Collabora Online & ownCloud

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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
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 ownCloud.

Architecture – a bet on CPU threads & network …
Collabora

- >100 staff, Cambridge & Montreal
- Parent company – 14 years old

Collabora Productivity – Office Productivity

- ~30 staff – 6 years old (last week)
- 50% C’bra, 50% me

Shared mission / raison d’etre:

- Make Open Source rock: simple goal of the shareholders
- We re-invest your support into FLOSS software

Leaders in the LibreOffice Community

- ~300 developers/year, ~1000 contributors
- Collabora Online (DE) – 20+ million docker images

The driving force behind putting #LibreOffice in the #Cloud.
Collabora Parent: eg. Monado / OpenXR – play later ...

Monado

- Founders & driving force behind FLOSS VR / XR
  - When the world goes this way
  - Vital to have an open-source runtime, stack, drivers & community.

Fun & Games for hackers on Linux

- Get involved
  - https://gitlab.freedesktop.org/monado
  - https://monado.freedesktop.org/

![image of VR headset, controller, graphics card, and smartphone]
Collabora Productivity: examples

One of the top three Italian banks with 20,000 seats deployed in all their branch offices. Visionary cost savings.

Partner: AMD

Partner: Ryzen

Partner: Threadripper

Partner: Studio Storti


140 partners and growing ...
A seamless ownCloud partnership

ownCloud - a great partnership

- working together with Carlos & Cornelius’ team

Product support & Professional Services.

- A single support partner with experts in Collabora Online
- No blame-game nightmares:

Bank: 5 people & 5 companies in the room.

- It is exactly not like that ... with us
- Single point of contact, and relationship.

We provide Service Level Agreement & place to file tickets
The Collabora Online Vision

Full-feature, Open Source,
On-premise / hosted – control your data & apps ...
No compromises & flexible
Complements ownCloud’s vision
MS Office Online browser a stop-gap ...

- 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.

- 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.

- 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.

- edit in word
  - this document is too big.
  - tell us about this problem to help us fix it.

- edit in browser
  - use the full functionality of Microsoft Word.

- open in reading view
  - accessibility mode
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

<table>
<thead>
<tr>
<th>Name of ship</th>
<th>The Honorable Ship Goodwin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of arrival</td>
<td></td>
</tr>
<tr>
<td>Time of arrival</td>
<td></td>
</tr>
<tr>
<td>Name of person in charge</td>
<td></td>
</tr>
<tr>
<td>IMO number</td>
<td></td>
</tr>
</tbody>
</table>
Recent Improvements
Significant Mobile & UX improvements
Blockchain / Vereign Integration

In co-operation with Vereign a Swiss open source company building a blockchain based self-sovereign identity and personal data store.
Monitoring API for remote locking

- Connecting out to monitoring server

**Users**

**HA balancer of choice:** ha-proxy, or F5

**Collabora Online Workers**

Monitor gets notifications of document load, save, state-change, users etc.
Collabora Office Mobile - Q4
Native iOS version for tablets - with Adfinis

Co-Developed with Adfinis

• A great Collabora partner!

Beta in TestFlight
Native iOS version for tablets ... with Adfinis

Co-Developed with Adfinis

• A great Collabora partner

Quite a story:

Buy Collabora Online, get a free iPad version thrown in free!
Online based Android app – in progress
Many mobile wins: eg. touch resizing handles
Sidebar in Writer, Calc and Impress

We need to support images too

So let's have an image:

Oh, and shapes too:

So let's have an image:

so that we can select it, and do operations on that.

so that we can select it, and do operations on that.

so that we can select it, and do operations on that.

so that we can select it, and do operations on that.

This shape has some text inside, it is supposed to be selectable too.
Online / Widget theming implementation ...

Custom look & feel

- Custom SVG branding of individual widgets
- Building on native widget framework.
The pieces you can’t see

Integration improvements

- Masses of new extensible API to embed Online into applications

Performance

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

UX / infra changes

- Many new dialogs converted to async
- Multi-window focus re-work.

Security & Anonymization

- GDPR / Anonymized logging
- 3rd party penetration testing

And much much more ...
Online – old-style copy/paste: text → CSV import dlg.
Afterwards (plus manual chart copy)
Just the basics? Gdocs / Chrome comparison
or: Office.com / Excel copy / paste ...
Interop: the best all-round implementation and constantly improving ...

A random new feature: eg. bottom to top / left to right layout ...

• hundreds more, all across the board in the core
Create & Modify writer page watermarks
Distinctives
Don’t let your document data out of your site [sic]

We send pixels to clients.

Keystrokes come in, and go out as changed pixels.

Document data stays where it belongs – in your data centre.
Secure View: ownCloud 10.3

New Advanced Sharing Permissions API

Granular permissions
- Edit, Print, Share, Download
- Watermarked PDFs if can print.

Thanks to: Vincent Petry, Piotr Mrowczynski, Patrick Jahns, Phil Davis, Mert Tumer
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 2:** send the key to Azure

**Step 3:** mail it

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

- Windows OS
- Bootloader
- BIOS

MS sign / revoke from bottom up
How not to do it: (but oddly popular)

Send the whole document data to everyone with ‘view’ access

Simple, hand-written ‘browser’?

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

Apply watermark on top.
A better design: send pixels with watermarks → client

Simple, server side, per-client policy enforcement.

No copy/paste? Text doesn't get to the browser.

No print? PDF not sent to the client.

Scalable, no central signing authority needed.
Simple, per-user pricing

Run as many servers / VMs as you need

Dynamically scale your workloads with Kubernetes

Beware of the Window + Tabpocalypse:
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

Usage

CPU

Free RAM: 13.5Gb → 11Gb

ownCloud
Do the work on battery, or in the data-center?

Time to load & render blank files - Galaxy S4

<table>
<thead>
<tr>
<th>Format</th>
<th>Collabora</th>
<th>Native JS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOCX</td>
<td>30s</td>
<td>20s</td>
</tr>
<tr>
<td>XLSX</td>
<td>25s</td>
<td>15s</td>
</tr>
<tr>
<td>PPTX</td>
<td>20s</td>
<td>10s</td>
</tr>
</tbody>
</table>

First cut pre-optimized numbers

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

Threaded, GPU accelerated spreadsheet core

Before (above) to after (left) – re-ordering & optimizing “Hello World” DOCX load - ~3.5s from start.
Open First + Community

Deep pool of volunteers & companies

- Berlin based Stiftung, 100% open code
Conclusions

- Our mission applied
- Rich partnership with ownCloud
- Gorgeous, interoperable Document collaboration
- Seamless support with SLA
- Rapid improvement
- Scalable & easy to deploy
- Backed by large, diverse community & Berlin based Stiftung.
- **We are hiring:** Javascript, Marketing, Sales

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*