

# CS3: Collabora Online Secure, On-premise, Collaborative Editing

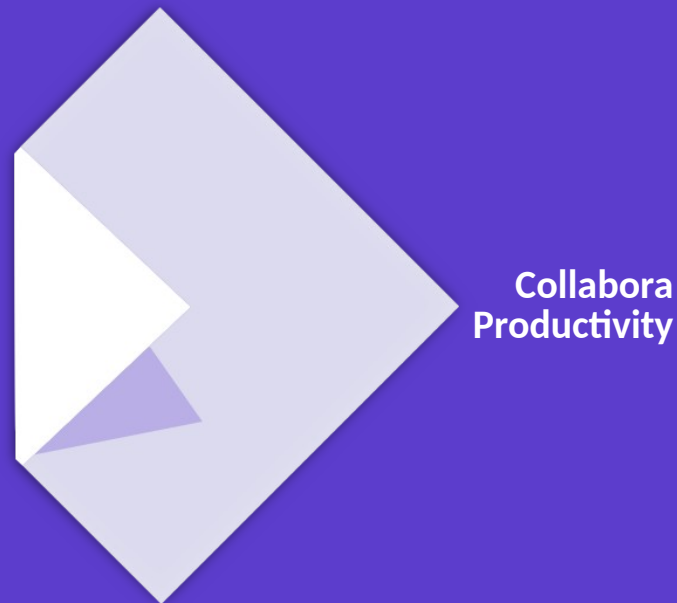
Michael Meeks <[michael.meeks@collabora.com](mailto:michael.meeks@collabora.com)>

**General Manager at Collabora Productivity**

@michael\_meeks, mmeeks #libreoffice-dev irc.freenode.net

*“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*

CS3 2020



# What is Collabora Online ?

Documents + Spreadsheets + Slides

- Viewing and Collaborative editing

**Excellent interoperability** with Microsoft formats

- DOCX, DOC, RTF, XLSX, XLS, PPTX, PPT

Many other Import filters / Viewing for

- PDF, Visio, Publisher ...

Powerful WYSIWYG rendering

**On-premise** Integration with your existing EFSS.

- ownCloud, Nextcloud, Seafile, pydio,  
or LMS: Moodle, or chat: Mattermost etc.

Architecture – a bet on CPU threads & network ... getting cheaper.





# Collabora Productivity

Free your business

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

## Collabora

- >100 staff, Cambridge UK & Montreal
- Parent company – 15 years old

## Collabora Productivity – Office Productivity

- ~30 staff – 6 years old
- 50% C'bra, 50% me

## Shared mission / raison d'être:

- **Make Open Source rock**  
the simple goal of the shareholders

## Leaders in the LibreOffice Community

- ~300 developers/year, ~1000 contributors
- Collabora Online (DE) – **30+ million**  
docker downloads
- >500k paying users



# The Collabora Online Vision

Full-feature, Open Source,

On-premise / hosted – control your data & apps & network ...

No compromises; flexible





# MS Office Online browser a stop-gap ...



**Microsoft Word Online**

Sorry, Word Online can't open this document for editing because it has document protection enabled for one or more sections. To edit this document, please open it in Microsoft Word.

Tell us about this problem to help us fix it.  
[Give feedback to Microsoft](#)

Session ID: 735838fd-b0c7-4534-8d07-84df8f1158b9

[Edit in Word](#) [Open in Reading View](#)

**Microsoft Word Online**

Sorry, Word Online can't open this document because it's too big.

Tell us about this problem to help us fix it.  
[Give feedback to Microsoft](#)

Session ID: 9b5be095-bcc2-497b-984a-9b5d8f...

[Edit in Word](#)

**Microsoft Word Online**

Sorry, Word Online ran into a problem while opening this document. To view this document, please open it in Microsoft Word.

Session ID: bd60564a-5cbb-4d12-82b3-2496bf8eba30

[Edit in Word](#)

**Couldn't Open the Workbook**

Sorry, we can't open your workbook in Excel Online because it exceeds the 5 MB file size limit.

You'll need to open this in Excel.

[Learn more](#)

[Open in Excel](#)

**Compatibility Report**

We can't show these features in the browser:

- Shapes or other objects
- SmartArt (process, hierarchy, cycle and relationship diagrams)

But you can see all the content in this workbook by opening the file in Excel.

[Learn more](#)

[OK](#)

**Edit a Copy?**

To edit this in your browser, we will create a copy that doesn't include unsupported features.

To edit this workbook with all of its features, click Cancel and open it in Excel.

[Learn more](#)

[Edit a Copy](#) [Cancel](#)

**Microsoft Word Online**

**Edit Document** **Print** **Share**

**Edit in Word**  
Use the full functionality of Microsoft Word.

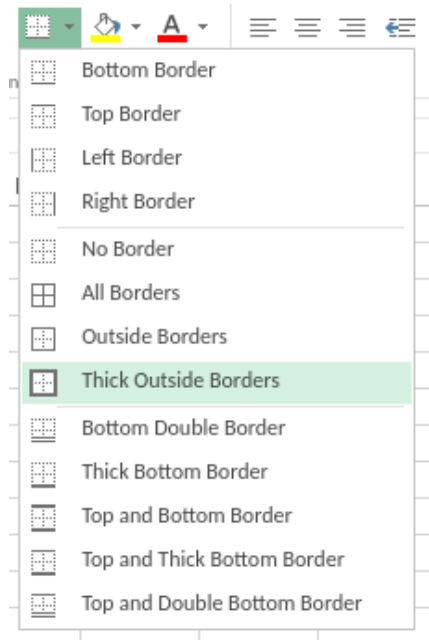
**Edit in Browser**  
Make quick changes right here using Word Online.

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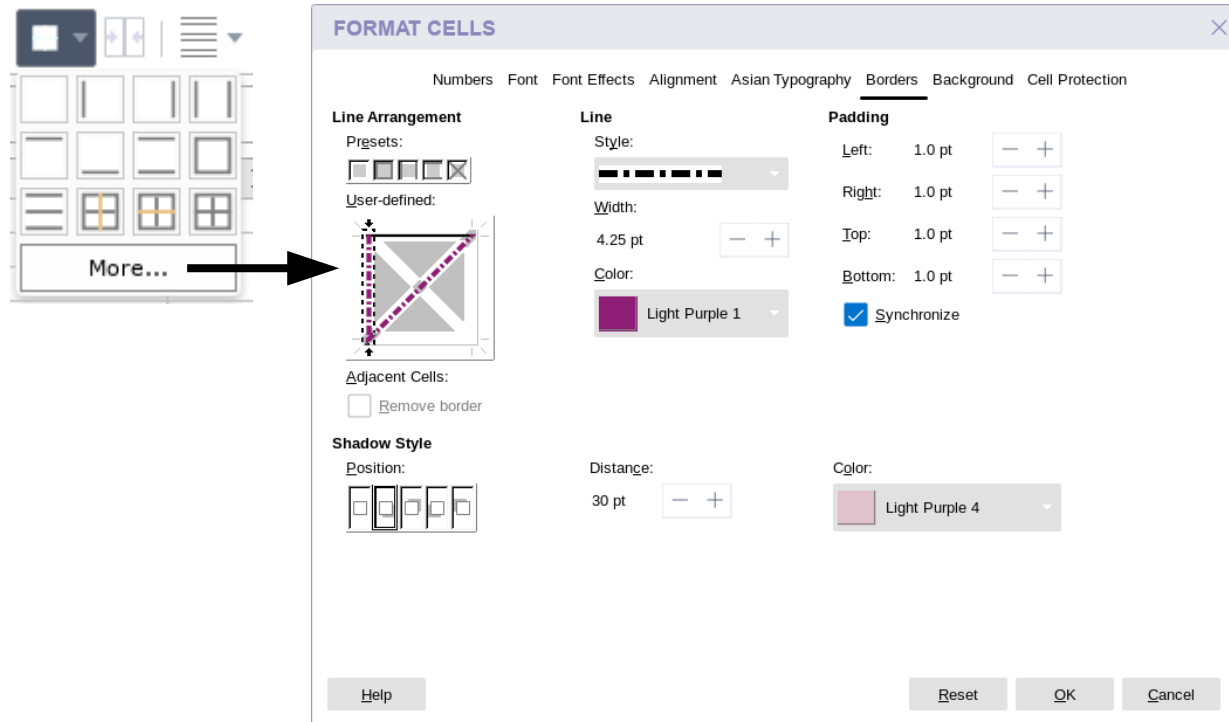


# Full Feature → the things the feature matrix hides

*The complete set of pre-canned border functionality in MS Online*



*The rich border UI in Collabora Online*





# Interoperability & Collaboration

## We have very powerful document interoperability

- Collabora Office → ~8 million LOC, MS Office ~30 million LOC
- Most mature Office code-base outside of Microsoft

## “100% interoperability” - not a credible claim

- I was on the ECMA Technical Committee standardizing MS' XML formats.
- Interoperability – a mix of: import, rendering, feature-set, export
- To edit you **have to** understand the format – no reliable short-cuts.

## Expectation here – we can win !

- Doing better than Google Docs, and Microsoft Online
- **Collaboration** is the key driver ...



## Example: writer Rich Fields support ...

Fill out DOC / DOCX forms

- tab through editable fields; skip protected sections



### INWARD (SHIPS AND BOATS OTHER)

PART A: ARRIVAL	
Name of ship	The Honorable Ship Goodwin
Date of arrival	Time of arrival
Name of person in charge	
IMO number	

Microsoft Word Online



Sorry, Word Online can't open this document for editing because it has document protection enabled for one or more sections. To edit this document, please open it in Microsoft Word.

Tell us about this problem to help us fix it.

[Give feedback to Microsoft](#)

Session ID: 18d4953e-e7ae-45f8-9080-c62b6dc6f9f2

Edit in Word

Open in Reading View

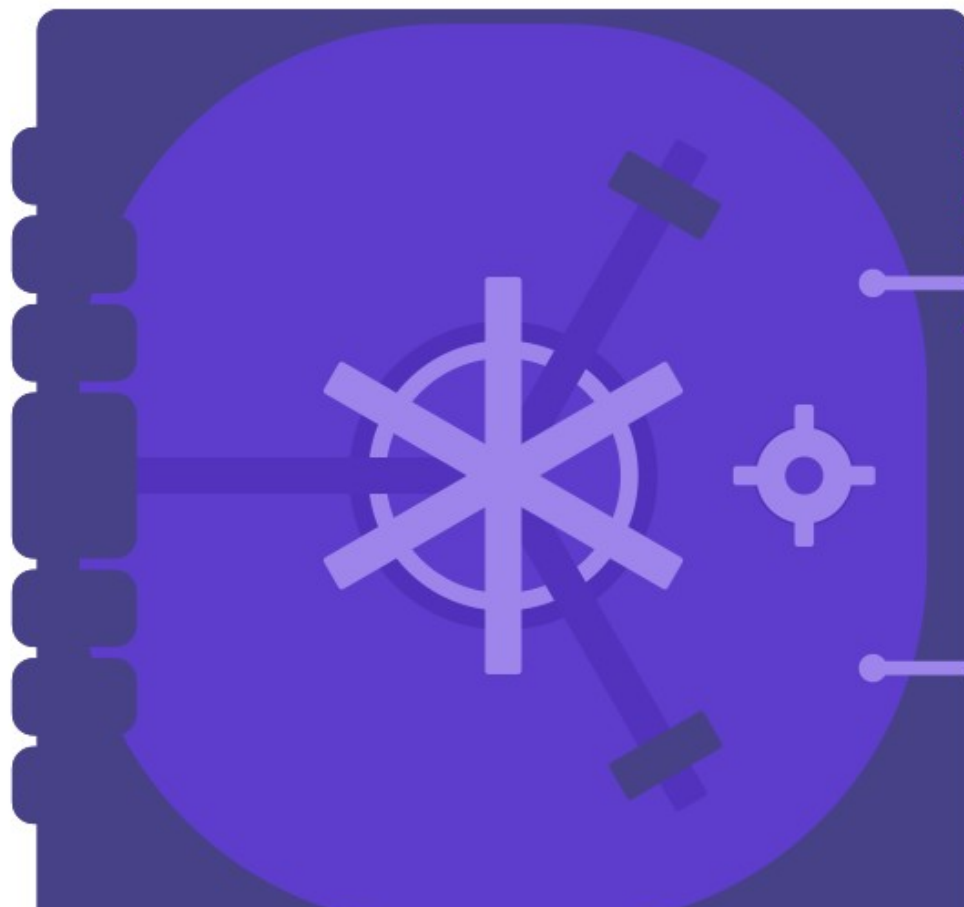
# Distinctives

*Thing you don't get elsewhere*



# Digital Sovereignty

*or :don't let your document data out of your site [sic]*



on your premise / Private network

Virtual machine / Docker container

Seccomp-bpf ~no sys-calls

Extremely sparse filesystem

Chroot per document

Systematic load crash testing

Industry beating coverity score

LibreOfficeKit

rendering instance

Document data is held in your server room.

Not sent to every single device to be controlled by the browser + JS + local debugger.

C'bra sends pixels to clients.

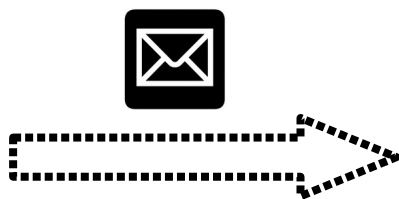
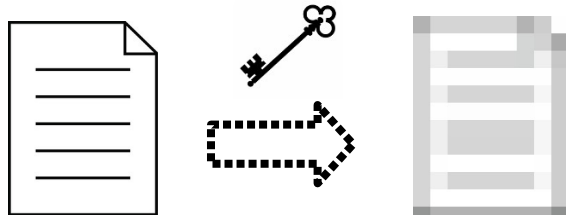


# Microsoft's Digital Rights Management

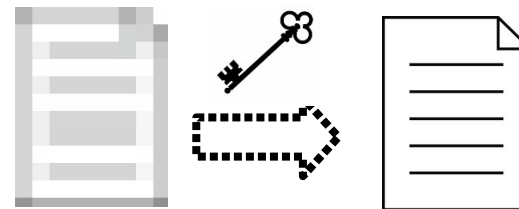
How can we show people a document, and control their access: ?

- eg. disable copy/paste, print, save-as, control views etc.

**Step 1:** encrypt the document

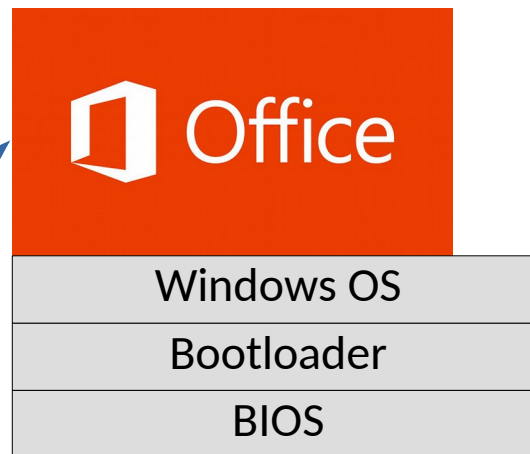
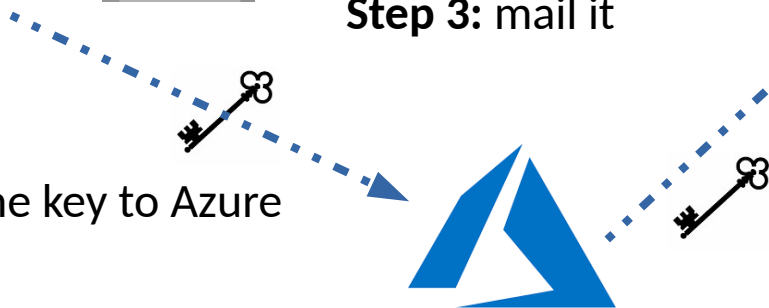


**Step 3:** mail it

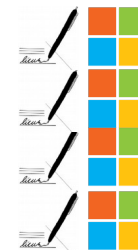


**Step 4:** check system and app is fully **signed**, and policy is ok & Decrypt document.

**Step 2:** send the key to Azure



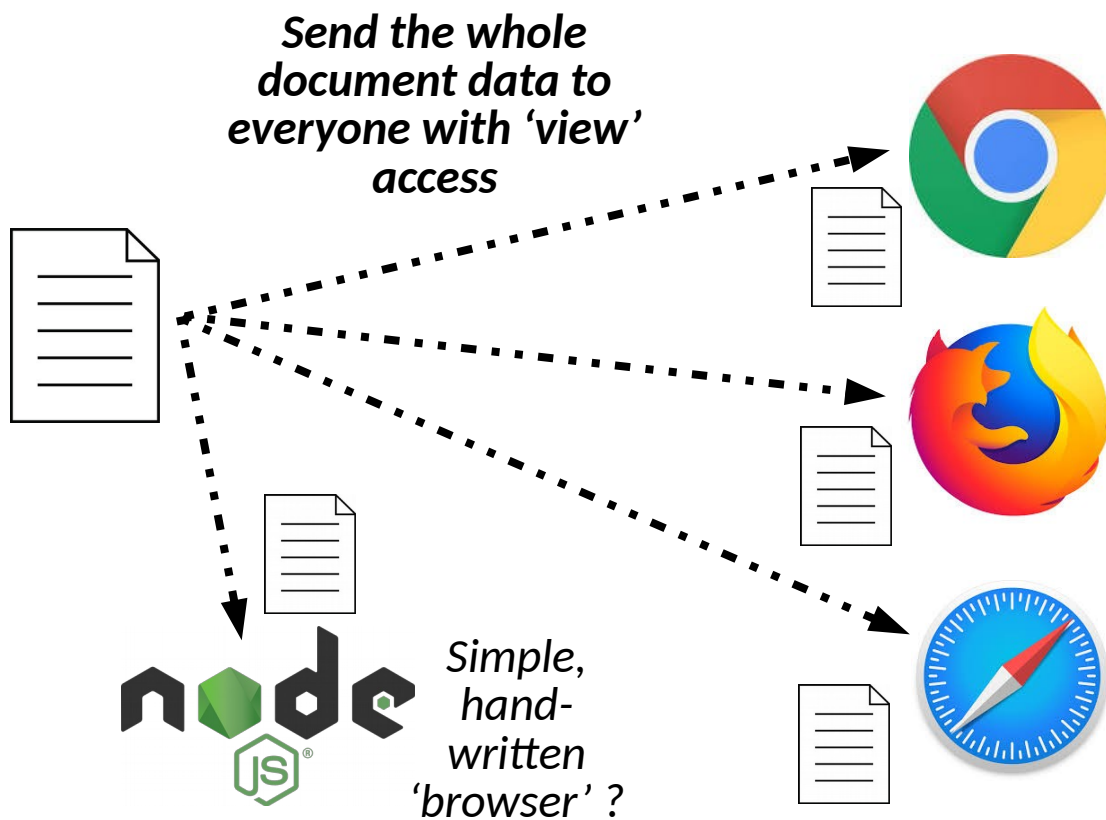
MS sign / revoke from bottom up







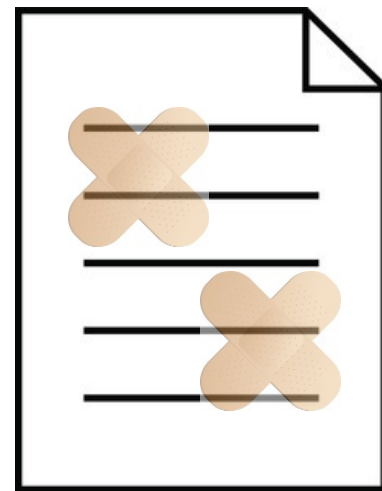
## How not to do it: (but oddly popular)



*Render whole document data using HTML5 in Javascript, press F12 to debug **policy enforcement***



*Apply watermark on top.*





## Real Secure View: send only watermarked pixels ...

### ☒ Enable Secure View

Set default share permissions for all users (available for shares without edit permission)

☐ can print/export

☒ Secure View (with watermarks)

Set watermark text for Secure View. To include the user email address dynamically, use the {viewer-email} variable. Click outside the text field to save.

Strictly confidential. Only for {viewer-email}

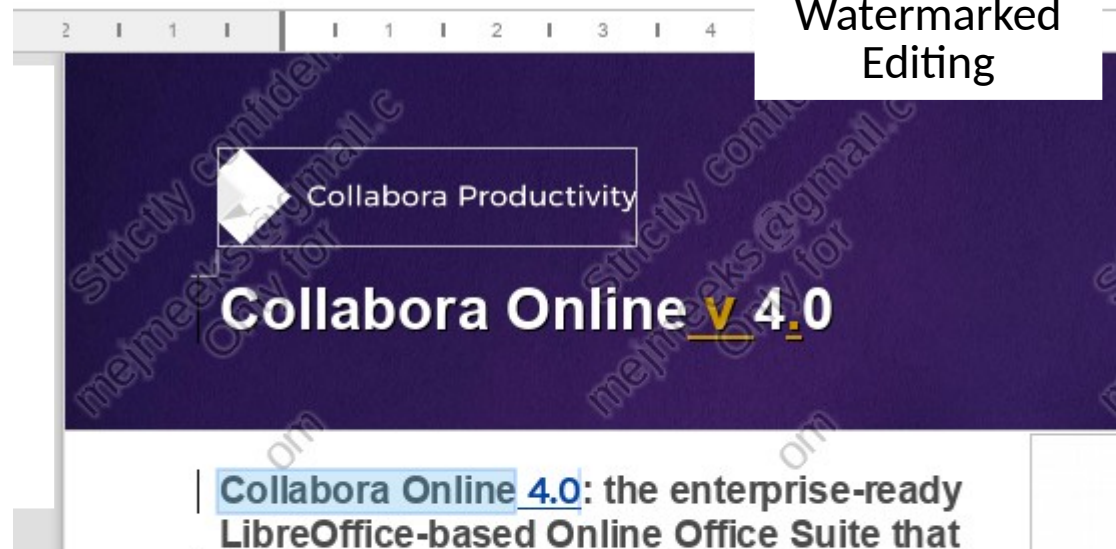
### Granular permissions

- Edit, Print, Share, Download
- Watermarked PDFs if print allowed.

**Simple, Elegant, Federated**  
**No central points of failure:**  
corporate or technical

*for Dell & ownCloud*

Watermarked  
Editing



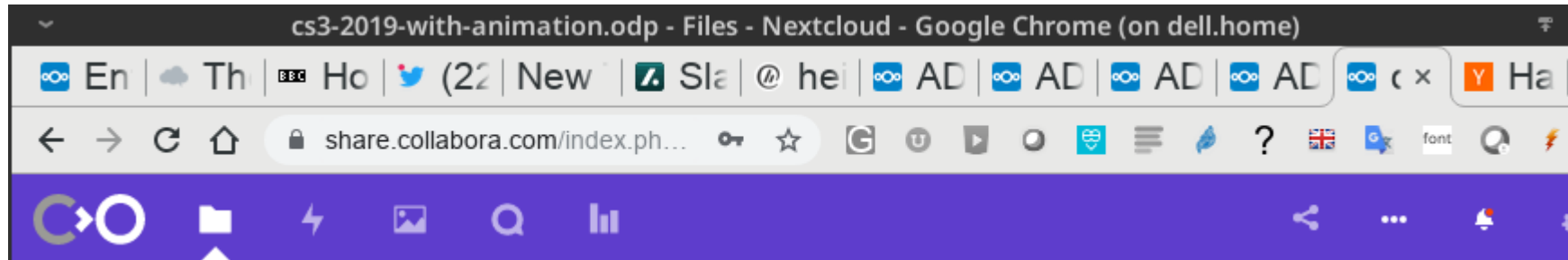


# Simple, per-user pricing

**As many** servers & connections & VMs **as you need**

**Dynamically scale** your workloads with **Kubernetes**

**Beware of the Window + Tabpocalypse:**



# Implemented for Collabora Online 4.2 *(due ~Feb)*

*shipping in CODE now*



## Documents + Spreadsheets + Slides

- Powerful WYSIWG rendering
- On-premise** Integration with your EFSS.
- Architecture – a bet on CPU threads & network ...

Category: Entrance 

- Appear
- Fly In
- Venetian Blinds
- Box
- Checkerboard
- Circle
- Circle with Cross

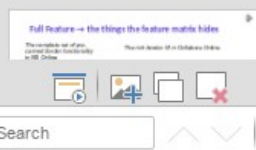
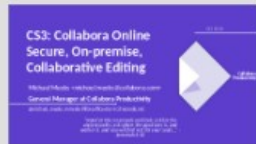
Start: On click

Direction: From bottom

Duration: 0.50 sec

Delay: 0.0 sec





# Click to add Title

Click to add Text

Click to add Text

Click to add Text

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Slide

Format: Screen 16:9


Orientation: Landscape

Background: None




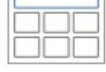





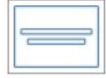





Master Slide: Content\_Context\_Image\_2

☒ Master Background

☒ Master Objects

 Master View

Layouts







Title Area for AutoLayouts

Click to edit the title text format

Click to edit the outline text format

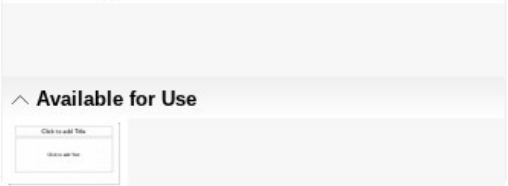
- Second Outline Level
  - Third Outline Level
  - Fourth Outline Level
  - Fifth Outline Level
  - Sixth Outline Level
  - Seventh Outline Level
  - Eighth Outline Level
  - Ninth Outline Level

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Used in This Presentation



Recently Used



Available for Use





# Cleaner theming: status bar

## ***How can I check spelling in my language?***

Choose menu **Tools** → **Languages** and select the language for the whole document or for the selected text and for the current paragraph.

## ***How can I remove the red wavy lines in my document?***

Choose menu **Tools** and uncheck **Automatic Spell Checking**.

## ***What is the blue wavy underline in some words in the text?***

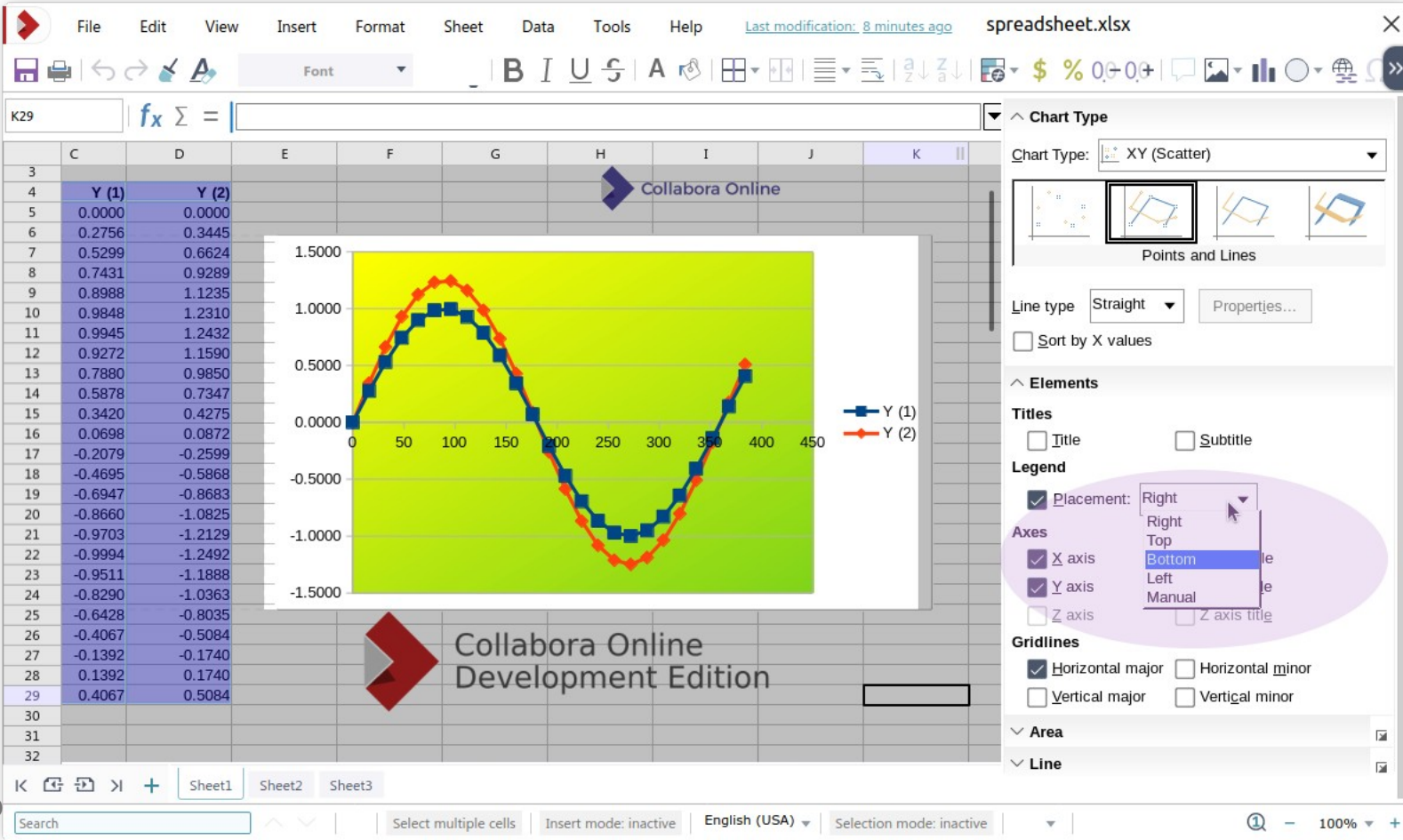
Grammar errors in the text is marked with the blue wavy underline. Click on the right mouse button to open a menu with suggestions to correct the grammar errors. Select the right suggestion to change the text.

## ***Is here a thesaurus?***

Yes. Click in the word you want and choose **Tools** → **Thesaurus**. A dialog opens with suggestions for replacements.

- None (Do not check spelling)
- English (UK)
- English (USA)**
- French (France)
- German (Germany)
- Italian (Italy)
- Italian (Switzerland)
- Portuguese (Brazil)
- Portuguese (Portugal)
- Russian
- Spanish (Spain)
- Reset to Default Language

# Chart OLE editing highlight & Chart Sidebar





FileEditViewInsertFormatSheetDataToolsHelp

Last modification: 1 minutes agospreadsheet.xlsx

Font

B I U

fx

=IF(A4+B4>5,CONCATENATE(IF(D4="M", "mr ", "mrs "),F4,IF(G4>"",CONCATENATE(" ",G4," "),"")),"")

	A	B	C	D	E	F	G	H	I
1	n1	n2	opgev	M/V	Firstname	Voorletter	extr name	Family name	NameForAddress
2	3	4	M	V	John	J.	de	Wouder	mr C. de Wouder
3	3	4	V	V	Josina	J.	van der	Koop	mrs J. van der Koop

Collabora Online Development Edition

FUNCTION WIZARD

FunctionsStructure

CONCATENATEFunction result"mrs J. van der Koop"

Combines several text items into one.

Text1 (required)  
Text for the concatenation.

Text1fxIF(D4="M", "mr ", "mrs ")Text2fxF4Text3fxIF(G4>"",CONCATENATE(" ",G4," "),"")Text4fxH4

FormulaResult"mrs J. van der Koop"

=IF(A4+B4>5,CONCATENATE(IF(D4="M", "mr ", "mrs "),F4,IF(G4>"",CONCATENATE(" ",G4," "),""),H4),"false")

☐ ArrayHelp< BackNext >OKCancel

col

Search

Select multiple cells

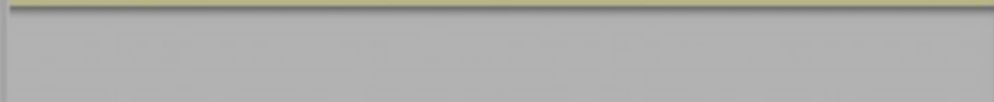
Insert mode: inactive

Selection mode: inactive

60



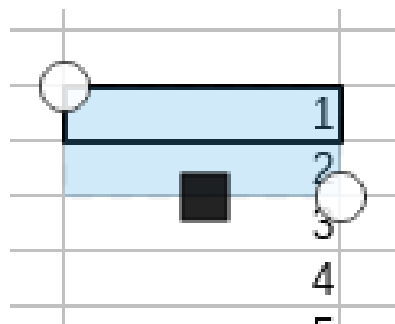
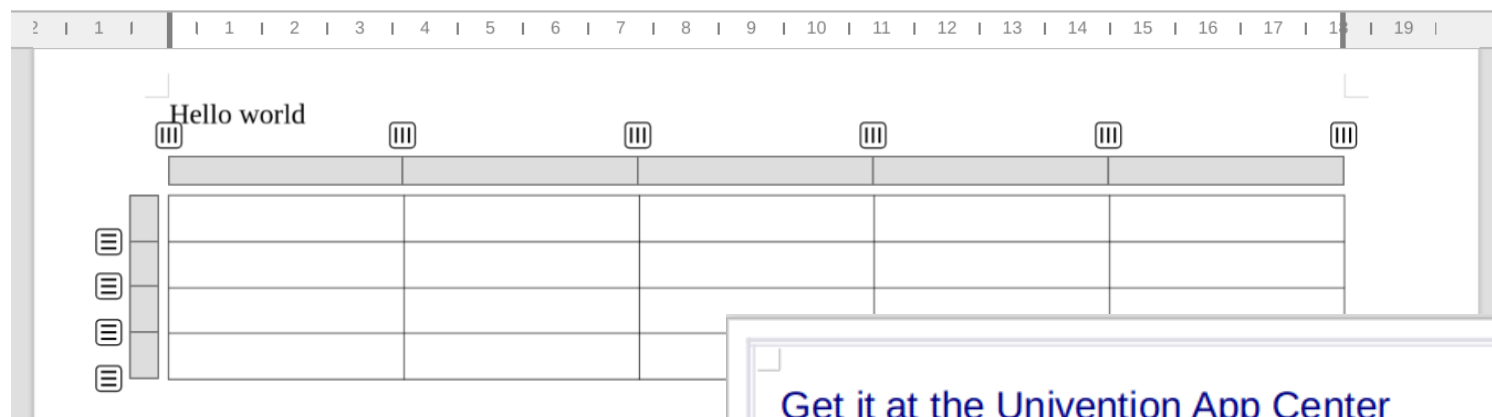
- Game of Online is the desktop client
  - to be played in some features & functions available
  - Play around of different world of scenarios
  - 100+ languages in interface and large graphics
  - Benefiting from enhancements in the big
  - At cost of 10k overhead
  - Creating benefiting enhancements in performance and loading



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Journal compilation © 2006 Blackwell Publishing Ltd



# Many more wins: eg. touch resizing handles, URL popup



## [Get it at the Univention App Center](#)

The easiest way to install CODE for a quick tryout is to download it as a [virtual appliance from the Univention App Center](#). This appliance contains the Collabora Online Development Edition, and the additional software you need to get you up and running in minutes. You can choose between two types of integration, **CODE + Nextcloud** or **CODE + ownCloud**. Each appliance is available in four formats: [KVM](#), [Virtuozzo](#), [Xen](#), and [VMware ESXi](#).

<https://hub.docker.com/r/collabora/code/>

## [Grab CODE docker image from Docker Hub](#)

The [collabora/code](#) Docker image can be installed to any x86-64 host (e.g. on Linux and Windows 10), and it is fully configurable. For more information about setup and configuration for deployment, please read the [CODE Docker page](#). If you want to try it out quickly, you can set up CODE docker image with file sharing integration in less than 5 minutes in a very basic way, following these instructions: [quick tryout with ownCloud](#) or [quick tryout with Nextcloud](#).



# Collabora Online Mobile

*with a Nextcloud customer*



Collabora Productivity
Collabora Online v 4.0

Collabora Online: the enterprise-ready LibreOffice-based Online Office Suite that allows you to stay in control of your own documents: full control of your office files.

LibreOffice is the world's most popular Open Source Office suite with over 120 million users. Collabora, a leading contributor to the project, and developer of the enterprise-ready Long Term Supported edition of LibreOffice, has now brought LibreOffice to the Cloud with Collabora Online.

With Collabora Online you now have access to a powerful, enterprise-ready and 100% Open Source Online Office suite functionality, with excellent support for all popular office file formats and collaborative editing features.

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Character

Paragraph

Default Style

Font Name
Karla

Font Size
12

Character

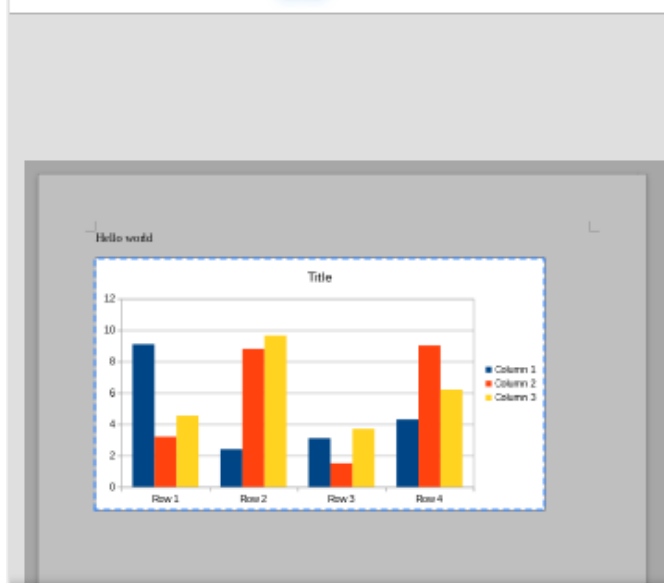
Paragraph

Background Color

Spacing:

Highlight Color

☐ No color

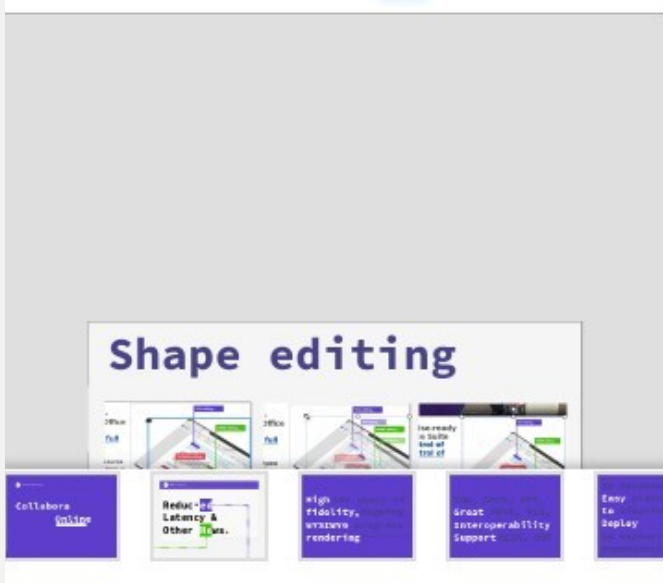


### Chart Type

Chart Type:

Column

3D Look ☐



### Slide Layouts

Slide

Layouts

Grid of slide layout templates.



### Slide Format

Slide

Layouts

Format:

Screen 4:3

Orientation:

Landscape

Background:



Download as



File



PDF Document (.pdf)

Download as



ODF text document (.odt)

Edit



Word 2003 Document (.doc)

Track Changes



Word Document (.docx)

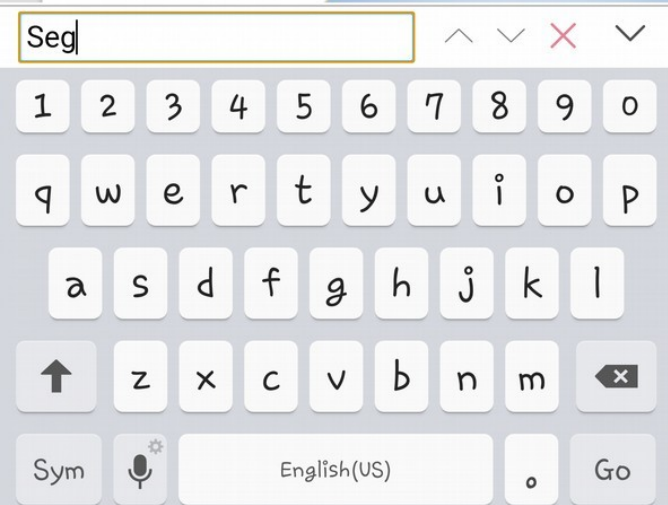
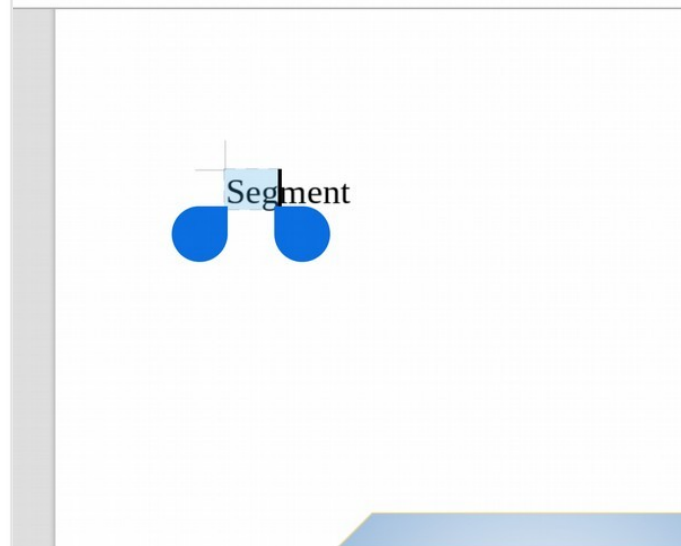
View

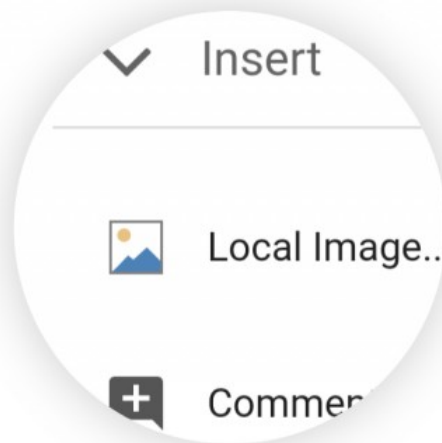
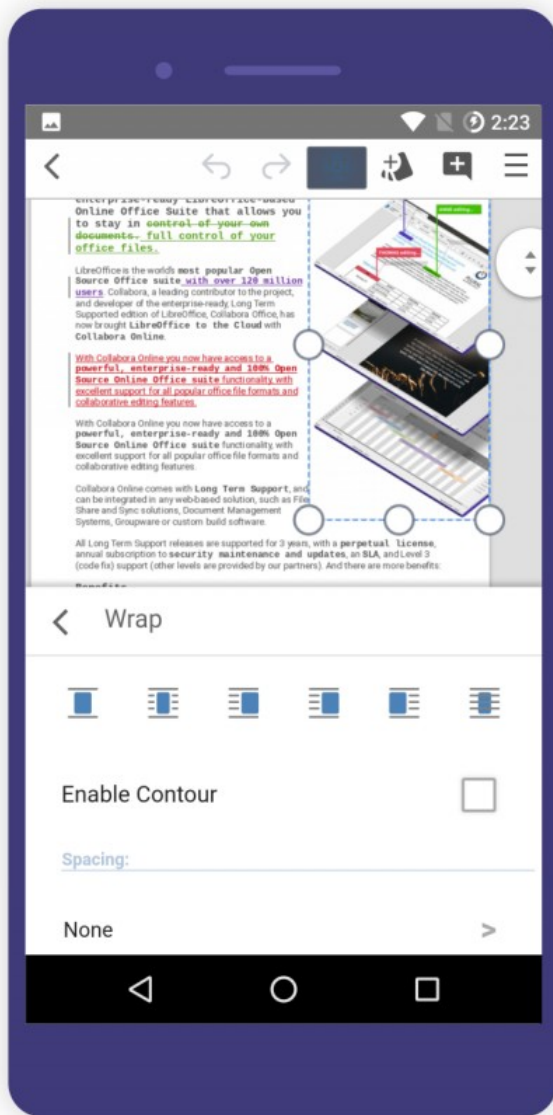


Rich Text (.rtf)



About







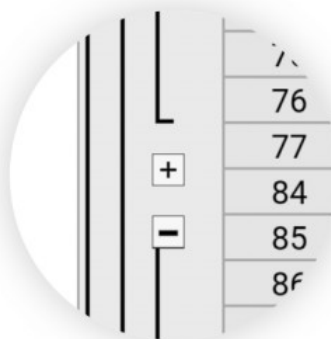
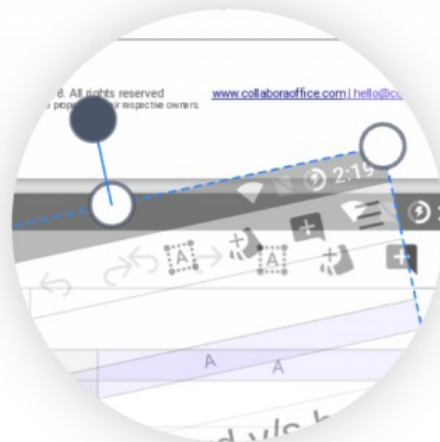
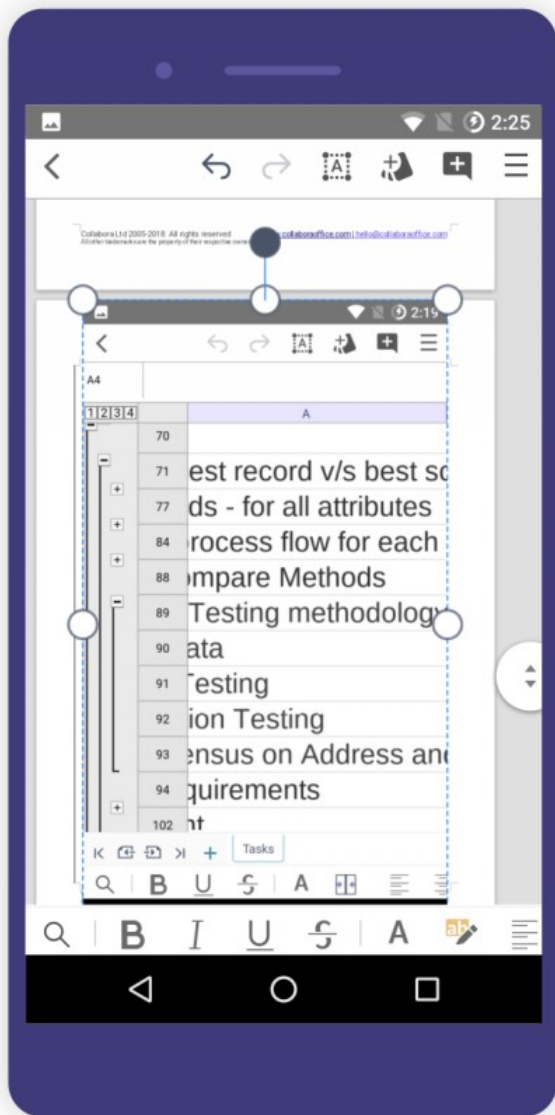


collabora or



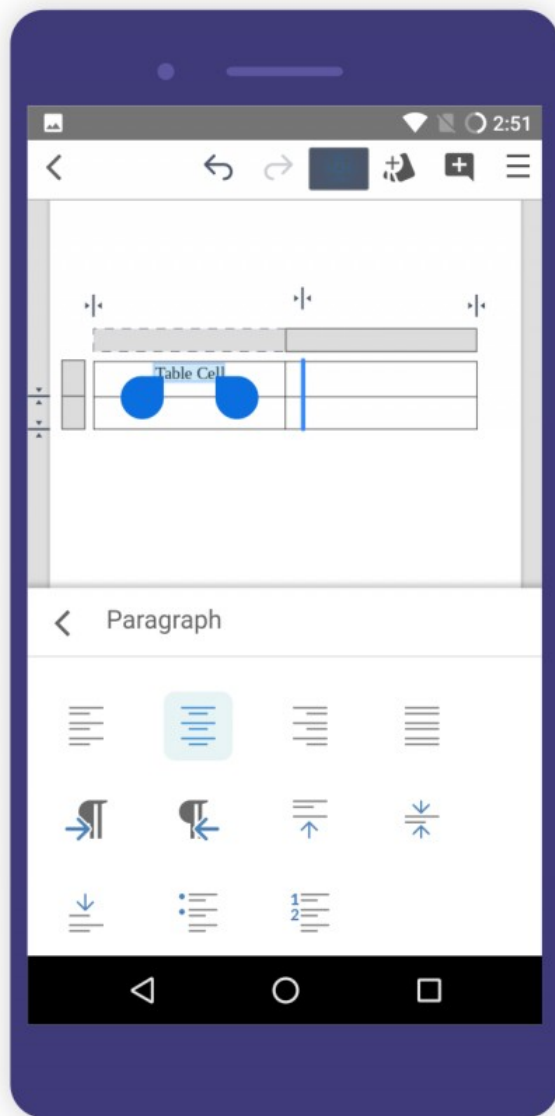
Collabora Office





Collabora Office





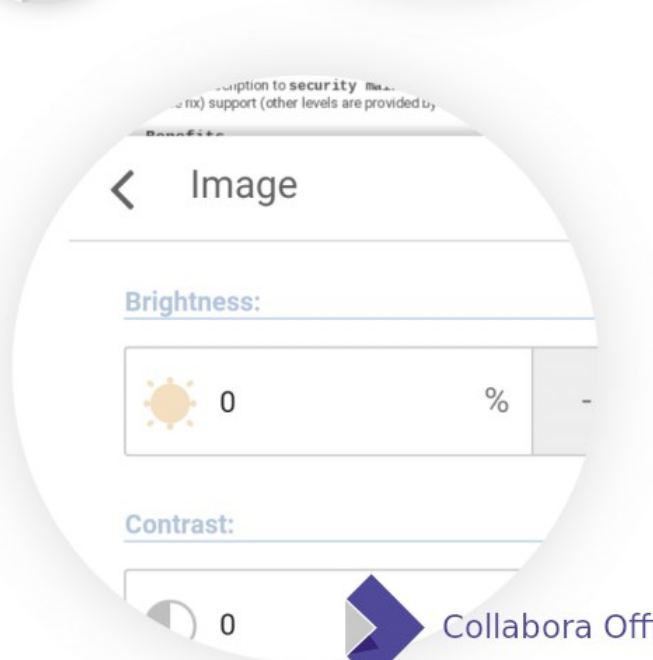
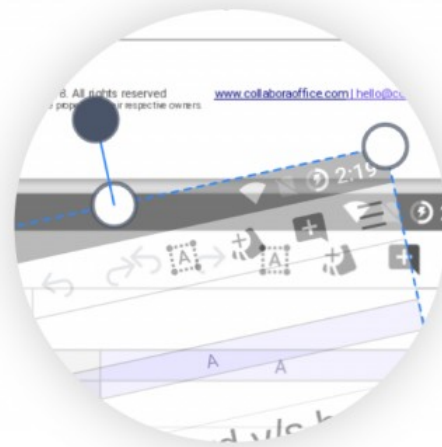
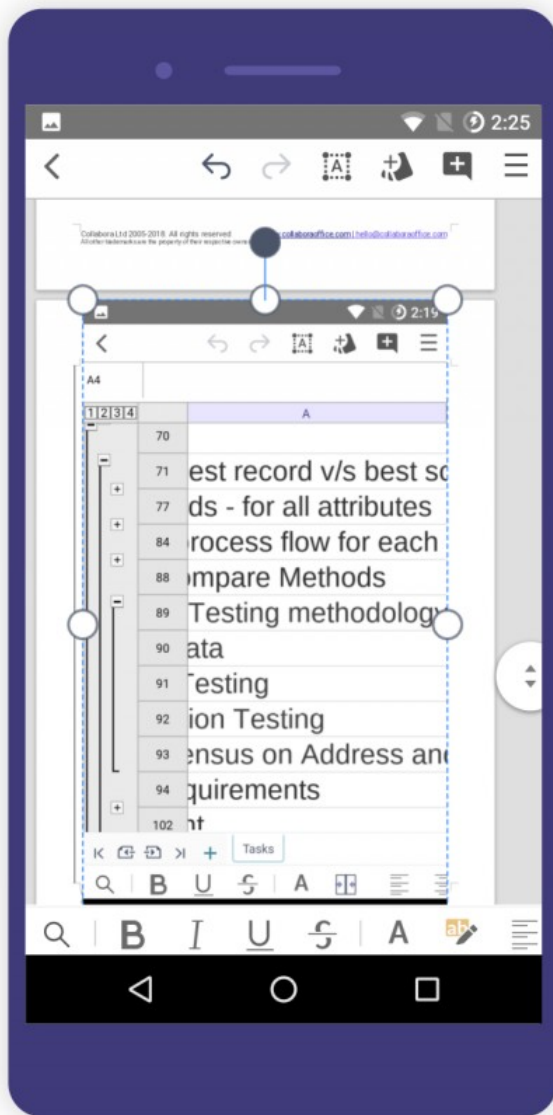
collabora or



Collabora Office



collabora or



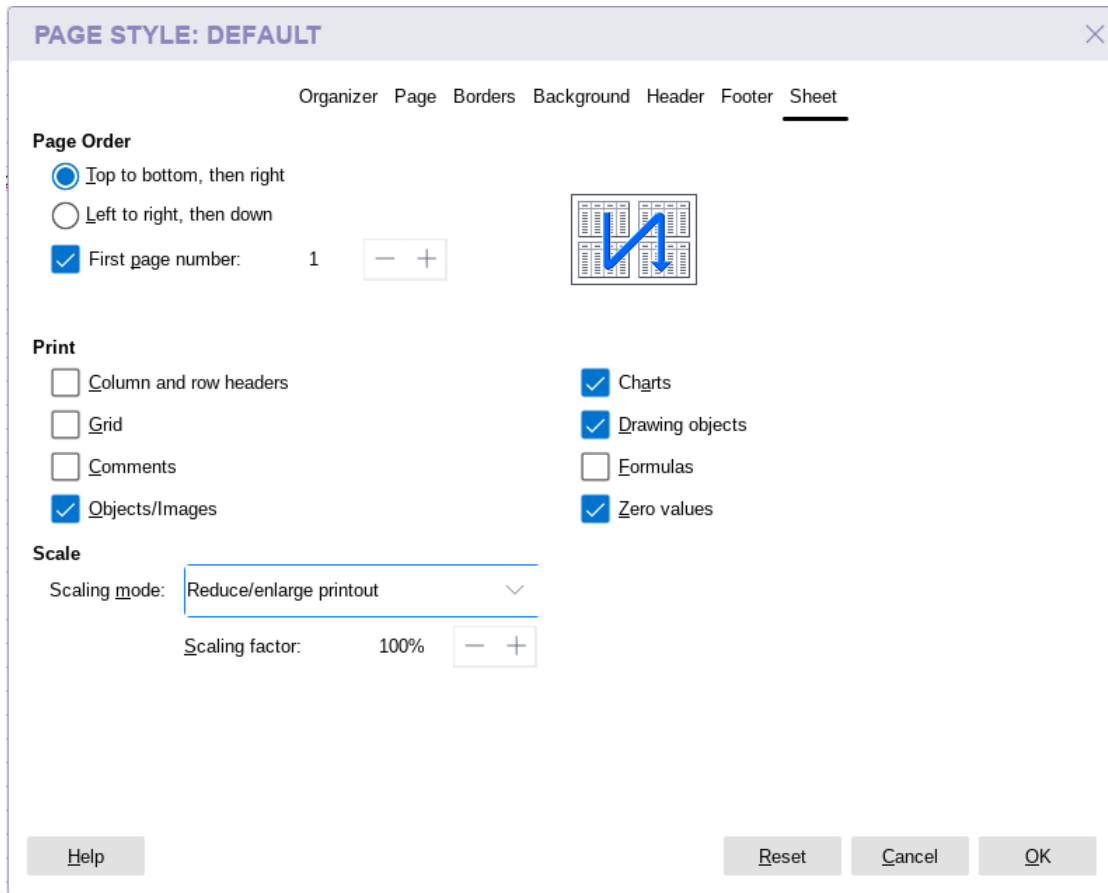
Collabora Office



# Online / Widget theming implementation ...

## Custom look & feel

- Custom SVG branding of individual widgets
- Building on native widget framework.
- ~easy to re-use for other platforms (volunteer?)





- A great Collabora & Nextcloud partner !



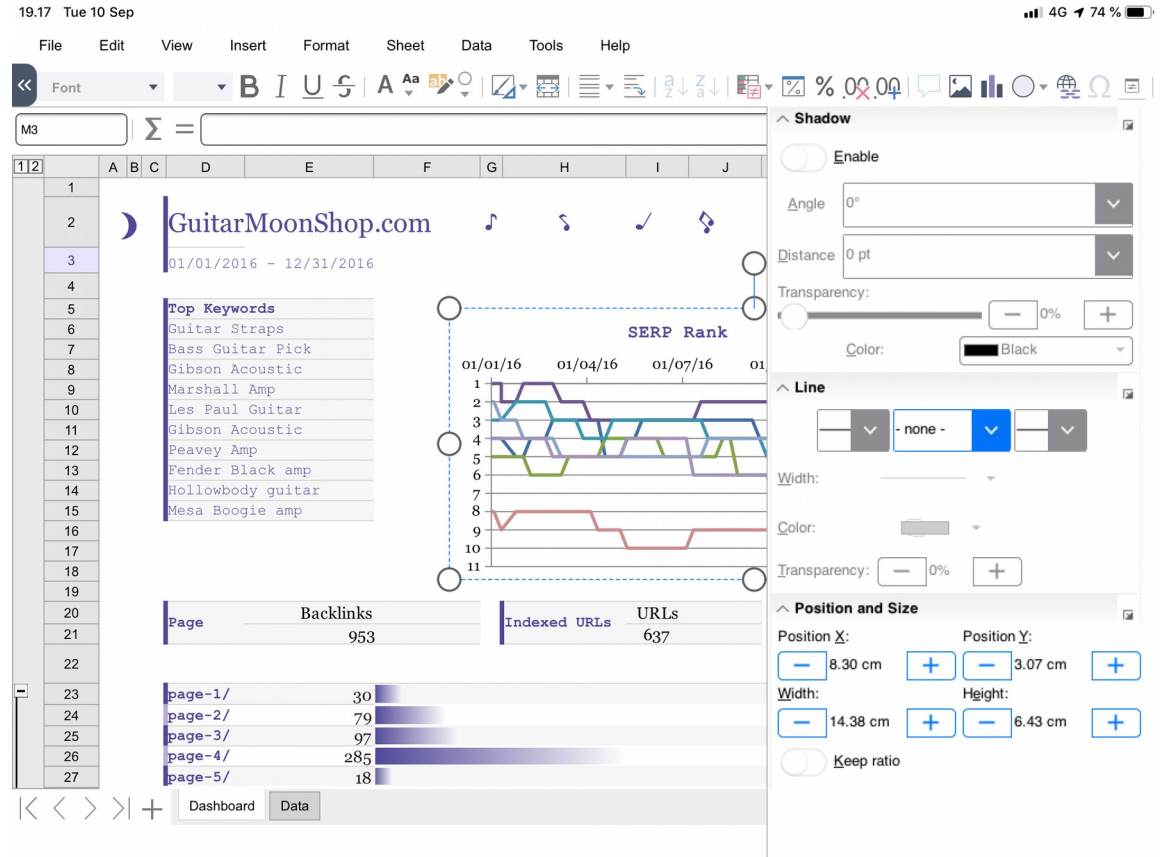
# Native iOS version for tablets ... with Adfinis

## Co-Developed with Adfinis

- A great Collabora & Nextcloud partner

## Quite a story:

Buy Collabora Online,  
get a free iPad version  
thrown in free !

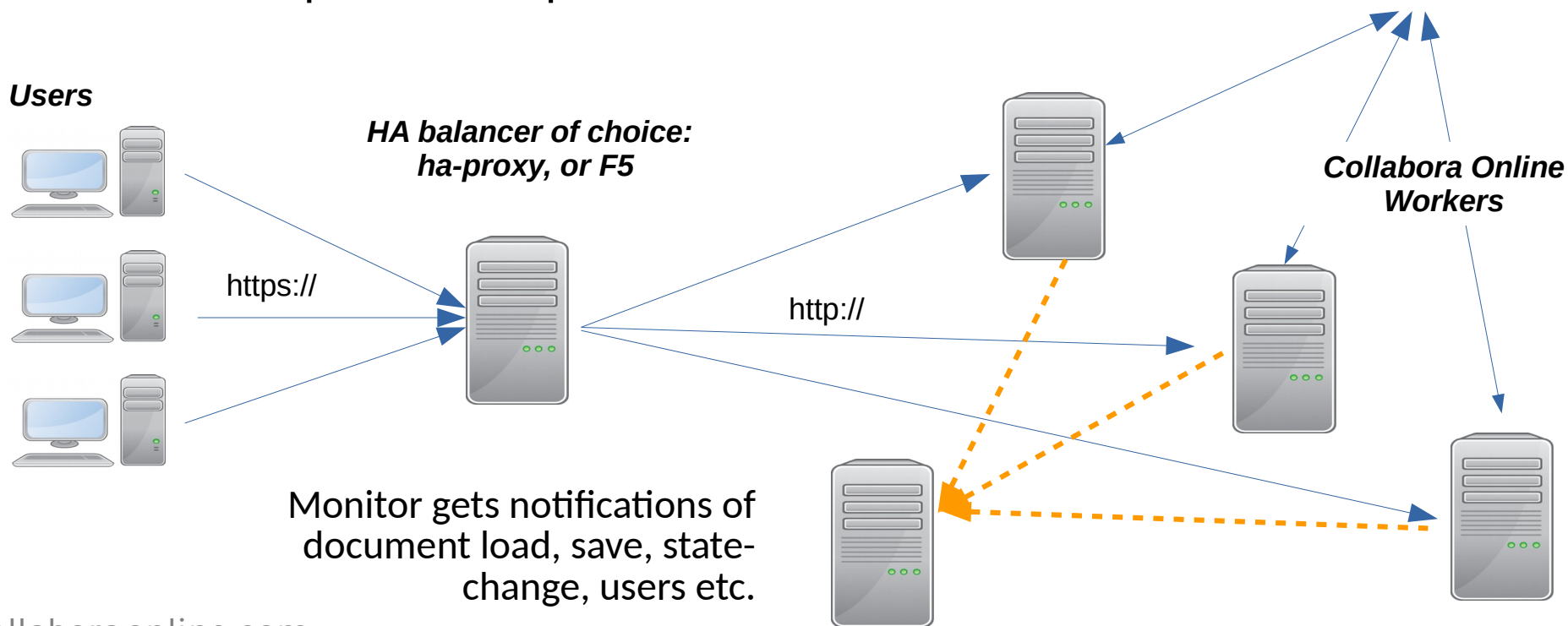




# Monitoring APIs:

Either **poll** each server: new Prometheus text-based format compatible end-point thanks to 1&1

**EFFS Data Store  
via WOPI-like API**





# The pieces you can't see

## Integration improvements

- Masses of new extensible API to embed Online into your application

## Performance

- Loading time, dialog rendering time
- Improved PDF rendering
- Unipoll – code simplification.
- Profiling infrastructure

## UX / infra changes

- Rich Copy/Paste support
- Many new dialogs converted to async
- Multi-window focus re-work.

## Security & Anonymization

- Anonymized logging
- 3<sup>rd</sup> party penetration testing

**And much much more ...**



# Deployment & HA

*some distinctives*

# Simplicity & Scalability

## Large deployments / HA pieces

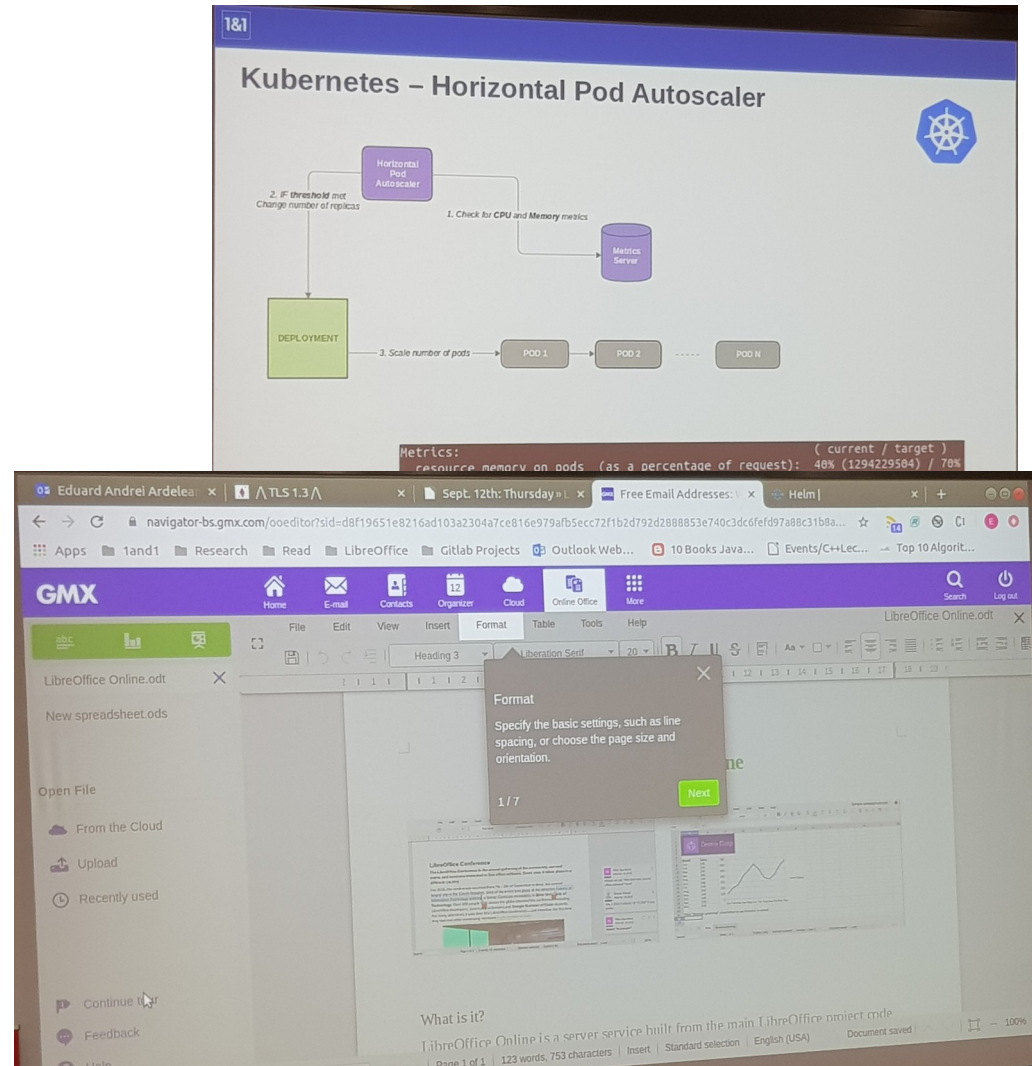
- Scales with the network.

## Simple architecture:

- No new HA Database
- No new message-bus
- No shared data storage

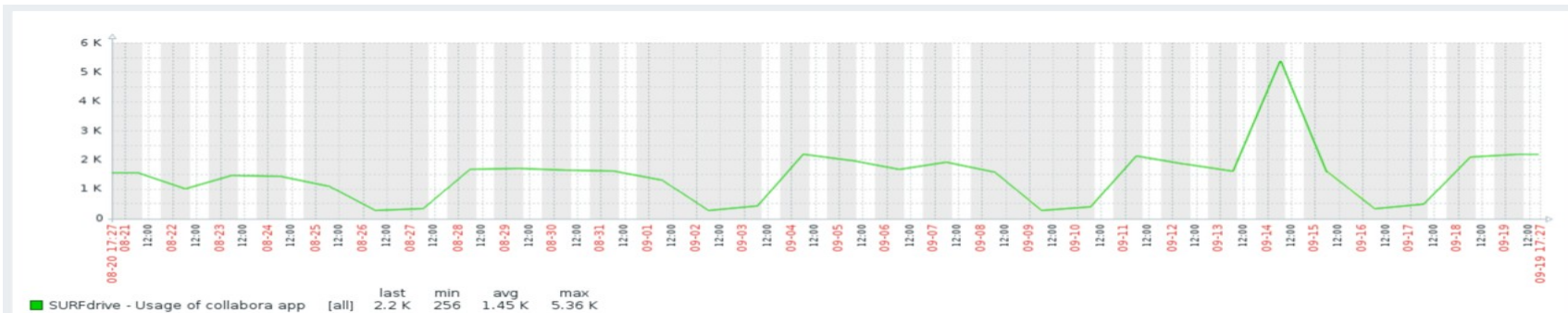
## eg. 1&1 / GMX

- ~millions of users with access

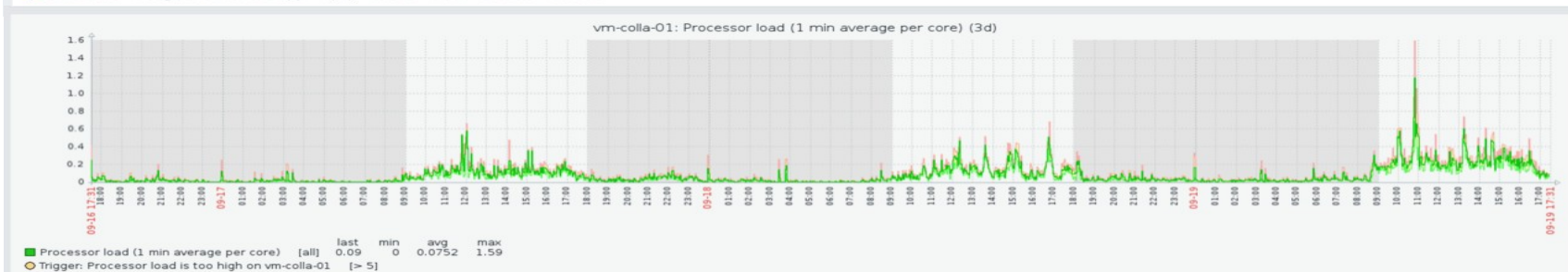


# Real world: ~45k users – Collabora Online – SURFdrive

Usage



CPU

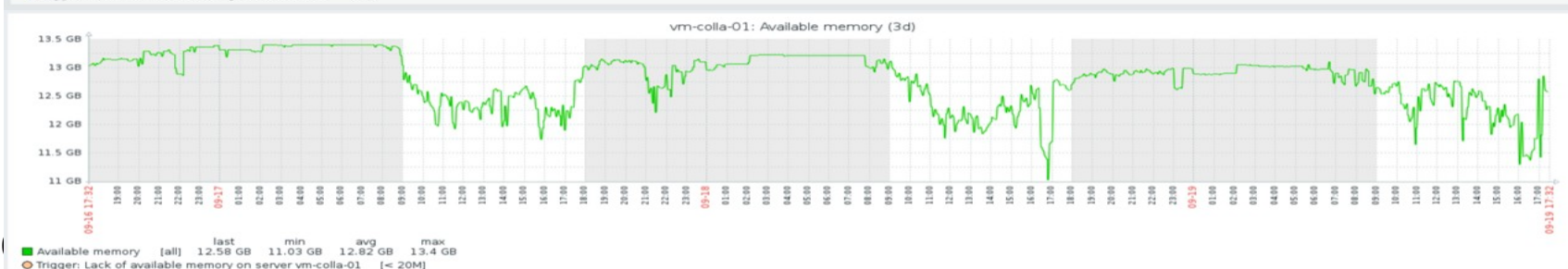
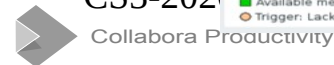


Free  
RAM:  
13.5Gb



11Gb

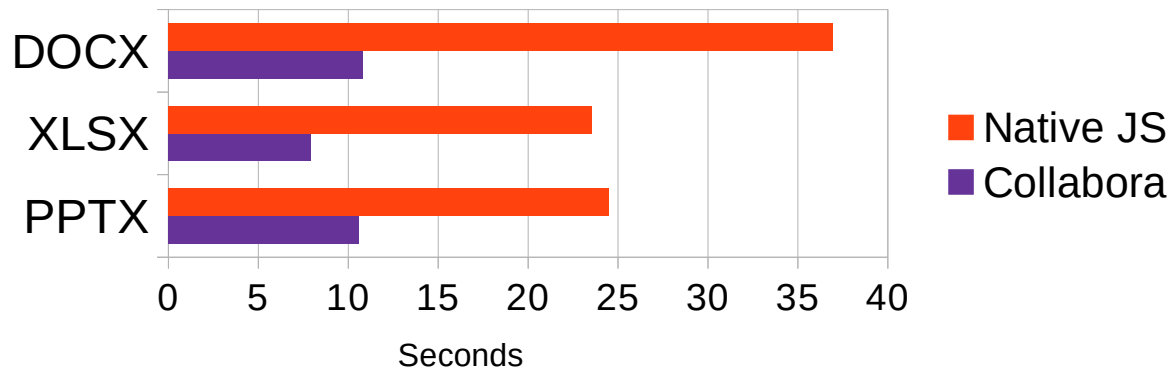
CS3-2021





# Mobile: do the work on battery, or in the data-center ?

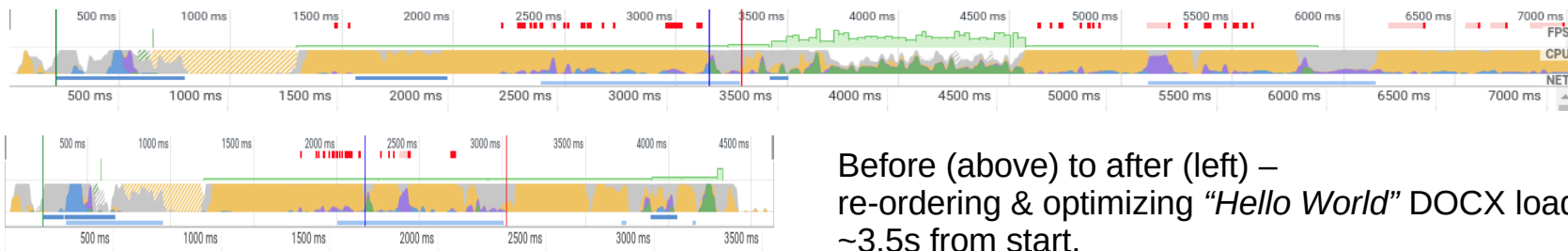
## Time to load & render blank files - Galaxy S4



First cut pre-optimized numbers

With data: larger spreadsheets  
10x faster → 1000X faster.

Threaded, GPU accelerated  
spreadsheet core





# Open First + Community

## Deep pool of volunteers & companies

- Berlin based Stiftung
- 100% open code.

Federal Ministry  
of Economics and  
Technology





Collabora Productivity

# Conclusions

- Our mission applied
- Easy to deploy
- Rich partnerships
- English Support
- Gorgeous, interoperable Document collaboration
- Architected for Digital Sovereignty
- Rapid improvement
- Long term support
- Scalable & easy to deploy
- Backed by large, diverse community & Berlin based Stiftung.
- see me: Product Management today