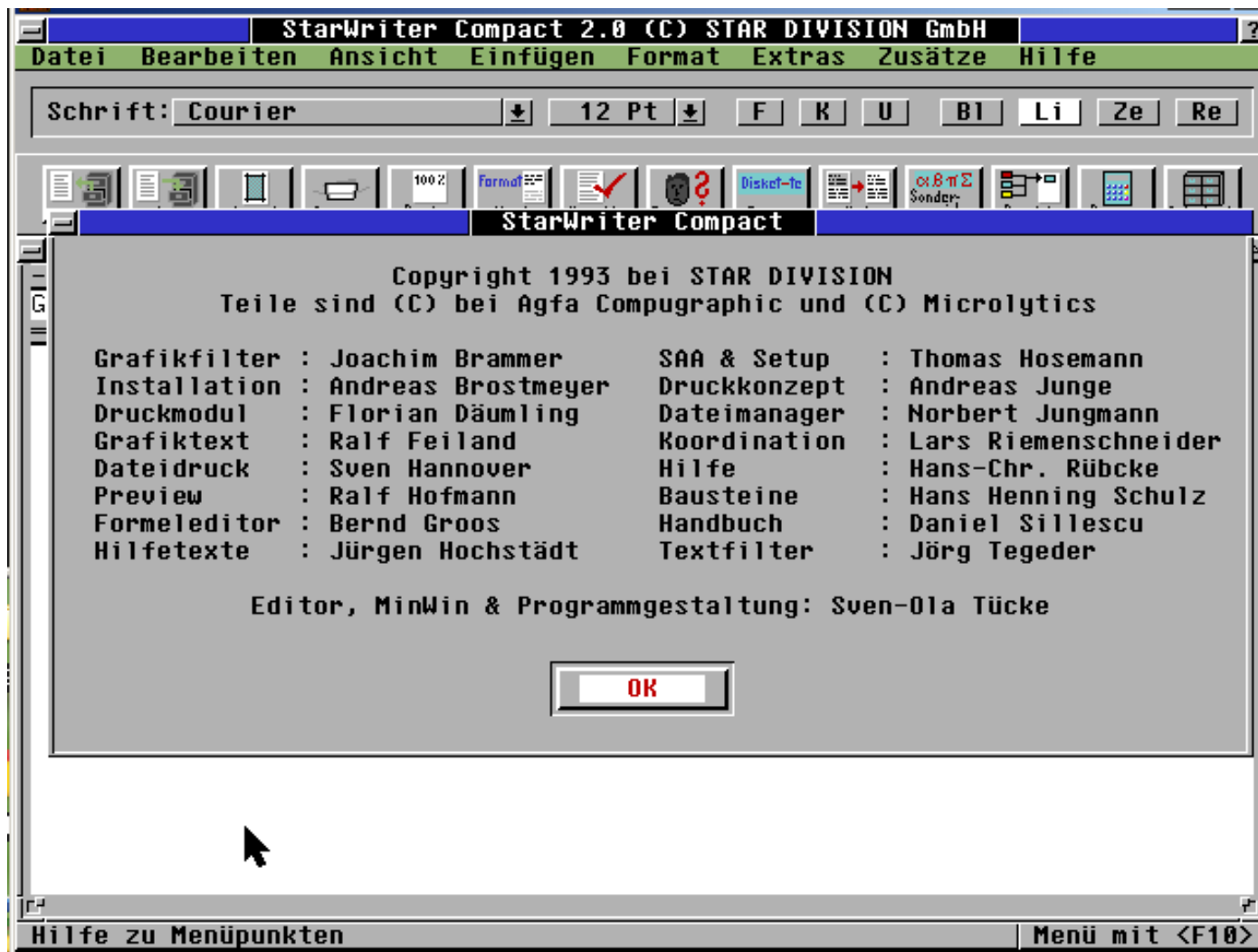


The project

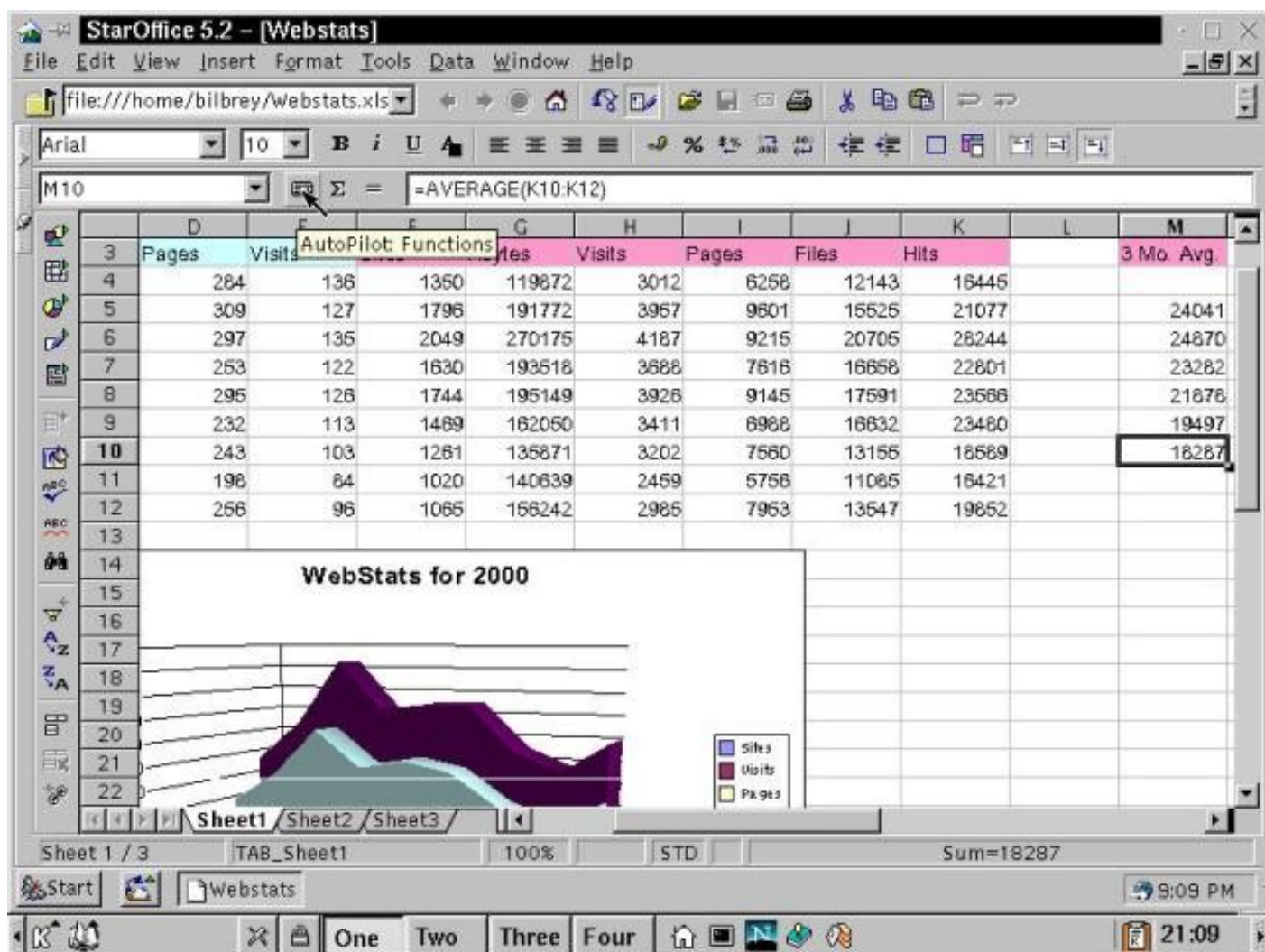
Some history

- 1985: StarWriter for Z80 micros
- 1986: StarDivision founded, StarOffice
- 1999: Sun Microsystems acquires StarDivision
- 2000: OpenOffice becomes Free Software
- 2002: OpenOffice 1.0
- 2005: OASIS standard, OpenOffice 2.0
- 2010: Oracle acquires Sun
- 2010: LibreOffice and The Document Foundation
- 2011: Apache OpenOffice

Some history



Some history

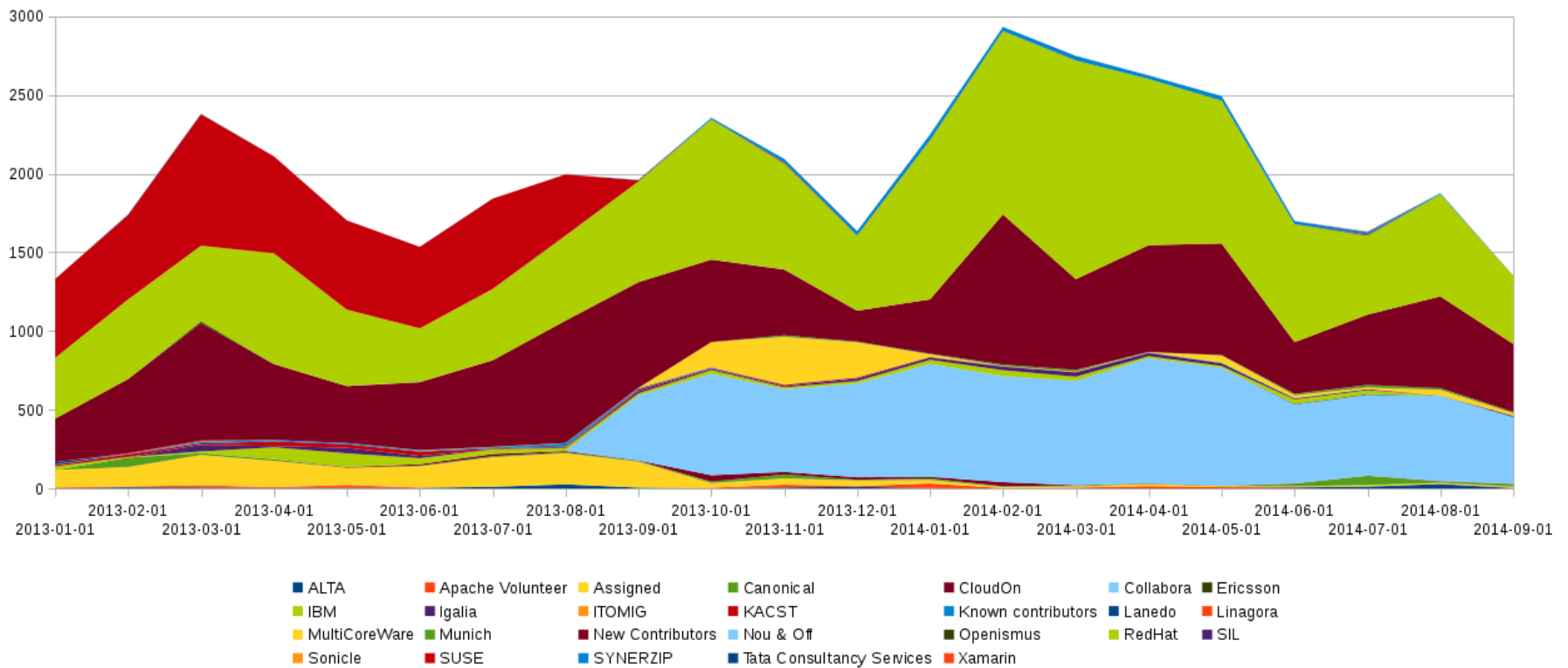


LibreOffice today

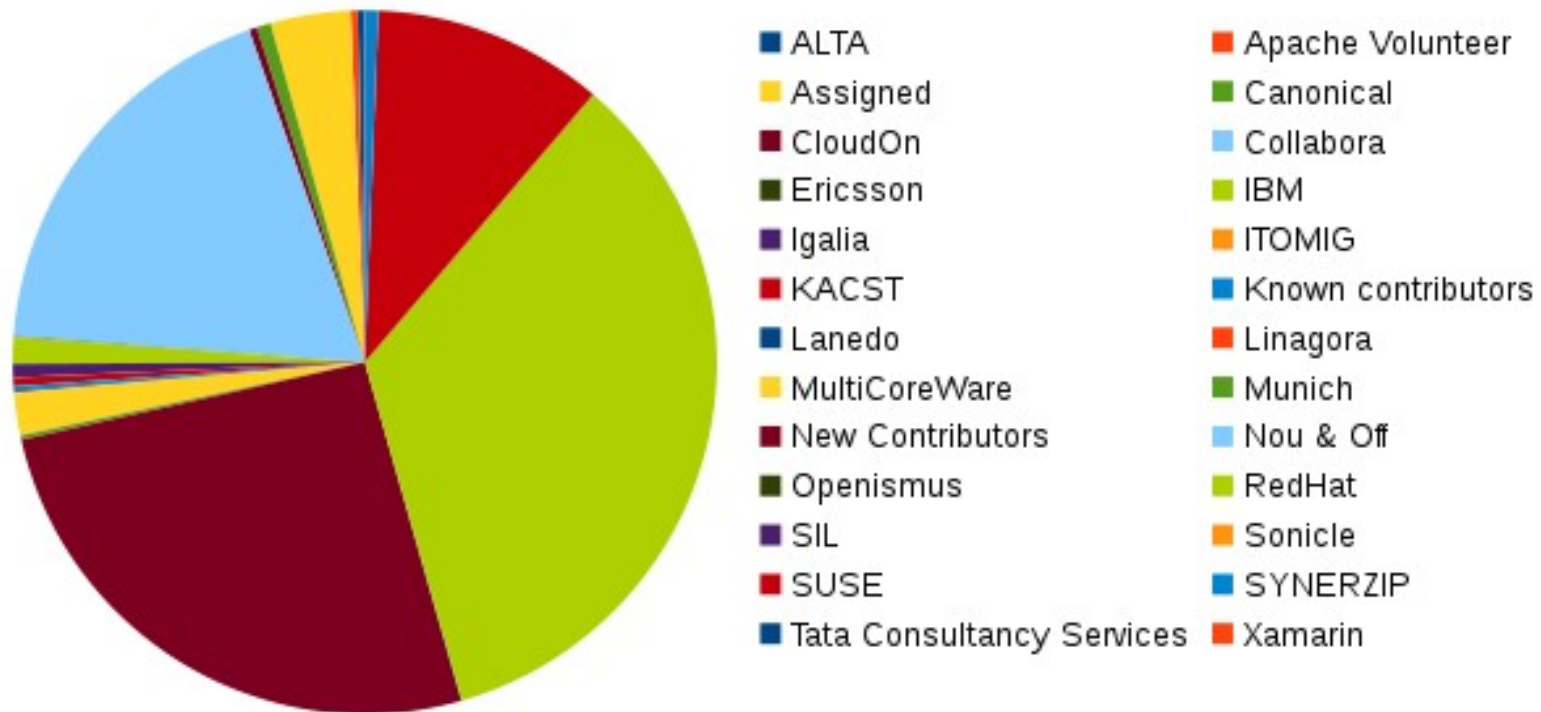
- Around 100 monthly committers and 2000 commits
- 7M lines of code
- >20 years of history
 - “Exact history was lost before Sept. 18th, 2000, but old source code comments show that Writer core dates back until at least November 1990.”
- 10000 lines of German code comments!

Stats: commits

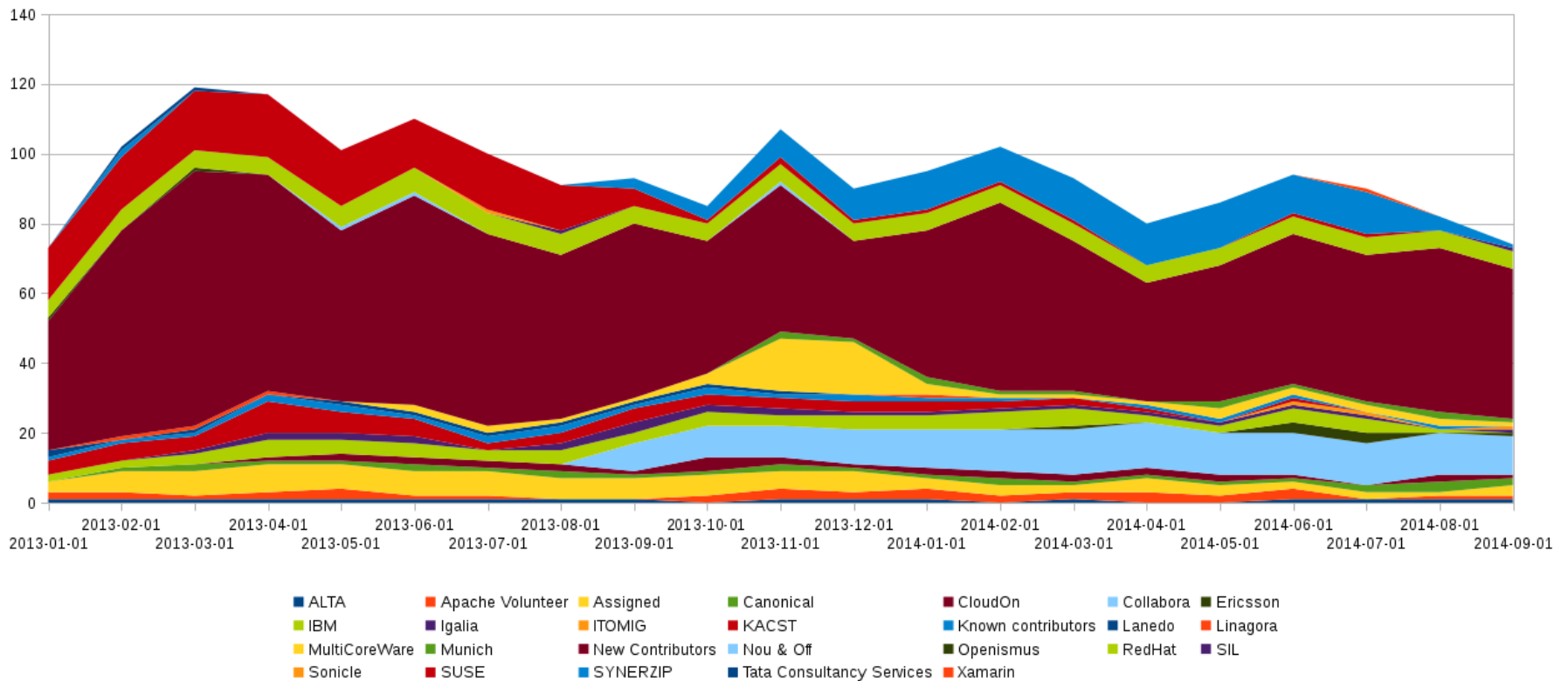
Commits by affiliation vs. time.



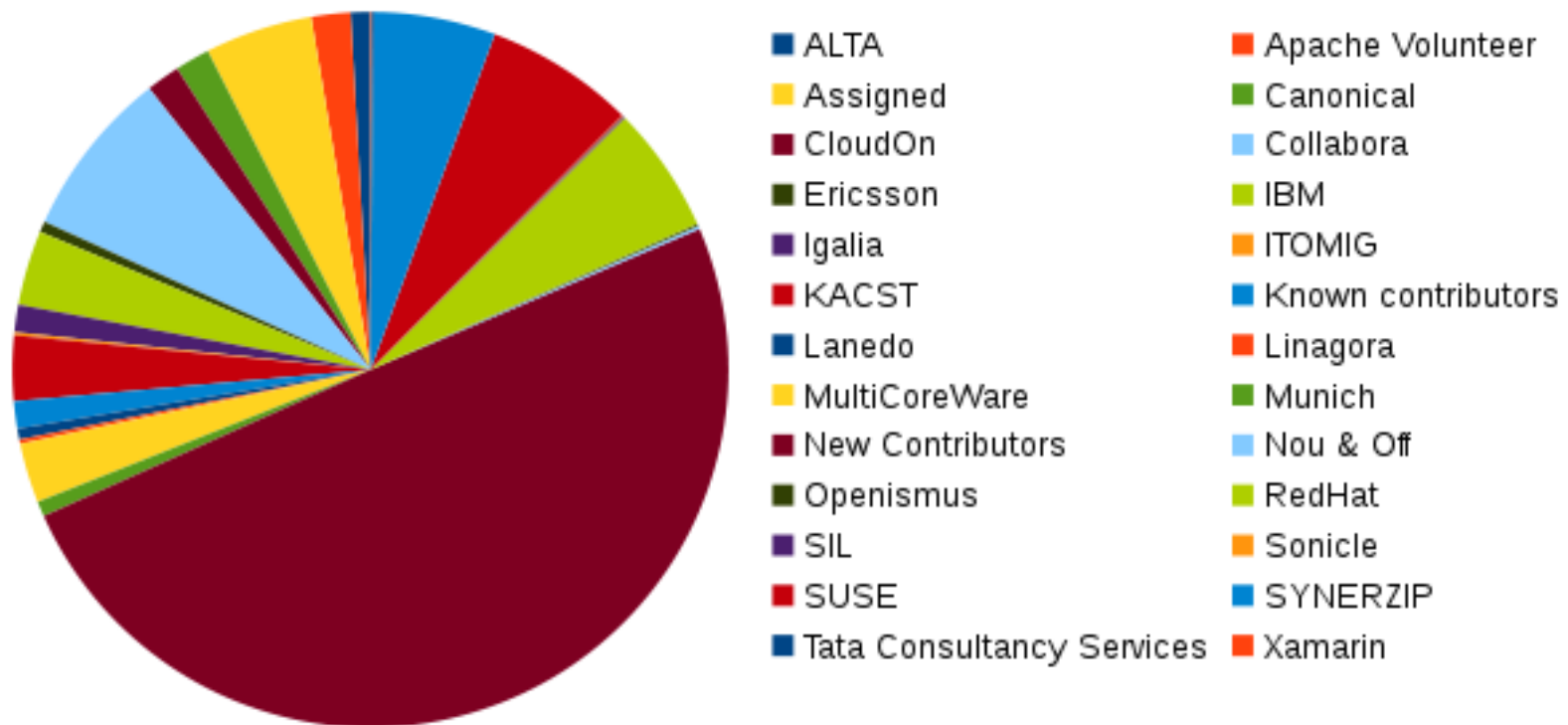
Stats: commits



Committers by affiliation vs. time.



Stats: contributors



Release calendar

- *Release early, release often*
- Major release every six months (4.3.0)
 - Brings new features
- Minor release ~ every month (4.3.1, etc.)
 - Bugfixing only
- End of life: 9 months
- Always two versions coexisting
 - Right now: 4.2.7 and 4.3.3

Release calendar

- Plan for 4.3
 - <https://wiki.documentfoundation.org/ReleasePlan>

release	freeze	publishing
4.3.0	Week 21 , May 19, 2014 - May 25, 2014	Week 30 , Jul 21, 2014 - Jul 27, 2014
4.3.1	Week 31 , Jul 28, 2014 - Aug 3, 2014	Week 34 , Aug 18, 2014 - Aug 24, 2014
4.3.2	Week 36 , Sep 1, 2014 - Sep 7, 2014	Week 39 , Sep 22, 2014 - Sep 28, 2014
4.3.3	Week 41 , Oct 6, 2014 - Oct 12, 2014	Week 44 , Oct 27, 2014 - Nov 2, 2014
4.3.4	Week 48 , Nov 24, 2014 - Nov 30, 2014	Week 51 , Dec 15, 2014 - Dec 21, 2014
4.3.5	Week 3 , Jan 12, 2015 - Jan 18, 2015	Week 6 , Feb 2, 2015 - Feb 8, 2015
4.3.6	Week 15 , Apr 6, 2015 - Apr 12, 2015	Week 18 , Apr 27, 2015 - May 3, 2015
End of Life	May 27, 2015	

Architecture

Frame-Controller-Model

- Model
 - Represents an object from the document
 - Text, shapes, spreadsheet cells
- Controller
 - Interaction between the screen and the model
 - Observes the model
 - Manipulates the presentation but not the model
- Frame
 - Bridge between the controller and the window
 - Bidirectional communication between controller and UI

Outros elementos

- Component
 - Common interface between controller and frame
 - Hierarchical organization
- Desktop
 - Root frame
- Window
 - Area with painting and interaction capabilities
 - Not necessarily a system window

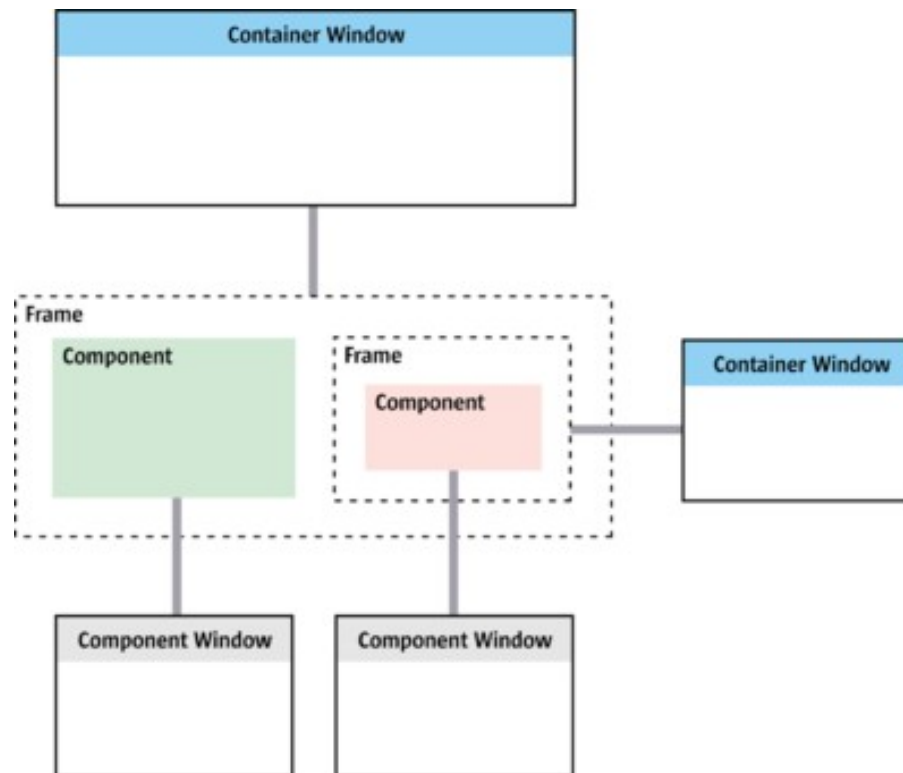
Components and windows

- A frame attaches a component with two windows
 - Component window
 - Component painting area
 - Receives user interaction
 - Container window
 - Event broadcast
 - Interaction with other windows



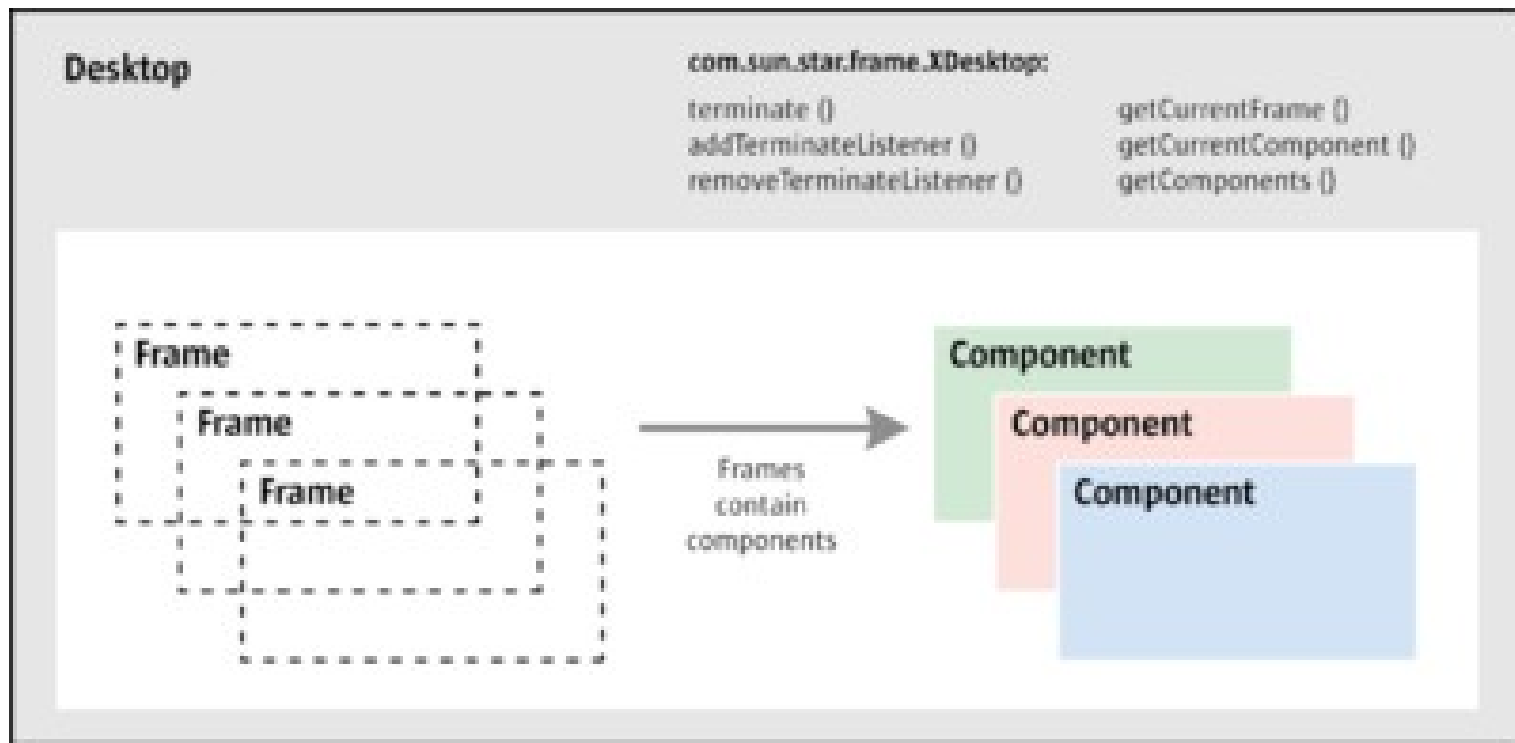
Component hierarchy

- A frame can contain several components
- Sub-frame: dependent window
 - Floating text, dockable window...



Desktop

- Hierarchy root frame
- Specific interface



Dispatch framework

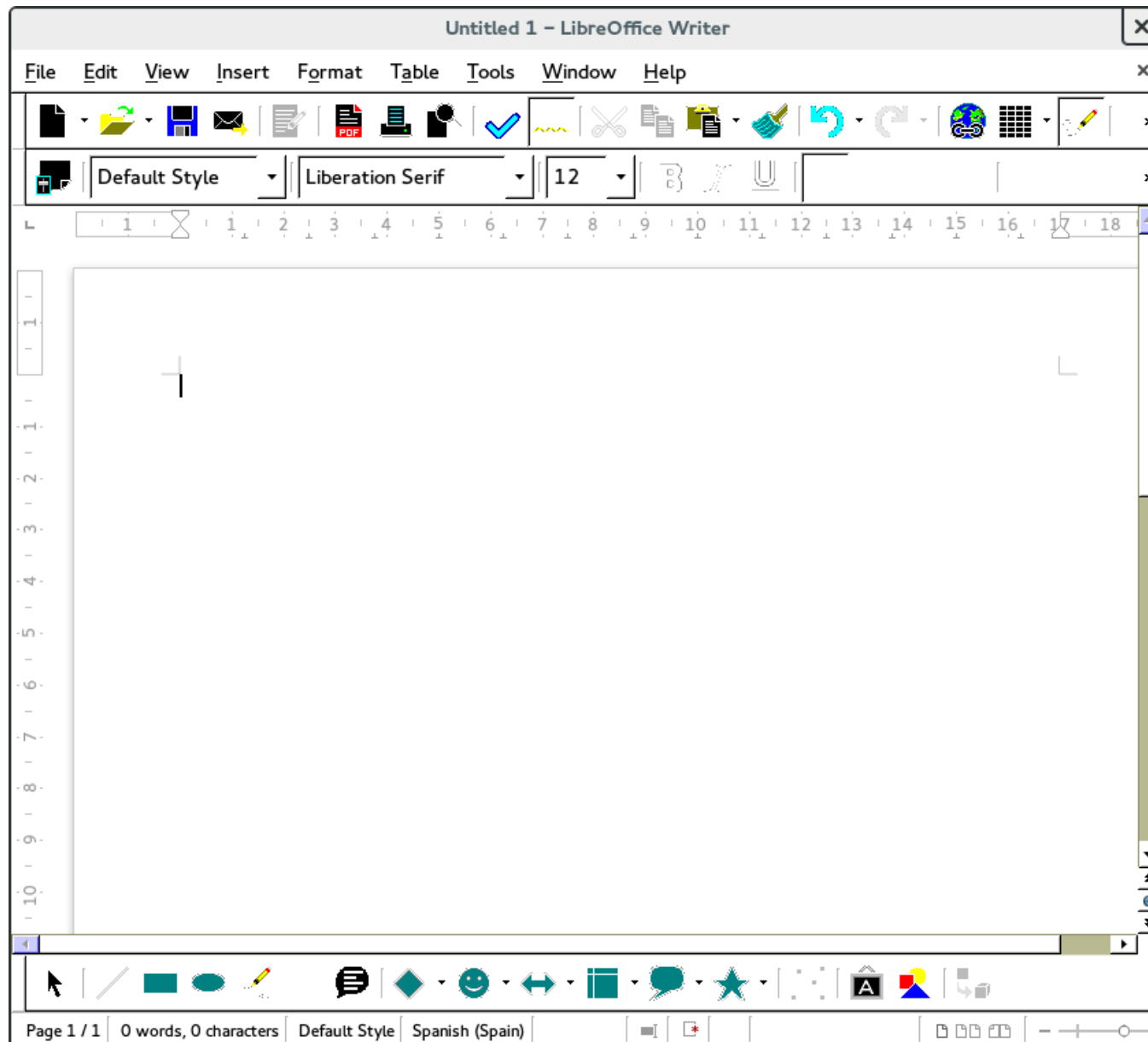
- Communication interfaces between components and UI
- Commands expressed by a URL
- Implemented in frames and controllers
- Responsibility chain
 - Traverse the hierarchy until reaching the one implementing the command

LibreOffice accessibility

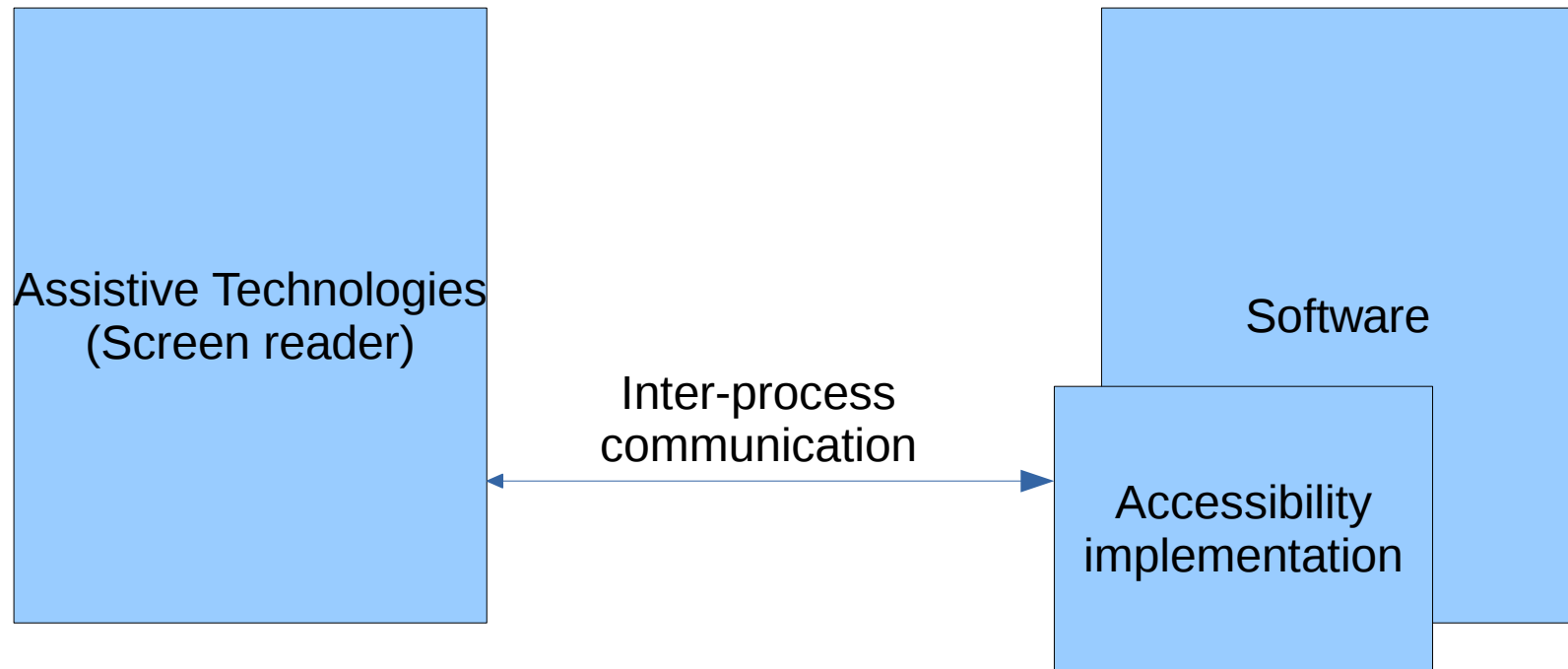
Some assistive technologies

- Hardware ATs
 - Adaptive input devices
- Software ATs
 - Magnifier
 - High contrast
 - Screen reader

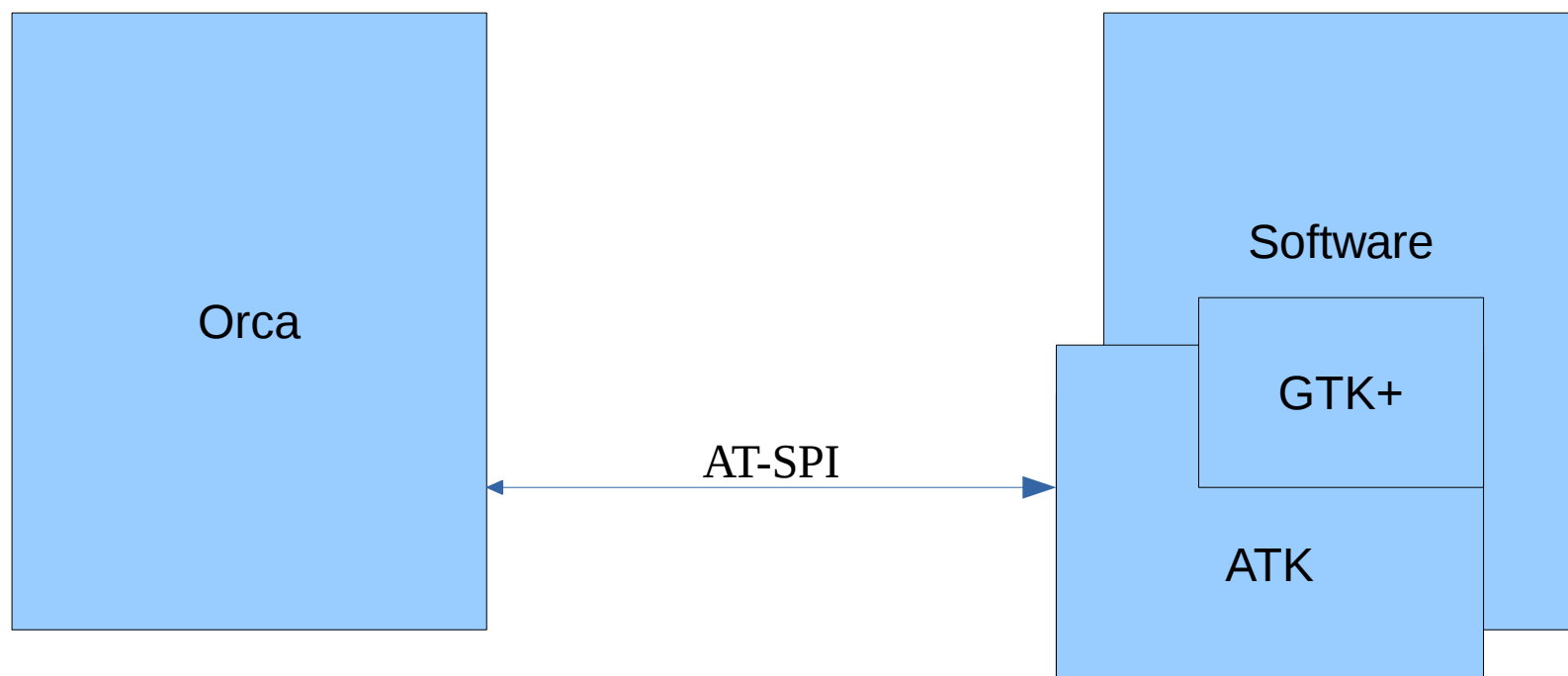
High contrast



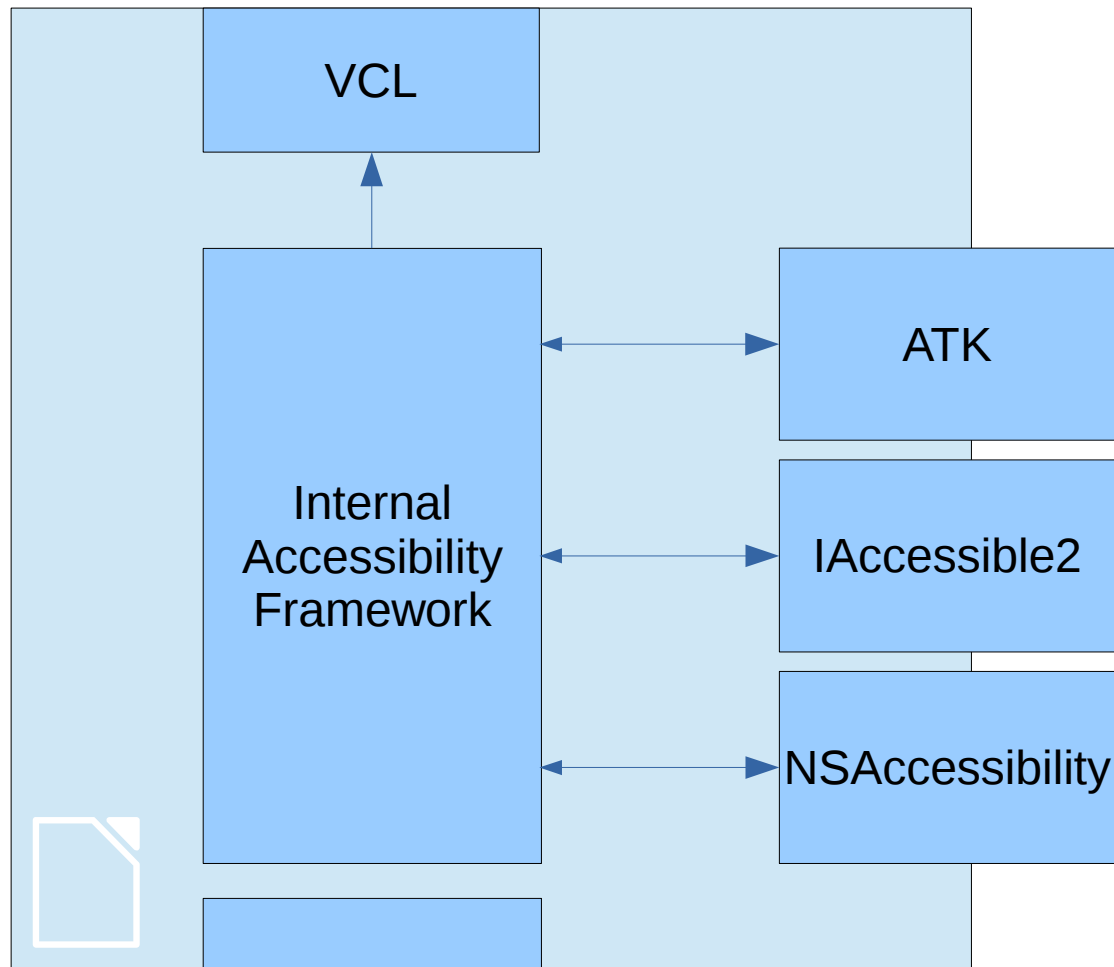
Screen reader



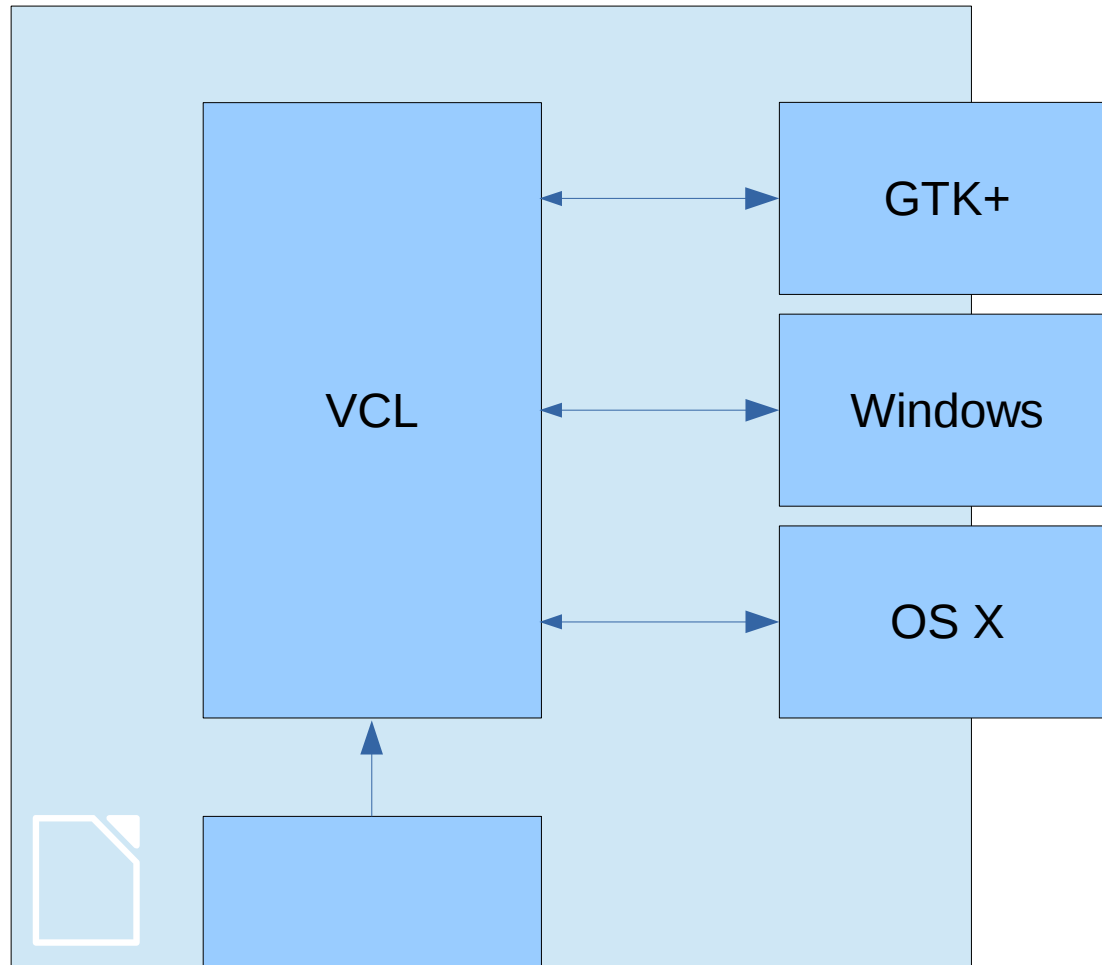
Screen reader (GNOME)



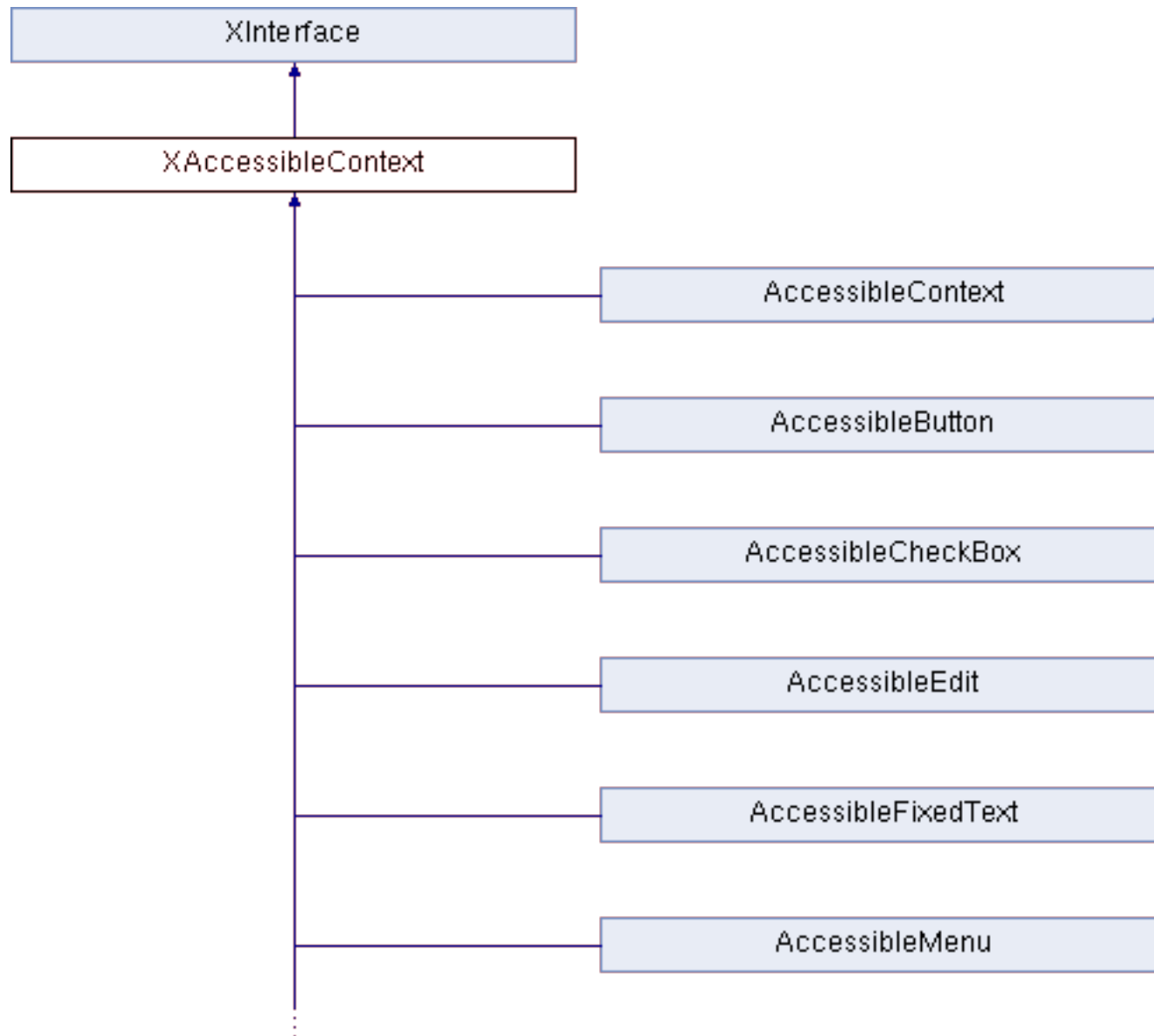
Architecture



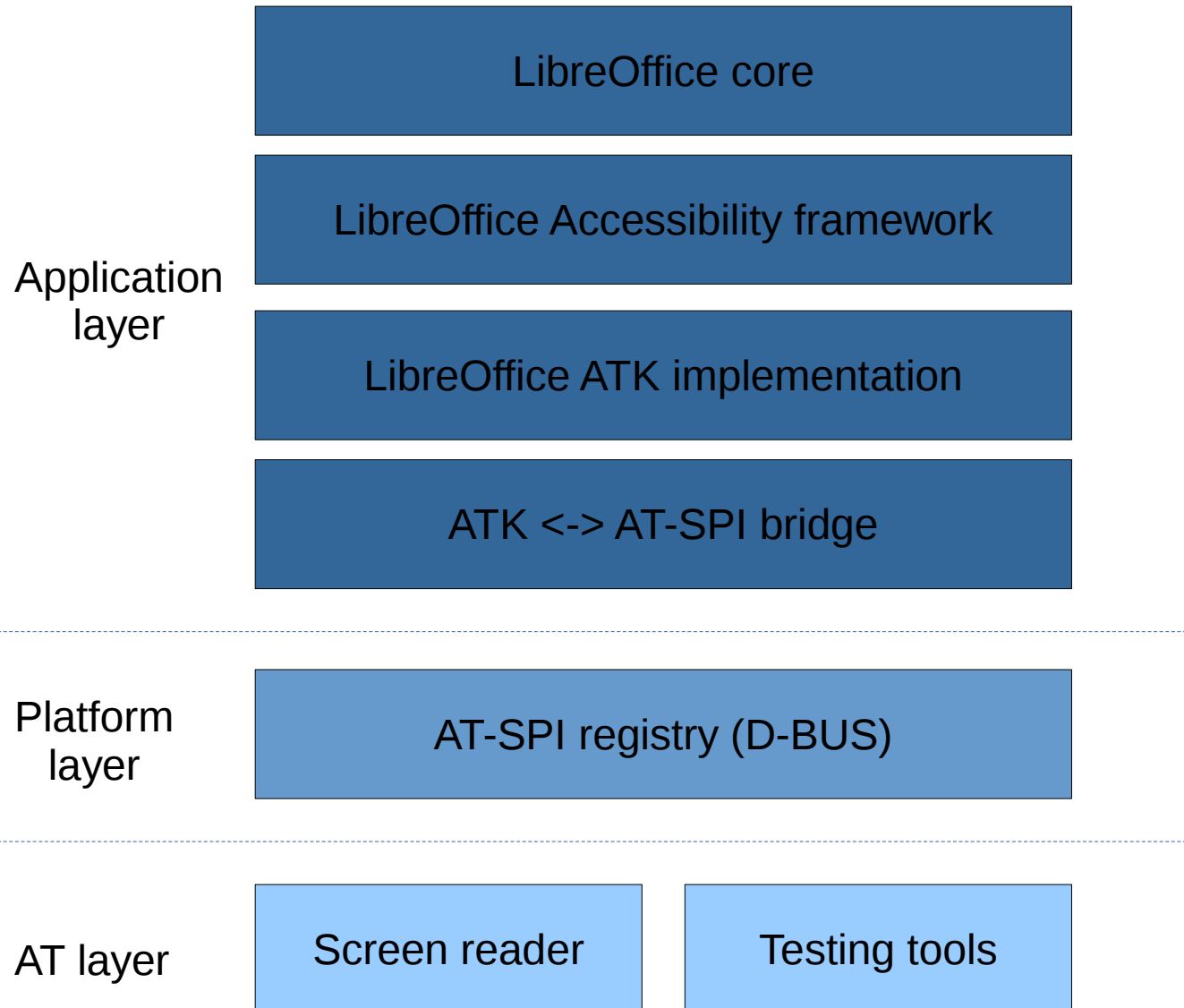
Architecture



Interfaces involved

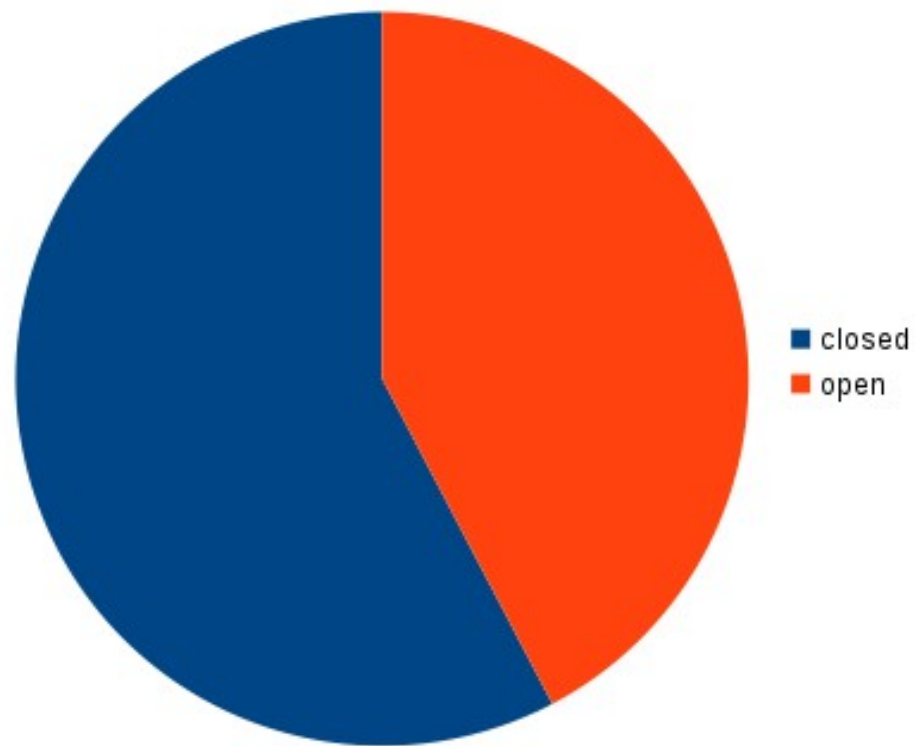


Layers



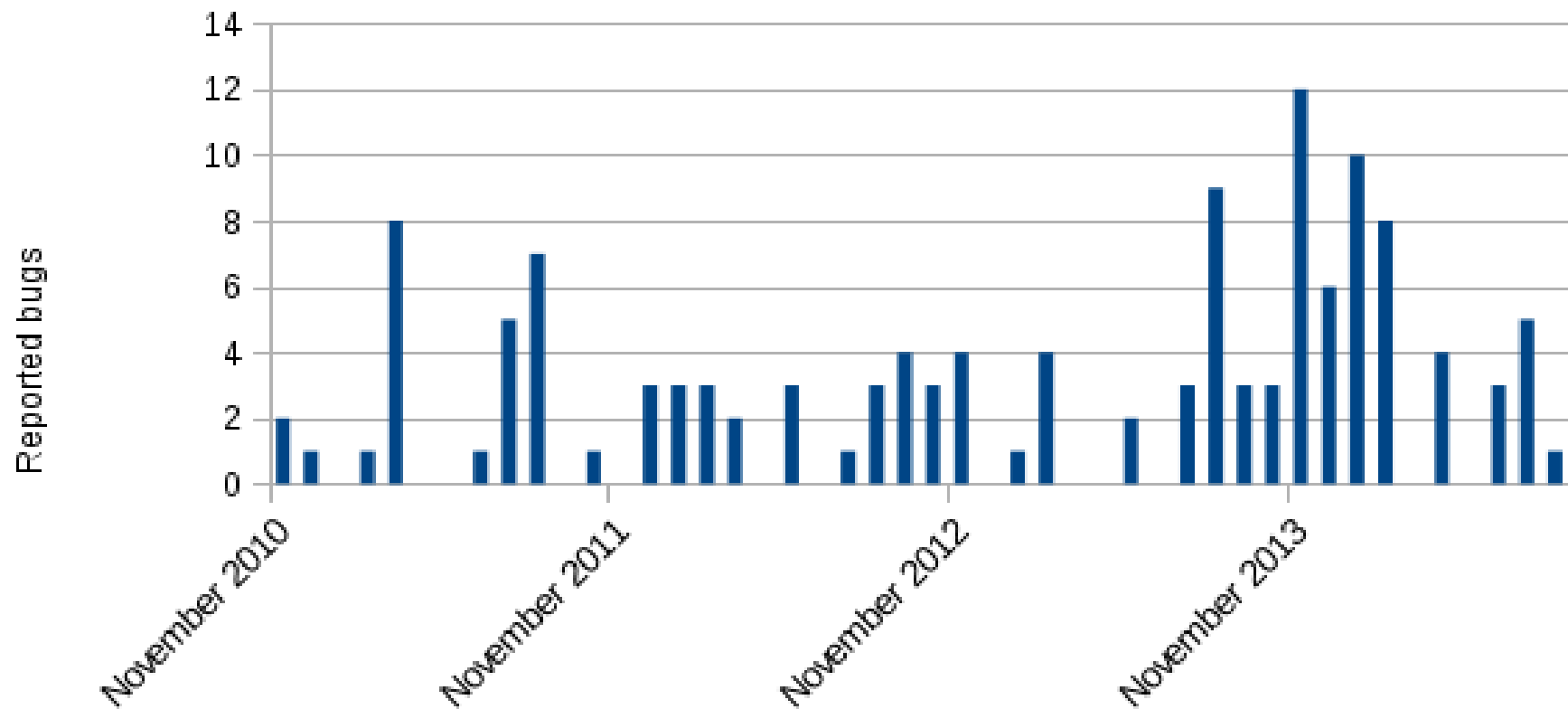
Bug metrics

- 130 bugs reported since November 2010
 - 55 open, 75 closed



Accessibility reports

Reported accessibility bugs per month



Current status



Current status

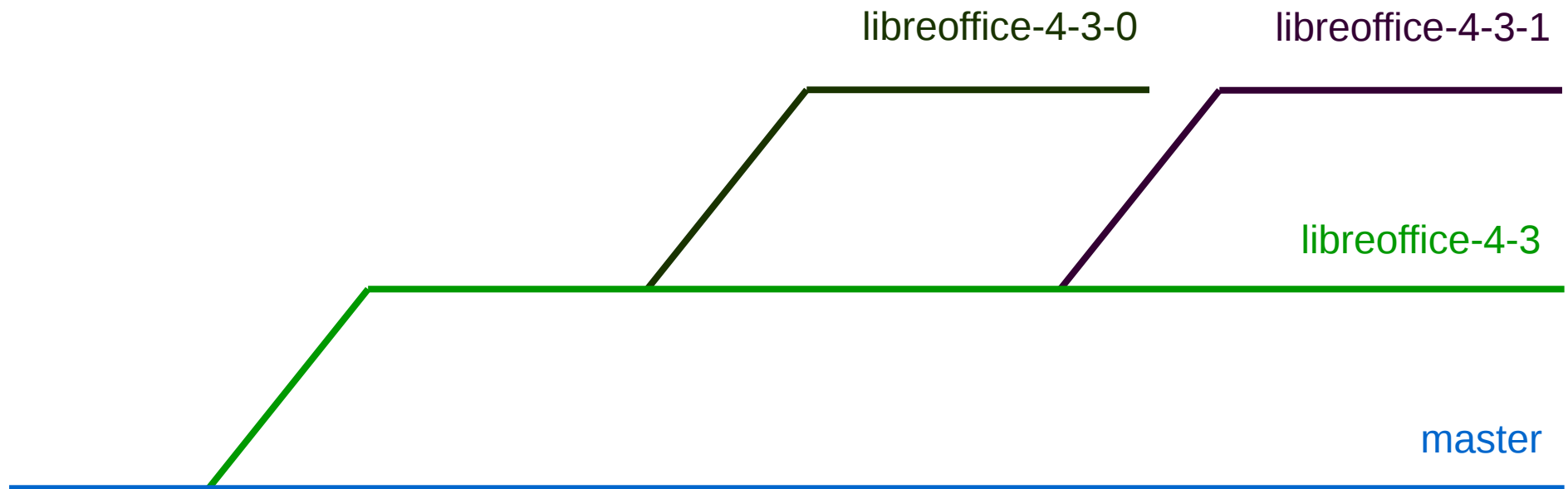
- It's been under real user for years
 - Reports increase, suggests an increase of users
- Of course, there are open bugs
 - Like in any software!
 - New reports are a symptom of good health

Quality assurance

Techniques and tools

- Peer review
 - Unit tests
 - Continuous integration
 - *Crashtests*
 - Static code analysis
 - *Bug triaging*
- Regression detection tools
- Manual testing

Peer review



Peer review

- master branch
 - Committers without review, 1 review for others
- libreoffice-4-3 branch:
 - Only bugfixing
 - +1 review in any case
- libreoffice-4-3-x branches:
 - Only patches from 4-3 branch
 - +2 reviews

Peer review

Change 12213 by sushil_shinde **Review in Progress** [Reply...](#)

Reviewers

CC [test_jenkins_mac](#)

Project [core](#)

Branch [master](#)

Strategy Cherry Pick

Updated 23 hours ago

Change-Id [I5d664867c982e48d2ff01363659282354822e541](#)

Topic

Code-Review

Verified

Commit [781575e97a42e7873e5de11f7e987151e0591292](#) [\(gitweb\)](#)

Author [sushil_shinde <sushilshinde@libreoffice.org>](#) Nov 3, 2014 8:23 AM

Committer [sushil_shinde <sushilshinde@libreoffice.org>](#) Nov 3, 2014 10:53 AM

[fdo#85491](#) : break parameter incorrectly set in .XLSX import.

1) TextBreak Parameter was bydefault 'false'.

2) At xichart.cxx::convert() [line:2973] 'TextBreak' property was changed as per 'labelFreq' value.

4) I have done same thing here and by doing this no existing unit test was failed.

5) Added unit test to check 'TextBreak' value for chart.

Change-Id: [I5d664867c982e48d2ff01363659282354822e541](#)

Files

Diff against: [Base](#)

	File Path	Comments	Size
►	Commit Message		
	chart2/qa/extras/chart2import.cxx		21
A	chart2/qa/extras/data/xlsx/chart-label-text-break.xlsx		
	oox/source/drawingml/chart/axisconverter.cxx		2
		+22, -1	

History

[Expand All](#)

sushil_shinde
Uploaded patch set 1.

test_jenkins_mac
Patch Set 1:
Build Started http://ci.libreoffice.org/job/gerrit_master/431/

test_jenkins_mac
Patch Set 1:
Build Successful
http://ci.libreoffice.org/job/gerrit_master/431/ : SUCCESS

Unit tests

- Check key elements in documents
 - Import
 - Import + export + import
- Variable coverage
 - Good coverage for new document formats
- No automated UI testing as for now

Continuous integration

- Several machines are periodically compiling LibreOffice
 - Daily or several times per day
 - Also run unit tests
- Different platforms
 - All supported platforms and some more (Android, iOS)
- Different compilation options

Continuous integration

[illegible]

Crashtests

- Check crashes when opening and saving documents
- Sample size: 55000 documents
 - Most come from bug reports
- Periodicity: weekly

•Static code analysis

- Tool *Coverity Scan*
 - Free for open source projects
- Detects: dead code, uninitialized variables, uncaught exceptions...
- Defect density reduced from 1,1 to 0,07
 - Density measured in defects every 1000 lines
 - Average for similar sized projects: 0,71

Bug triaging

- Periodically check bugzilla reports
 - Confirm bugs
 - Detect duplicates
 - Prioritize
 - Verify patches

Regression detection tools

- Regression: a problem that was not present in previous versions
- Main tool to fix regressions: *bisect*
 - Binary search of the guilty commit
 - Recompilation cycle makes it unfeasible in LibreOffice
- LibreOffice tool: *bi-bisect (binary bisect)*
 - Binary repository from different development stages
 - Recompilation not necessary

Manual testing

- List of tests to be manually run
 - Tool: MozTrap
 - Testing rounds for every pre-release (betas, release candidates)
- “Freestyle” testing
- Bug hunting sessions

¡Thank you!