Collabora Productivity

Collaborative editing Using LibreOfficeKit

By Miklos Vajna

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2016-09-08

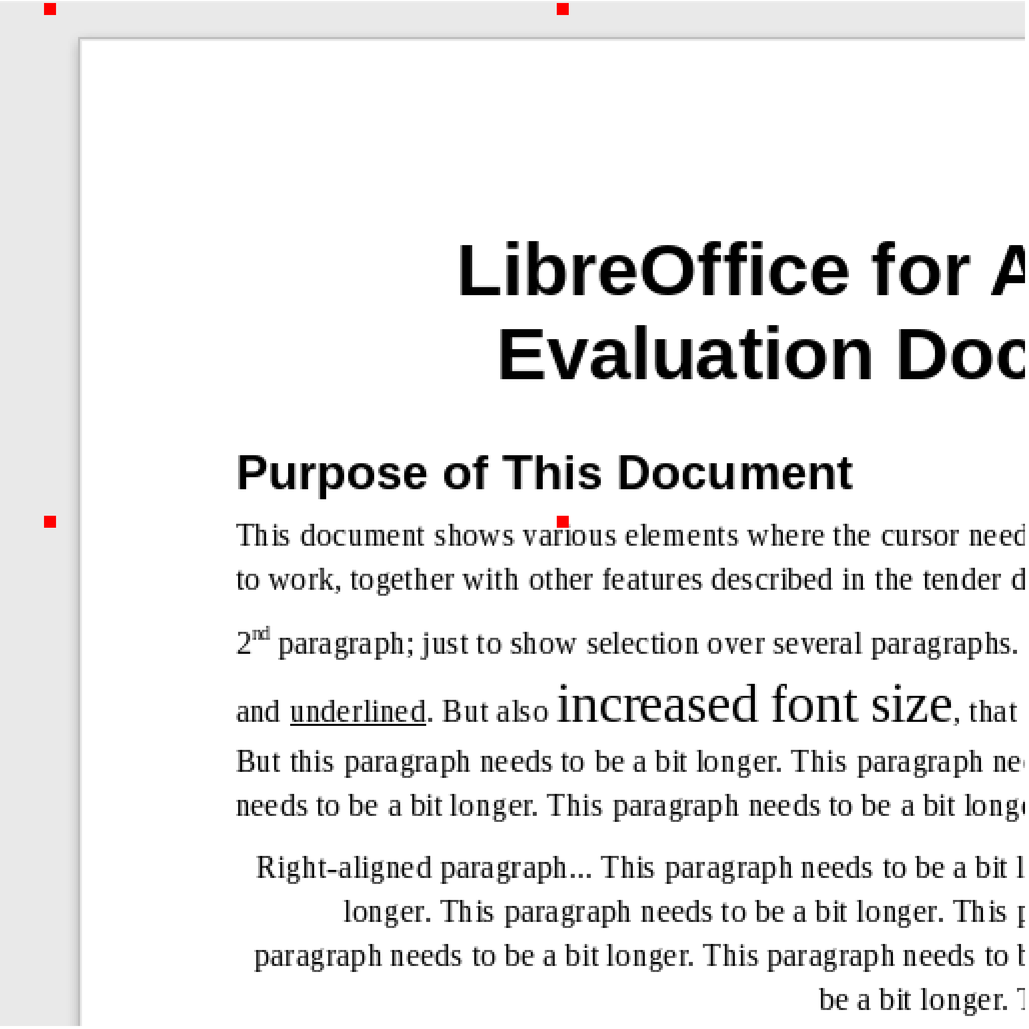
About Miklos

- From Hungary
  - More blurb: http://vmiklos.hu/
- Google Summer of Code 2010/2011
  - Rewrite of the Writer RTF import/export
- Writer developer since Feb 2012
- Contractor at Collabora since Sept 2013

Collaborative editing for LibreOffice Online

Tiled rendering

- Initially for iOS/Android
- Idea: render many 256x256px tiles
  - Instead of using UNO to render a single huge bitmap
  - Used by Firefox for Android successfully



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Purpose of This Document

This document shows various elements where the cursor need
to work, together with other features described in the tender d

2nd paragraph; just to show selection over several paragraphs.

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Right-aligned paragraph... This paragraph needs to be a bit l
longer. This paragraph needs to be a bit longer. This p
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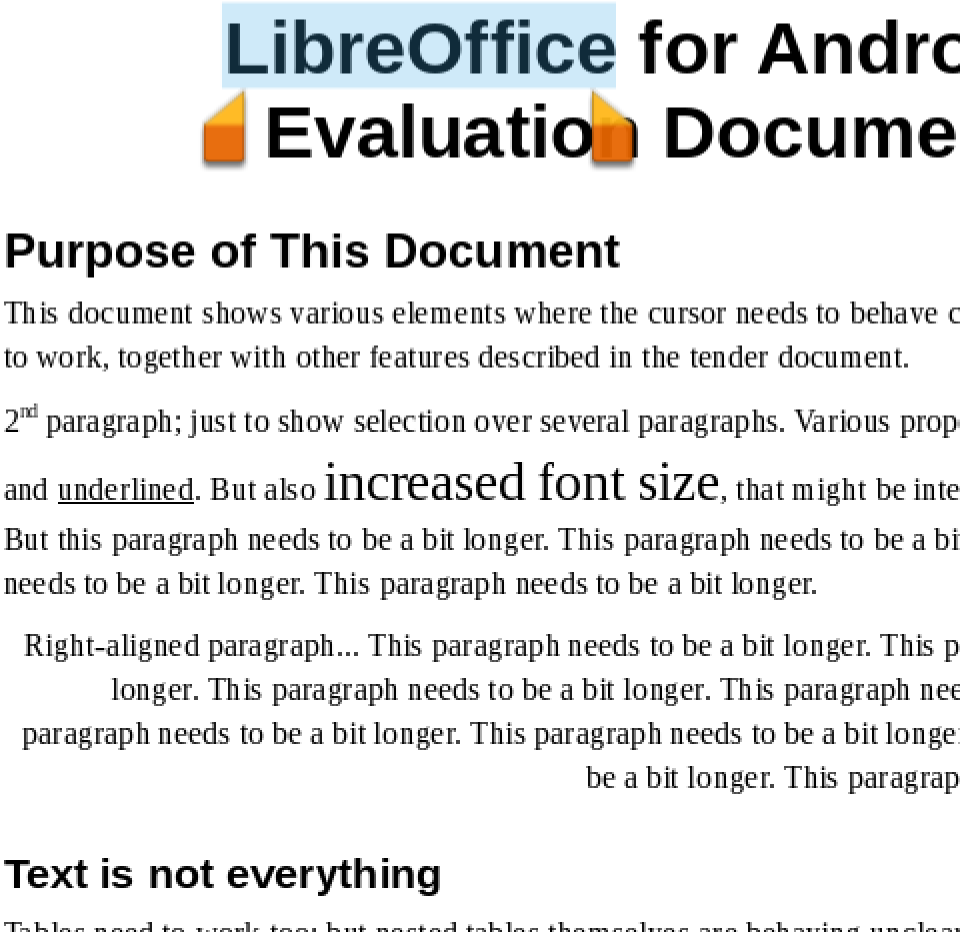
be a bit longer. T

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



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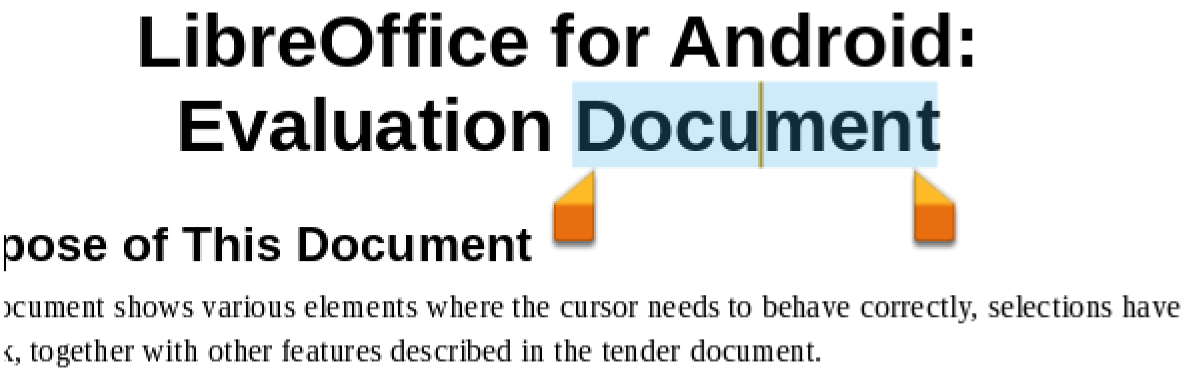
Text is not everything

Tables need to work too; but nested tables themselves are behaving unclea

Conflict handling

- Do a best-effort resolution and notify the user immediately
- This was a suboptimal result can be fixed quickly & easily
- Example: cursors inside a word



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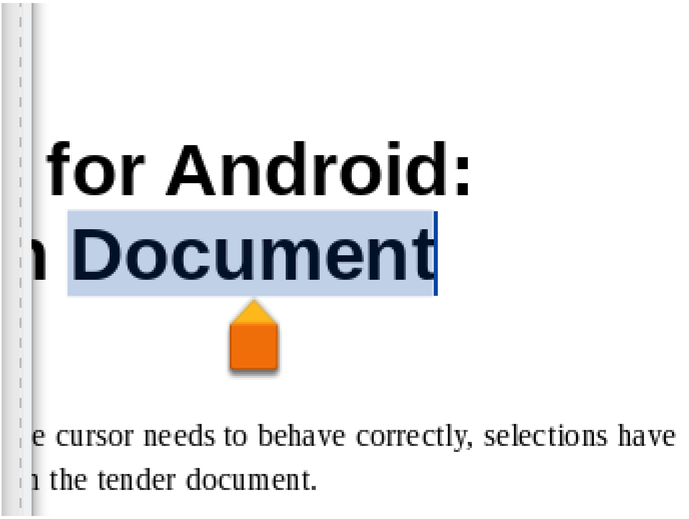

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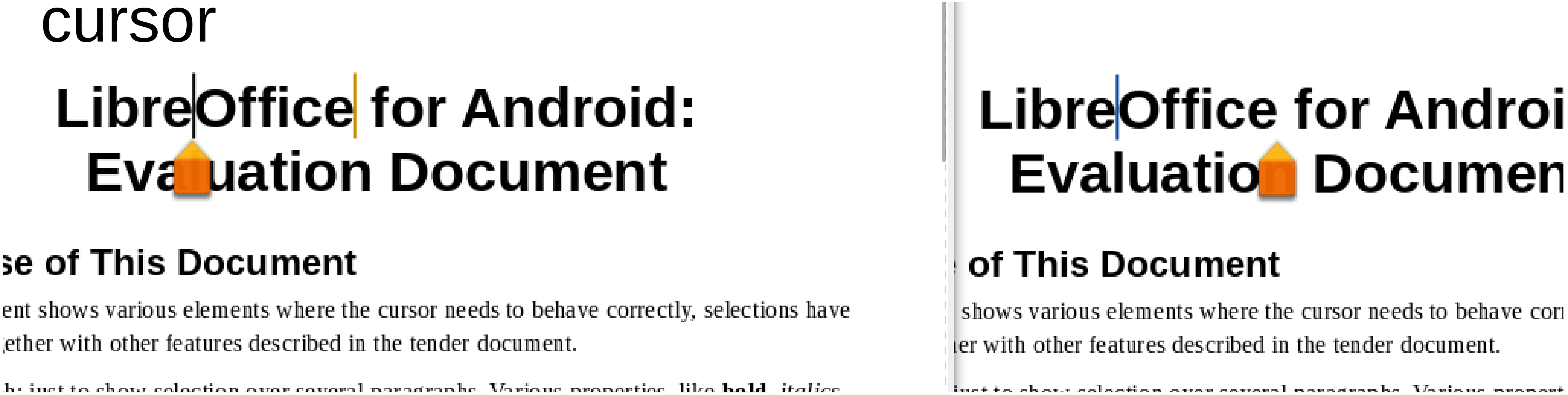
n the tender document.

Text cursors

- View the colored cursor of others:
  - Visibility, position, size
- Used in:
  - Writer text, editengine text (Calc cells, shape text)
- Same overlay as the one used for the blinking / black cursor



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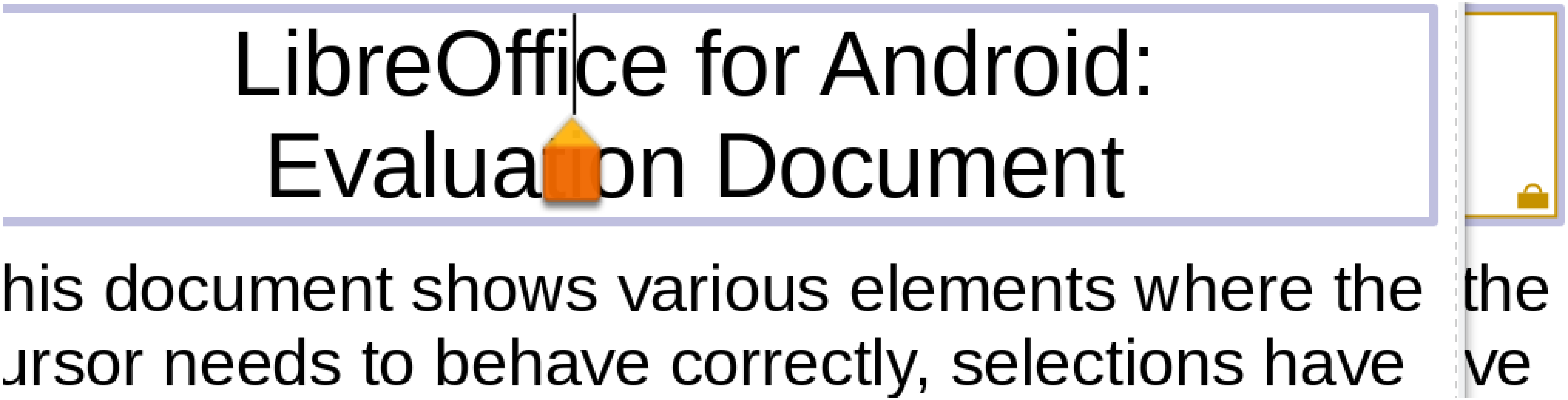
Text selections

- Text selection is a rectangle list
- Color is always the same as the matching cursor
- Used next to text cursors everywhere
- Also implemented:
  - Instant update of shape text in all views
  - Lock indicator



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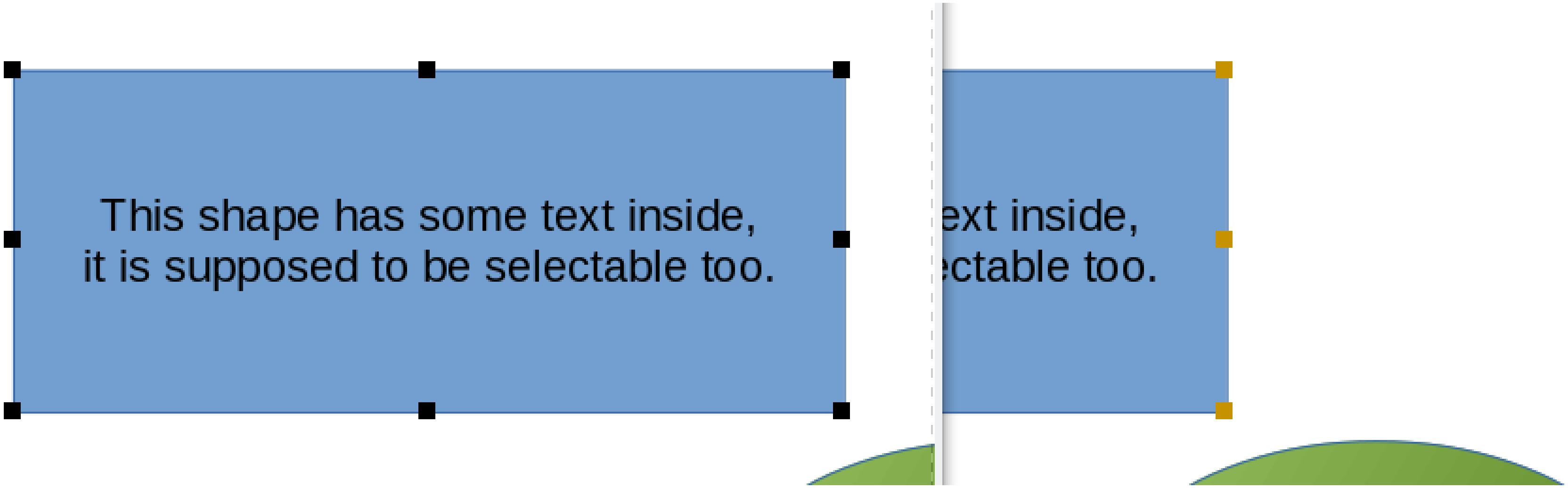
Graphic selection

- Graphic selection's:
  - Visibility, position, size
- Used for shapes everywhere

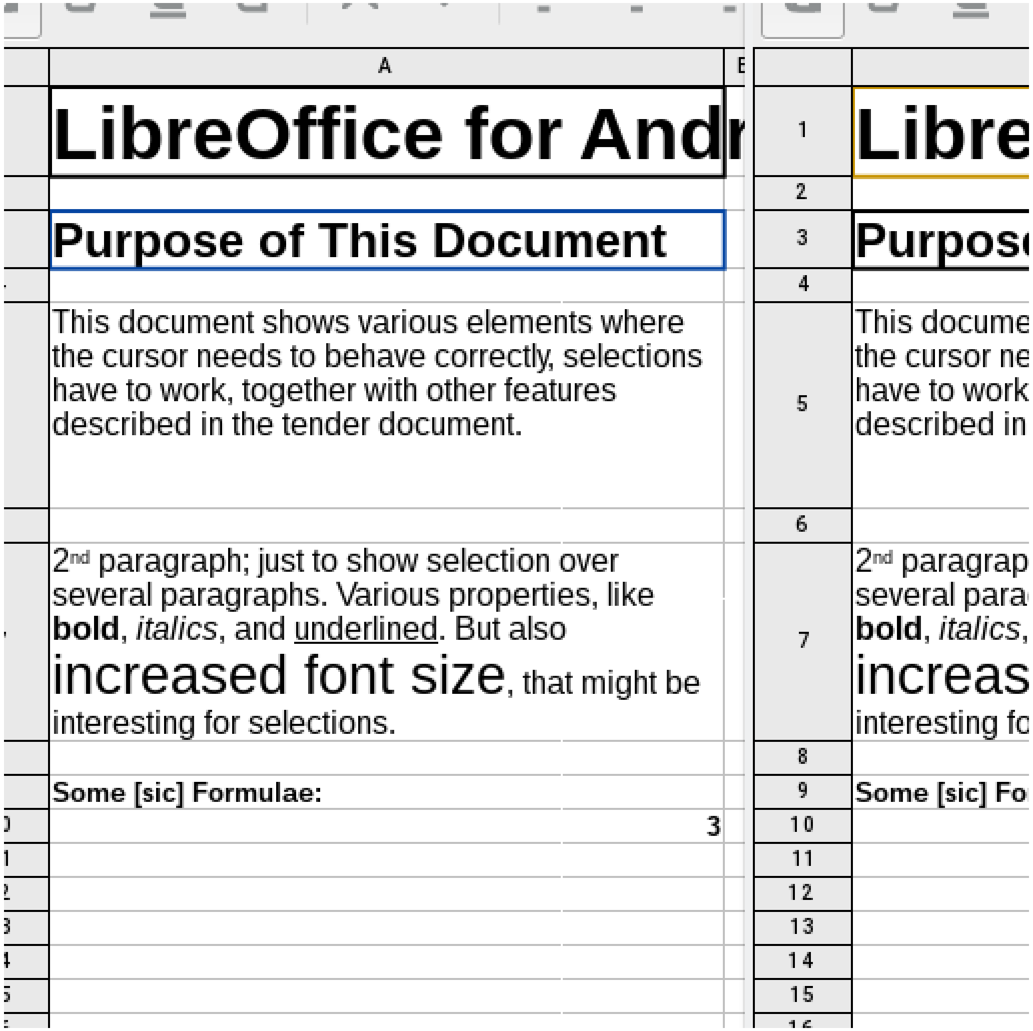


This shape has some text inside,
it is supposed to be selectable too.

ext inside,
ectable too.

Cell cursors

- Cell cursor’s:
  - Visibility
  - Position
  - Size
- Used in Calc when:
  - Not selecting a shape
  - Not editing cell text



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2^{nd} paragrap several para **bold**, *italics*, increas interesting fo

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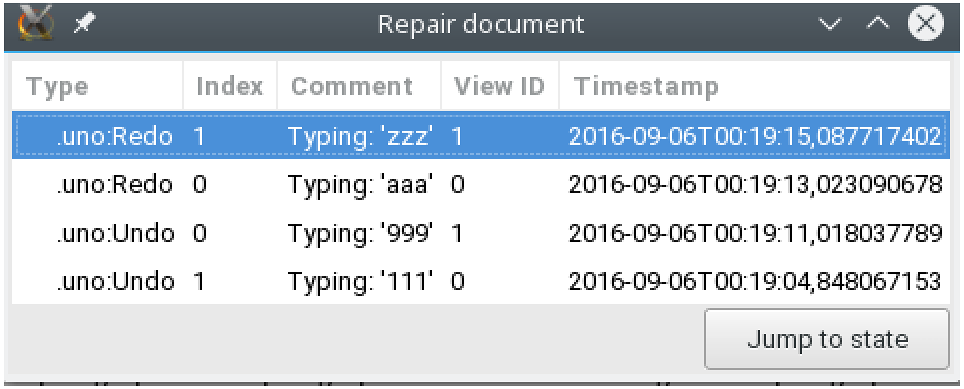
Document repair

- Tag all the undo actions with the view ID
- Present the undo/redo stack as a table
- Can go back & forth in time

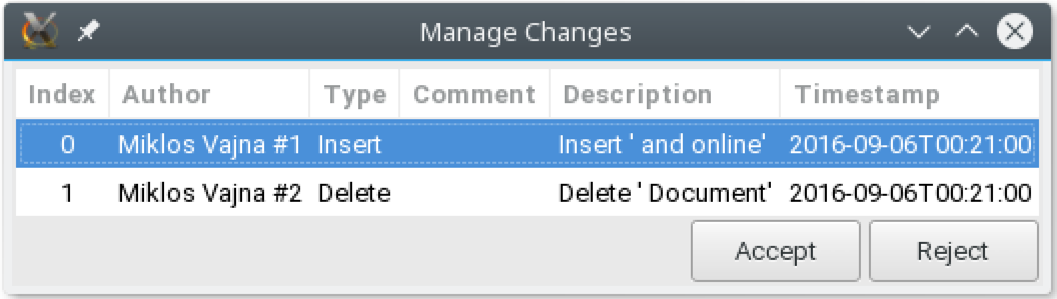


Repair document

Type	Index	Comment	View ID	Timestamp
.uno:Redo	1	Typing: 'zzz'	1	2016-09-06T00:19:15,087717402
.uno:Redo	0	Typing: 'aaa'	0	2016-09-06T00:19:13,023090678
.uno:Undo	0	Typing: '999'	1	2016-09-06T00:19:11,018037789
.uno:Undo	1	Typing: '111'	0	2016-09-06T00:19:04,848067153

Track changes

- Per-view author name is handled
- Equivalent of track changes dialog:
  - Insert items with correct name
  - List items
  - Accept / reject items
  - Keep the list up to date

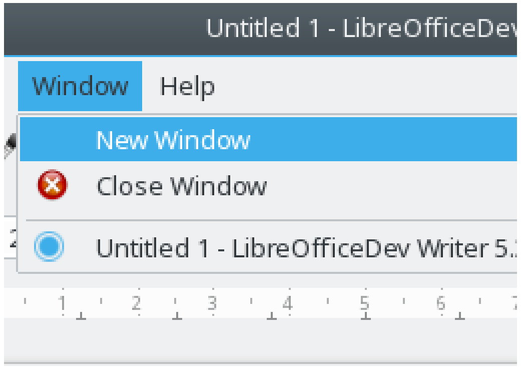


Index	Author	Type	Comment	Description	Timestamp
0	Miklos Vajna #1	Insert		Insert ' and online'	2016-09-06T00:21:00
1	Miklos Vajna #2	Delete		Delete ' Document'	2016-09-06T00:21:00

How is this implemented?

Multiple windows

- Map one user to one window
    - Window → New window on the desktop
- Lots of conflict resolution handled this way out of the box
    - Had to fix e.g. repaint on undo, though
- In Writer and Impress windows are already mostly independent


Untitled 1 - LibreOfficeDev
Window
Help
New Window
Close Window
Untitled 1 - LibreOfficeDev Writer 5.

View management

- New lok::Document member functions:
  - createView(), destroyView(), setView(), getView(), getViews()
- Call setView() before every other existing member function:
  - postKeyEvent(), postMouseEvent(), etc.

View callback

- Tiled editing introduced a document-specific callback
- Now this callback is moved to the view (SfxViewShell)
- Cursor moves → one view is notified
- Insert slide → all views are notified
- Fully backwards compatible with the previous single-view API

Document repair: undo tagging

- Tag all the undo items with the view shell ID:
  - Writer, Calc, Impress, draw shapes, editengine
- Then we automatically get a nice changelog of who did what / who is responsible for what
- Work in progress: limiting – let one user undo only her changes, not others'

Track changes

- getCommandValues(.uno:AcceptTrackedChanges) for Writer and Calc
- initializeForRendering() sets the per-view author name
  - Insert comment / redline picks that up (has priority over value from configmgr)
- Annotate insert, modify and accept/reject code with callbacks: LOK_CALLBACK_REDLINE_TABLE_*

Testing

- Manual: gtktiledviewer
- Automated:
  - CppunitTest_desktop_lib
  - CppunitTest_sw_tiledrendering
  - CppunitTest_sc_tiledrendering
  - CppunitTest_sd_tiledrendering
  - 95 test cases, 400 asserts in core.git so far

Summary

- LibreOfficeKit now provides real-time collaborative editing
  - Will be available in LibreOffice 5.3
  - LibreOffice Online uses this
  - See also *LibreOffice Online Deep Dive* and *LibreOfice OnLine and ownCloud/Nextcloud* on Friday
- Thanks for listening! :-)
- Slides: http://vmiklos.hu/odp