



**Collabora  
Productivity**  
Free your business

The driving force behind putting  
#LibreOffice in the #Cloud.

# LibreOffice: online

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*“Stand at the crossroads and look; ask for the  
ancient paths, ask where the good way is,  
and walk in it, and you will find rest for your  
souls...” - Jeremiah 6:16*



*“There is no Cloud, it’s  
just someone else’s  
computer”  
unless it’s your  
computer that is ...*



# Controlling your data

- 100% FLOSS software implementation
- Sitting on your own hardware, on-premise, or with a hoster you trust
  - You know whom you're sharing the CPU with: cf. RowHammer, Xen vul'ns etc. etc.
  - You know where your data goes.
- Easy to integrate with other systems
- Efficient, Scalable, Powerful



# Current Version CODE 2.0

- High fidelity, WYSIWYG rendering
- Document Support:
  - DOC, DOCX, PPT, PPTX, XLS, XLSX + ODF.
  - Import/View Visio, Publisher, + 100 more
- Basic Document Editing as of now
- Collaborative editing with this basic set.
- Better commenting / collaboration is next.
- CODE: suitable for home use ...
  - Volunteers – should not be responsible for your free enterprise deployment.

# Integrating with lots of FSS

## Existing EFSS does:

- Authentication:
  - Active Directory, Kerberos, LDAP, etc. etc. integration
- Storage:
  - replication, backup, database integration, Antivirus, backup.

## We do:

- Collaborative editing and rendering of arbitrary file formats

## Bonus features

- A reduced feature-set sphere – can win.
  - light editing use-cases to match competition
- Document Formats – relevant only for migration.
  - “in the cloud”
- Server / Certification / Revenue model ...



# CODE ...

- CODE – grab the latest Docker image and/or Virtual Machine pieces.
  - <http://collaboraoffice.com/code>
- And an extension for your EFSS ...
  - No core changes required, easy to deploy
- Extensions implement the WOPI protocol
  - Unifies authentication and file-access
  - Re-use awesome authentication and storage options – effortlessly.

# Demo / what it looks like

The screenshot displays the Collabora Online interface within a Mozilla Firefox browser. The main window shows a spreadsheet titled "basic-spreadsheet.ods" with a grid of data and a line graph. A context menu is open over cell C3, showing options like "Comment on Cell" and "Insert". A secondary window shows a presentation slide titled "Collabora Online" with a "Welcome" message. A context menu is also open over the slide, showing options like "Cut", "Copy", "Paste", and "Arrange".

**Spreadsheet Data:**

X	Y
0	0.0000
15	0.2588
30	0.5000
45	0.7071
60	0.8660
75	0.9659
90	1.0000
105	0.9659
120	0.8660
135	0.7071
150	0.5000
165	0.2588
180	0.0000
195	-0.2588
210	-0.5000
225	-0.7071
240	-0.8660
255	-0.9659
270	-1.0000
285	-0.9659
300	-0.8660
315	-0.7071
330	-0.5000
345	-0.2588
360	0.0000

# Writer

The screenshot displays the Collabora Online Writer interface within a Mozilla Firefox browser. The browser's address bar shows the URL `www.collaboraoffice.com/`. The document title is `basic-text.docx - Office - Mozilla Firefox`. The interface includes a menu bar with `File`, `Edit`, `View`, `Insert`, `Format`, `Tables`, and `Help`. Below the menu is a toolbar with various editing tools and a style selector set to `Default Style`. The main document area contains the following text:

## Collabora Online Development Edition 2.0

### Welcome

Welcome to the demo of the **Collabora Online Development Edition 2.0**.

Collabora Online is the essential building block for your document service, architected and made in Collabora. It allows **collaborative editing** of richly formatted documents directly from a web browser, with excellent support for all popular office file formats, including text documents (docx, doc, odt,...), spreadsheets (xlsx, xls, ods,...) and presentations (pptx, ppt, odp,...).

### How to try out Collaborative Editing

Testing collaborative editing is simple. You just need to share the file first with another user. Once shared, you can both enter and edit the shared document together, at the same time.

The chat sidebar on the right shows a conversation:

- Message: "You can check out the pptx demo file"
- From: Simone, Today, 09:47
- Reply to Simone (10/31/2016, 09:47): "..."
- Message: "Tried it out and it works great!"
- From: John, Today, 09:49
- Message: "Try tis out!"
- From: John, Today, 10:01

A legend at the bottom of the chat sidebar identifies the users: John (green), Simone (purple), and You (black).

The status bar at the bottom of the interface shows: `Search:` [input field], `Page 1 of 1`, `5 words, 41 characters`, `Insert`, `Standard selection`, `3 users`, and `100%`.



# Calc

basic-spreadsheet.ods - Office - Mozilla Firefox

basic-spreadsheet.o... x

www.collaboraoffice.com/

File Edit View Insert Cells Help

Liberation Sans 10

**B** *I* U ~~S~~ | | | | | | | \$ % 00 00 00 | |

= SIN (RADIANS (B14))

Point interval	X	Y
John	0	0.0000
	15	0.2588
	30	0.5000
	45	0.7071
Simone	60	0.8660
	75	0.9659
	90	1.0000
	105	0.9659
	120	0.8660
	135	0.7071
	150	0.5000
	165	0.2588
	180	0.0000
	195	-0.2588
	210	-0.5000
	225	-0.7071
	240	-0.8660
	255	-0.9659
	270	-1.0000
	285	-0.9659
	300	-0.8660
	315	-0.7071
	330	-0.5000
	345	-0.2588
	360	0.0000

sub-title

Sheet1 Sheet2 Sheet3

Search: Sheet 1 of 3 Standard selection Sum=0.0000 Document saved 3 users 100%

# Impress

basic-presentation.pptx - Office - Mozilla Firefox

basic-presentation... x +

www.collaboraoffice.com/

File Edit View Insert Tables Slide Help

Blank Slide Liberation Sans 18 B I U S

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Collaborative editing in a presentation

- Collaboratively edit content
- Insert images, tables, comments,...
- Browse through slides on the left
- Add, duplicate or remove slides
- Change slide layouts in the header
- And start a full screen presentation!

Simone

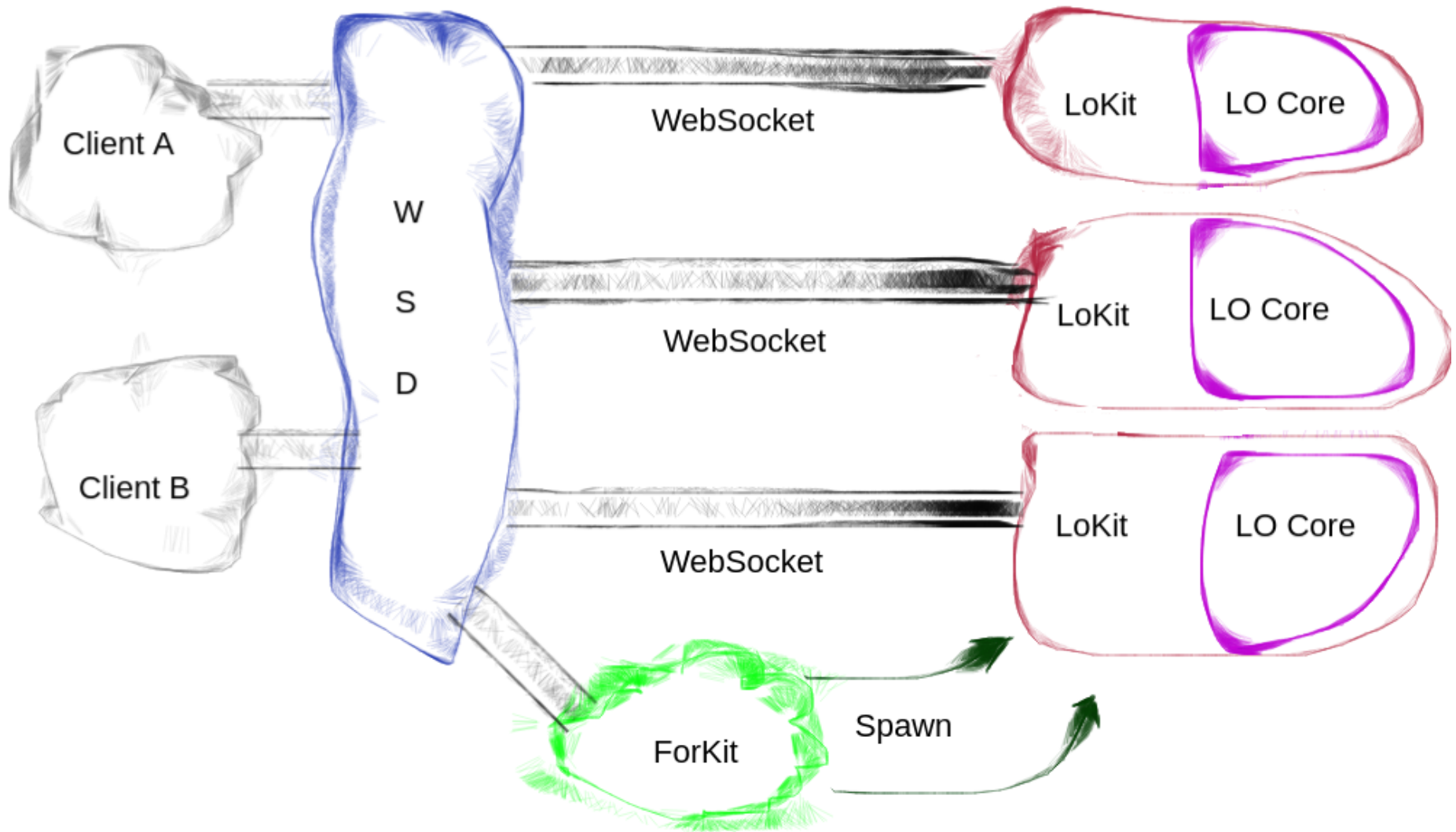
Click to add Title

Click to add Text

3 users

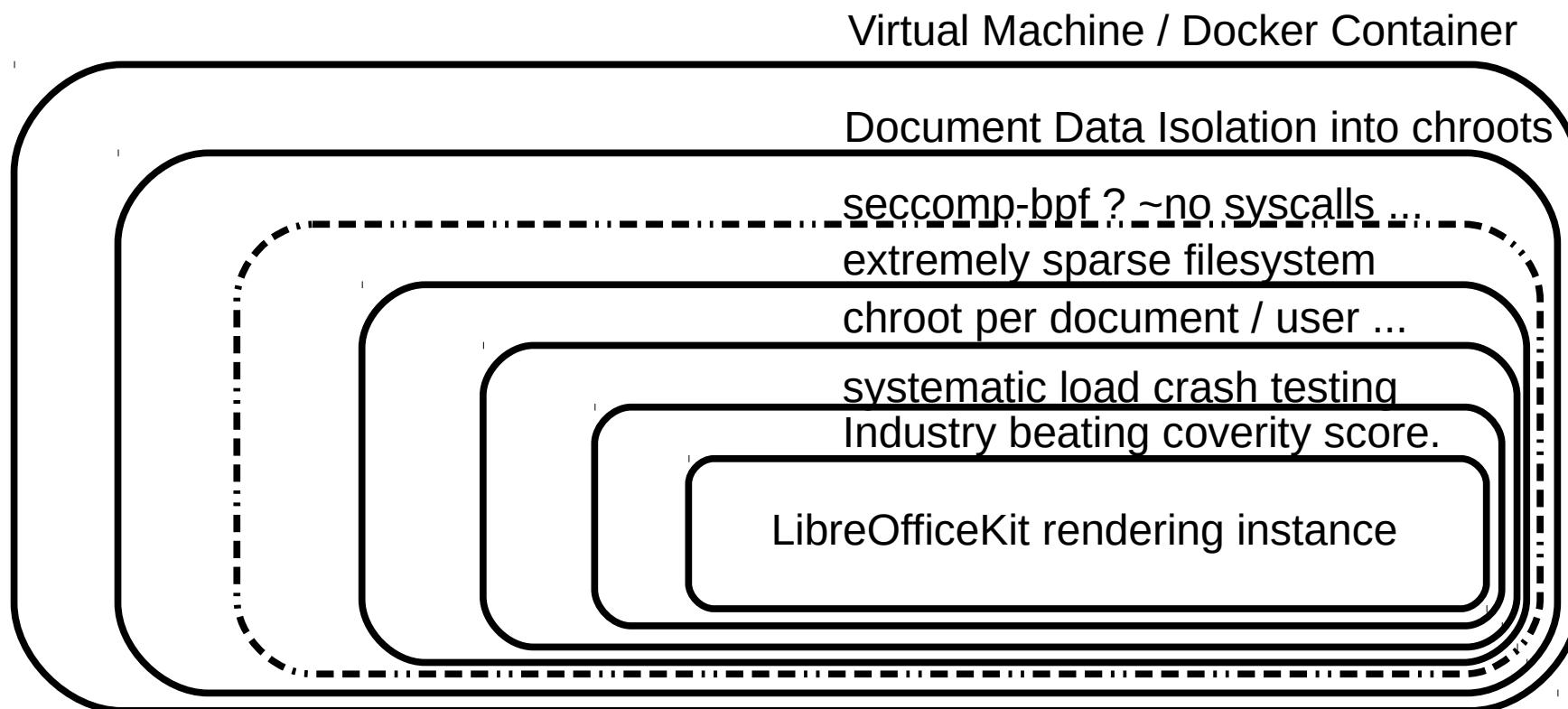
83%

# Architecture



# The Security Onion

A Layered approach to protecting your infrastructure ...



# Storage & Auth:

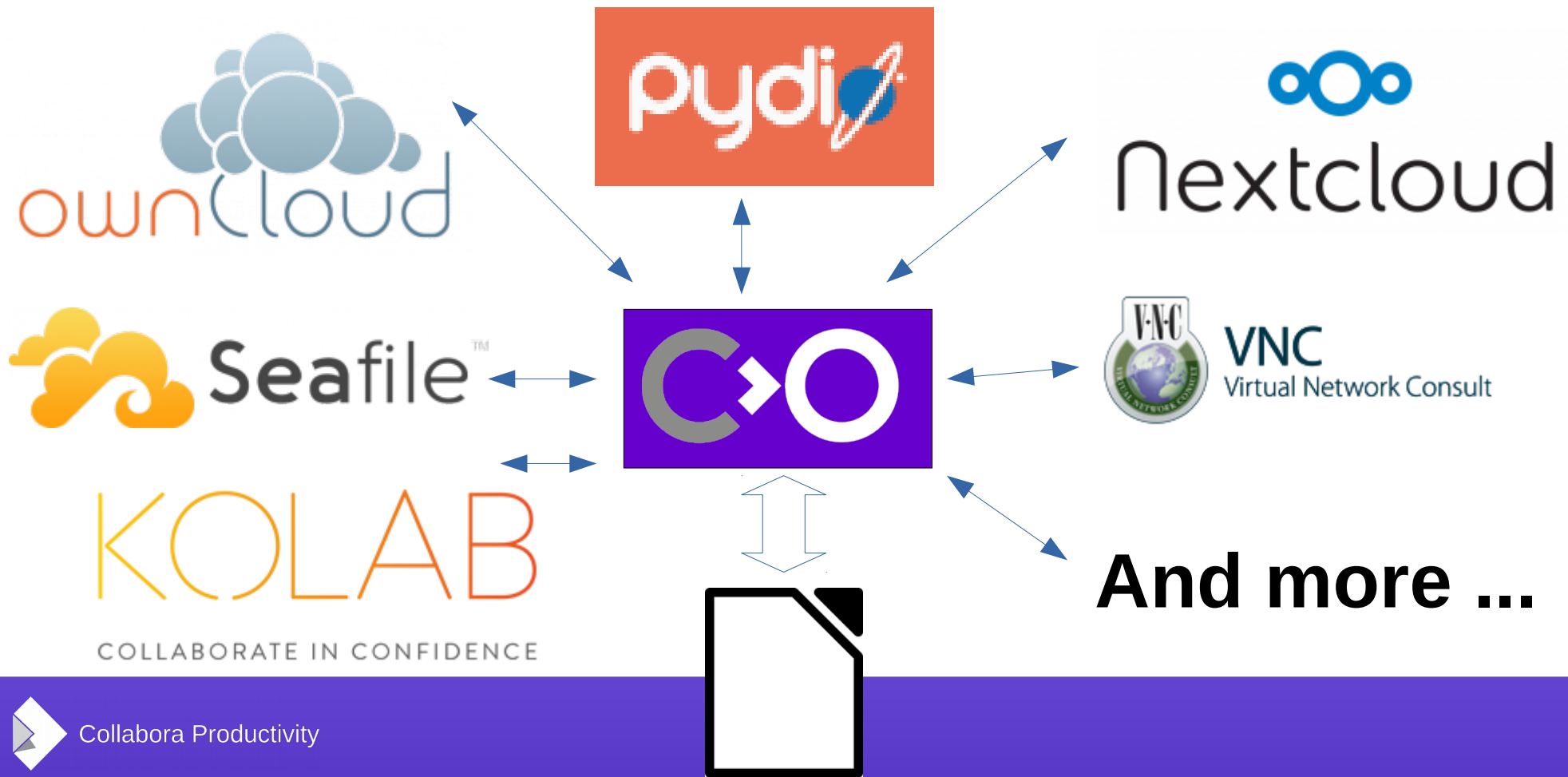
## WOPI – REST-ness:

- WOPI: a well documented open protocol (<https://wopi.readthelatestdocs.org/en/latest/>)
- To download the file:
  - GET `https://<WOPI host URL>/<...>/wopi*/files/<id>/contents?access_token=<token>`
- Upload back:
  - POST `https://<WOPI host URL>/<...>/wopi*/files/<id>/contents?access_token=<token>`
- Check file info (file name, size, user name, version)
  - `https://<WOPI host URL>/<...>/wopi*/files/<id>?access_token=<token>`



# LibreOffice Online: supported everywhere:

Partners – *will distribute Collabora Online integrated with their products*



# HA / setup ...

- HA setup more fun

- Split into 3x 8 CPU machines, 8GB each

**Users**



https://

*HA balancer of choice eg. ha-proxy.*



http://



**Collabora Online Workers**



**File Storage**

*Key attribute is to ensure that all traffic related to the same document goes to the same worker – all collaborators end up in the same address space.  
eg. “balance uri”*

# Sample / Hardware Sizing

- Guidelines:
  - 10 users / CPU thread
  - 100Mb RAM / user
  - 100kbit/s / user
- Capacity factor → not a hooster ...
- Worked example: **my laptop**
  - 1Gbit → 10,000 users
  - 16Gb → 160 users
  - **8 threads → 80 users.**



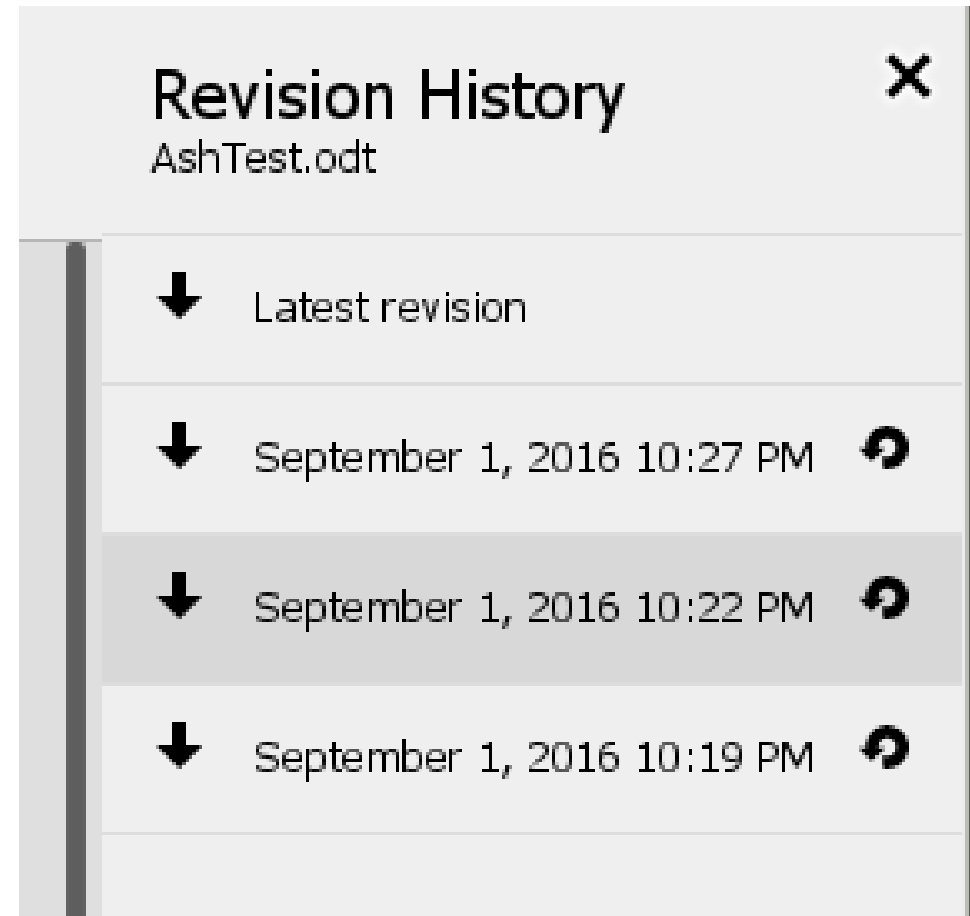
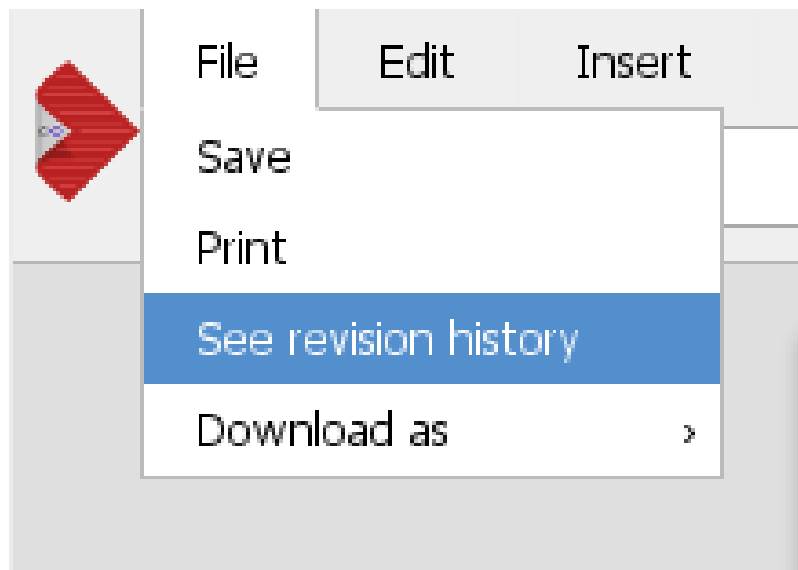


More details:



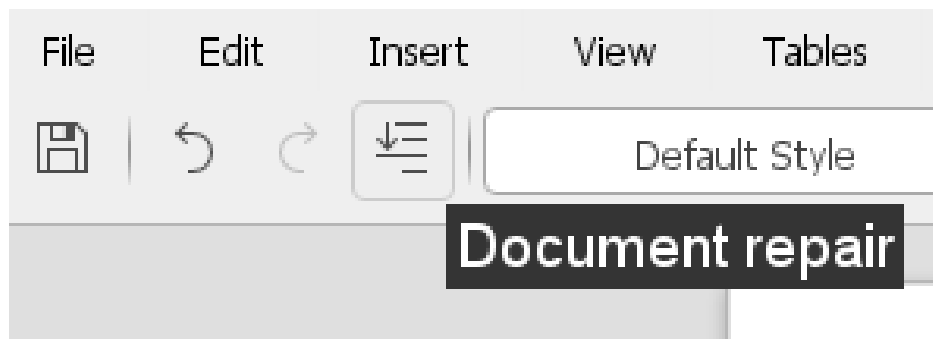
# Revision Control:

View and restore previous versions:



# Editing / Undo collisions etc.

Repair Document:  
conventional  
undo/redo simply  
solves editing  
conflicts.



Repair Document

Type	Index	Comment	View ID	Timestamp
Undo 0		Insert Image	2	2016-09-01T21:52:18,628396048
Undo 1		Insert table: 'Table1'	2	2016-09-01T21:52:11,777609331
Undo 2		Typing: 'Enter'	2	2016-09-01T21:52:05,103527646
Undo 3		Delete paragraph	2	2016-09-01T21:52:04,737246817
Undo 4		New Paragraph	2	2016-09-01T21:52:04,240850664
Undo 5		Delete 'l'	2	2016-09-01T21:52:04,010198873
Undo 6		Replace: "-> '/'	2	2016-09-01T21:52:03,047257372
...		...		...

Jump to state

# Debugging Tiled Rendering:

designer-cv-look.odt - Google Chrome

Bug 2144 - localhost designer-cv-look

https://localhost:9980/oleaflet/a28b3d0/oleaflet.html?file\_path=file:///tmp/designer-cv-look.odt

File Edit View Insert Format Tables Help

Quote text DejaVu Sans Conde... 11 B I U S T

Tile overlays  
 Screen overlays  
 Typing

**Jenny • Miller** Graphic Designer / Communication Specialist

requested: 9 received: 10 best: 113 ms avg: 118 ms worst: 136 ms last: 115 ms

**Hello there!**

requested: 9 received: 10 best: 114 ms avg: 120 ms worst: 138 ms last: 116 ms

requested: 9 received: 10 best: 116 ms avg: 122 ms worst: 142 ms last: 118 ms

requested: 9 received: 10 best: 119 ms avg: 124 ms worst: 145 ms last: 119 ms

“ I am a visual communications specialist with a passion for digital mediums. Through a range of successful corporate and artistic projects I have developed a unique style and business-driven approach. I offer a full concept-to-publication service and no-commitment quotations. I look forward to discussing your business! ”

requested: 40 received: 41 best: 37 ms avg: 58 ms worst: 148 ms last: 39 ms

requested: 44 received: 45 best: 32 ms avg: 54 ms worst: 124 ms last: 41 ms

requested: 9 received: 10 best: 121 ms avg: 127 ms worst: 153 ms last: 122 ms

requested: 9 received: 10 best: 122 ms avg: 128 ms worst: 154 ms last: 123 ms

Total of requested tiles: 162, received: 174, cancelled: 0  
Server ping time: best: 0 ms, avg: 2 ms, worst: 3 ms, last: 2 ms. Rendered tiles: 227, last: 2  
Elapsed time between key input and next invalidate: best: 4 ms, avg: 6 ms, worst: 34 ms, last: 6 ms  
43: tilecombine part=0 width=256 height=256 tileposx=0,3840 tileposy=3840,3840 tilewidth=3840 tileheight=3840  
42: tilecombine part=0 width=256 height=256 tileposx=0,3840 tileposy=3840,3840 tilewidth=3840 tileheight=3840  
41: tilecombine part=0 width=256 height=256 tileposx=0,3840 tileposy=3840,3840 tilewidth=3840 tileheight=3840  
40: tilecombine part=0 width=256 height=256 tileposx=0,3840 tileposy=3840,3840 tilewidth=3840 tileheight=3840  
39: tilecombine part=0 width=256 height=256 tileposx=0,3840 tileposy=3840,3840 tilewidth=3840 tileheight=3840

2015 Design Lead: Sp... onsin Cruises Inc.

2011 Design Communications, Master's University of Wisconsin-Madison

2007 Graphics Design, Bachelor's University of Wisconsin-Madison

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fb.com/MillerDesigns

**// Education**

**// Skills**

Inkscape

Search: Page 1 of 2 | 145 words, 1,070 characters | Insert Standard selection | 1 user | 100% +

LibreOffice 5.3  
due Feb 2017.



# LibreOffice 5.3

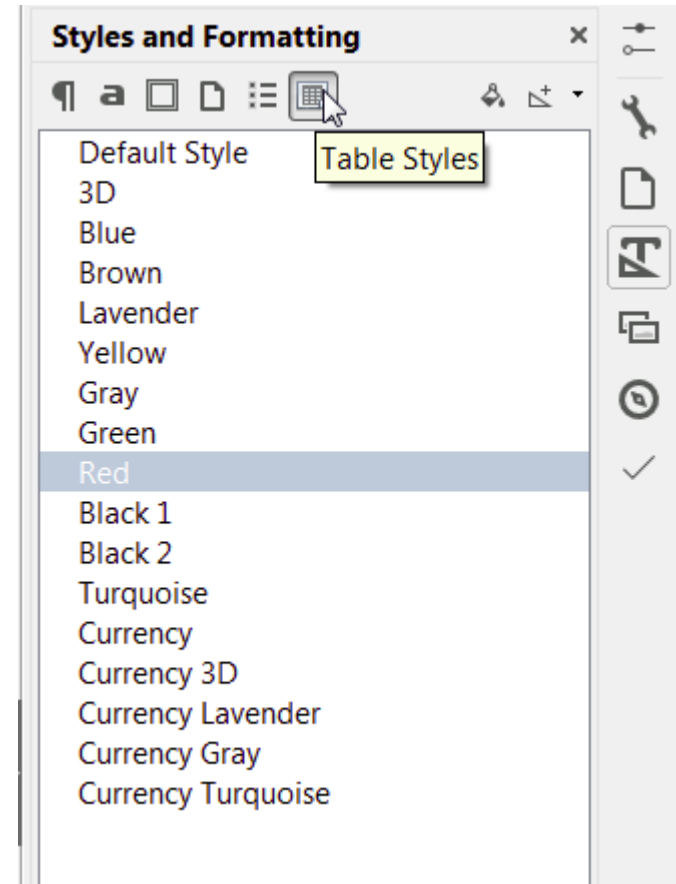
*a random selection*

- Firebird 3.0 (Wastack, Lionel, Stephan B (RedHat))
  - Now using archive format, but not 2.5 compatible
  - Hopefully deprecating HSQLDB permanently.
- Chart: improved line formula bits (Laurent BP)
- UI
  - Notebookbar (Samuel (CIB), Jay, Kendy (Collabora), Heiko)
  - Keyboard shortcuts visible in context menus (Maxim Monistarsky)

# LibreOffice 5.3

*a random selection*

- Writer
  - Table styles fun: UNO, ODF file-formats, partial UI thanks to (Jakub Trzebiatowski, GSoC 2016; Miklos Vajna, Collabora; Jan Holešovský, Collabora; Yousuf Philips)
- Existing PDF document signing
  - Improved SHA512 crypto etc. Miklos Vajna, Tor Lillqvist (Collabora)



# Conclusions

- Thanks for your support !
- LibreOffice / Collabora Online Demo
  - <https://www.collaboraoffice.com>
- Collabora Online Development Edition (CODE)
  - Tech details, test: <https://www.collaboraoffice.com/code/>
- Participate in the project
  - Code <http://cgit.freedesktop.org/libreoffice/online/>
  - Integration <https://github.com/owncloud/richdocuments>
  - API <https://www.collaboraoffice.com/collabora-online-editor-api-reference/>
- Thanks to the awesome LibreOffice Community !
  - *Without you, it couldn't be done & it wouldn't be fun.*

*Oh, that my words were recorded, that they were written on a scroll, that they were inscribed with an iron tool on lead, or engraved in rock for ever! I know that my Redeemer lives, and that in the end he will stand upon the earth. And though this body has been destroyed yet in my flesh I will see God, I myself will see him, with my own eyes - I and not another. How my heart yearns within me. - Job 19: 23-27*

