Configuring, Deploying and Scaling Collabora Online

Michael Meeks, Collabora Online
Configuration and customisation
Themeing

» Change the UI to adopt your visual identity
» With CSS, change the colours and other attributes
UI layout

» Decide which UI elements are visible

  » Status bar

  » Ruler

  » Sidebar
UI layout (2)

» Decide to use the traditional compact style UI

» or the newer tabbed interface
Configure

» Add UI to select files
» When the user wants to insert an image
» To save file under a new name
» Insert a button with a custom action
» An existing command in Collabora Online
» A custom feature you implement
» You can show / hide elements of the existing UI
» Buttons and menus
» Status bar, ruler, etc.
» Customise error messages
Integrate

» You can decide what your application does in response of some Collabora Online actions
» Connect your user list when collaborating
» Mentions
» Avatars
» Manage the storage of the documents, and their access.
Kubernetes references: 1&1

» 1&1: runs mail.com, GMX.DE...

» 10’s of millions of users

» Deployed on Kubernetes
  » 50+ pods for editing, 50+ pods for viewing
  » 35k documents edited / 24 hours
  » 600k documents viewed / 24 hours.

» Contributed our initial Helm chart (since much improved)

» Helped to implement Prometheus monitoring
  » Easy beautiful charts in Grafana & Prometheus Operator

» Video talk on their integration & Kubernetes setup
Kubernetes references:

Technical University Berlin

» A technology leader in German Universities
  » 15k total users using COOL
  » Seven schools with 34,900 students
  » Providing a service for many other German universities

» Deployed with:
  » Helm3 chart
  » Flexible (fixed) sizing for horizontal pod allocation
  » Usually, they deploy 16 pods. They found that the CPU usage is not heavily loaded.

openDesk

» Kubernetes based

» Public details – in OpenCoDE
  
  https://www.openproject.org/blog/sovereign-workplace/
  https://gitlab.opencode.de/bmi/souveraener_arbeitsplatz/info#opendesk
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Collabora Online helm chart

» Easy to deploy using helm chart

» Available on artifacthub.io

» Support for dynamic config
  » For big setups, you maybe not want to restart every pod to modify WOPI hosts, therefore it is possible to setup an additional webserver to serve a ConfigMap for using Remote/Dynamic Configuration

» Works well with Prometheus Operator (Helmchart) and there is setup of Grafana
COOL Controller Improvements
Current setup

Static routing on WOPISRC

Each Nginx/Haproxy: hashes WOPISRC modulo # of pods ...
New cool-controller setup

Controller manages pod scaling
Improving autoscaling

» Without COOL controller requires static configuration

» Routing by WOPISRC is based on the number of pods
  » If cluster auto-scales up/down this number changes

» New users could end up on the wrong pod
  » Splits the document and copy-paste stops working

» Improved access to COOL admin console of individual pods
Improving autoscaling

» When cluster topology changes, cool-controller creates a hash map of ServerId ↔ RouteToken by sending /capabilities requests to each pod

» RouteToken is a random token that identify to which pod request should end up

   » Like a ZIP code for postage

» If RouteToken is present in any request done to COOL, the request like opening a document, copy-paste etc will always go to the correct pod.

» Every request to open a document goes to controller first and controller sends user URI for websocket connection with amended RouteToken parameter of the least loaded pod

» Controller also sends respective routetoken to server pods so copy-paste request are handled smoothly
Improving autoscaling

Hashmap:
ServerId ↔ RouteToken
123 ↔ abc
456 ↔ pqr
789 ↔ xyz
Improving Load Distribution

» When new pods have been spawned:
  » COOL-controller tries to migrate documents from busy pods to newly spawned least loaded pods.

» Migration is strategic:
  » We choose first read-only, idle, few-user pods to minimize disruption

» Migration is smooth:
  » With new COOL versions retains user focus in the document

» This optimization results in an enhanced user experience and smoother collaborative editing.
Load Scaling Example – Target Pod Utilisation <70%

1. Pods 2 and 3 utilisation above target
2. Controller adds Pod 4
3. Read only file from Pod 3 sent to Pod 4
4. Idle file from Pod 2 sent to Pod 4
Load Scaling Example – Pod Under-utilisation

1. Files open in Pods 1-3 are closed by users
   - Pod 1: 5%
   - Pod 2: 10%
   - Pod 3: 10%
   - Pod 4: 40%

2. Controller recognises 1-3 as under-utilised
   - Pod 1: 5%
   - Pod 2: 10%
   - Pod 3: 10%
   - Pod 4: 40%

3. Controller moves documents from 2 and 3, to 1
   - Pod 1: 25%
   - Pod 2: 0%
   - Pod 3: 0%
   - Pod 4: 30%

4. Controller closes Pods 2 and 3 freeing space and saving power
   - Pod 1: 25%
   - Pod 4: 40%
New unified cluster overview
Benefits

» Ensures session consistency in document editing.

» Mitigates performance degradation during scale events.

» Simplifies management with a cluster overview.

» Highly Available

   » Multiple COOL-controllers can be run concurrently.

   » COOL-controller uses the Kubernetes leaderelection API to achieve high availability.

» There is one leader pod and multiple follower pods.

   » If leader pod dies a follower pod will quickly become leader.

   » This rapid transition only affects new users connecting to documents.

» Easy to deploy by using helm chart of the controller.
Kubernetes conclusions

» Kubernetes

» Used in many large deployments

» Easy to deploy, use & monitor

» Few want to be reference customers

» Collabora is investing to improve auto-scaling

» This will also improve Admin-console management.
Recent Features
Accessibility
Accessibility

Dark mode + view settings

» Per view settings, allows us to render views differently — including various options such as showing non-printing characters or spell checking underlines in different views, in addition to Dark Mode.
Accessibility

Keyboard accelerators

» Expansion for languages

» Keyboard shortcuts have been expanded to allow all users to be able to use their own language’s keyboard shortcuts when editing a file collaboratively.

» Holding down the ‘Alt‘ key will also highlight options for learnability.
Collabora Online comes with **Long Term Support**, and can be integrated in any web-based solution, such as File Share and Sync solutions, Document Management Systems, Groupware or custom build software.

All Long Term Support releases are supported for 3 years, with a **perpetual license**, annual subscription to **security maintenance and updates**, an **SLA**, and Level 3 (code fix) support (other levels are provided by our partners). And there are more benefits:

**Excellent Interoperability**

- Collabora Office Mobile allows editing of the following formats:
- Word/Writer documents: .doc, .docx, .dot, .dotx, .odt, .ott,
Accessibility

Page Navigation

» Navigator functionality is viewable in the sidebar, allowing you to jump to each section by simply clicking the headings.
Accessibility

Initial screen reader support

» Designed to assist users with visual impairments, this feature will unlock a world of possibilities, ensuring everyone can participate fully in online collaboration.
Accessibility

JS-Dialogs for screen reader functionality

» Screen readers can now access menus, toolbars and dialogs.
Many more of our ~thousand dialogs are rendered on the client side using Javascript, HTML widgets with WebARIA annotation.
Accessibility

Built in accessibility checker

» Discover and fix accessibility problems in your documents before publishing them, and before your users suffer them.
Accessibility

Generating accessible PDFs with PDF/UA export

» Tagged PDF, PDF forms, Universal Accessibility for PDFs, and many more options when exporting available in last year.
Accessibility

Generating electronic books with EPUB export

» Ideal for accessible book readers, as well as many other use-cases.
Recent Features
Performance
Performance

A faster, slicker experience

» Memory trimming on idle: cleans caches & frees up memory
» Swap out compressed image data as well as uncompressed
» Faster load of large spreadsheets
» Significantly reduced re-rendering (even more pending)
» Style re-thumbnailing redux

» Improved tile pre-loading (with more caching work queued)
» Clamp over-sizing of threads
» Accelerated transparent text rendering
» Avoid background whole document renders
» RLE tile encoding (pending)
Performance

Memory optimization

» Less memory; used effectively
» Run-length encoding delta cache makes it far smaller and faster to use.
Compressed image data swapping to reduce footprint. Trimming caches & allocators on idle. Larger compressed browser-side tile cache. Monotonic timestamp cache synchronization & expiry.

» Saving power, and going faster.
» Reduced invalidation & re-rendering.
Performance tuning

» Much faster for many operations – for example – multiple users to join a shared Writer document and scroll through a long, heavy Writer document.

» Improved threading of tile compression

» AVX2 optimized RLE compression

» Long term profiling of demo servers & targeted optimization ...
Performance tuning

- Reduced time to load graphic heavy Impress slide decks, and comment heavy Calc spreadsheets.
Recent Features
Interoperability
Interoperability

Multi-stop gradients – improved rendering

» The renderer has been enhanced and can now handle even more complex gradients. You can now turn up the visual appeal of your document by incorporating multi-stop gradients into shapes, borders, and other elements.
Interoperability

64 bit Zip support – handling huge data sets

- The Zip64 standard extends numerous internal limitations in the XLSX and ODS formats used to compress documents. Editing and working with huge spreadsheets is now possible.
Interoperability

Compact Pivot Tables for Calc Spreadsheets

» Preserve the compact view and layout of Pivot Tables created in Excel with a more compact layout avoiding the possibility of incorrect cell references.
Interoperability

<table>
<thead>
<tr>
<th>Sum of Val</th>
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<th>Total Result</th>
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Total Result: 40, 41, 81
Interoperability

Table style design

» You can now modify table styles and create new ones in Impress and Draw. Modified styles are saved into documents, and can be shared via templates. You can access this function by right-clicking on a design in the Table Design Sidebar panel.
Interoperability

Document themes – controlling branding

» Document themes can be configured and applied to a whole document to easily change and re-purpose the appearance, giving it a consistent style and branding.
Interoperability

Document themes – controlling branding

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Interoperability

Multi-page floating tables

» Significantly improves interoperability with tables that have been accidentally floated by users, and that span multiple pages.

» Lots of mis-designed Government forms – where tables are used for rendering borders are improved, and rendered better.
Recent Features
Usability
Usability

Font previews

» You can now see a preview of fonts to see what they look like before selecting it in the drop down box.
Usability

Hide/show slides in Impress

» Impress supports hiding and showing slides on the Slide Pane by right clicking and choosing ‘Hide Slide’ or ‘Show Slide’. They will then shown or hidden throughout the full screen presentation.
Usability

Easy Barcode and QR code input

» Bringing the existing LibreOffice technology’s QR code functionality to your browser:

» *Thanks to Shubham Goyal and Google Summer of Code*
Usability

Page number insertion – familiar, simplified pop up

» Combining inserting the required headers, footers, and page number fields into a single, easy to use, familiar dialog for users.

» Featuring all the common alignment options, support for a variety of languages, and a preview.

Facilities

Colleges provide a range of facilities and services, including catering, library facilities, extracurricular activities, and social life at Cambridge is centred around college life. Student activity is typically organised through a central transport network, thus postgraduate students. Another important element is the frequency from weekly to every night of the week.

Colleges also provide funding, accommodation, and courses for some of the academic posts in the university, with the majority of Cambridge academics being a fellow of a college in addition to their faculty/departamental role. Fellows may therefore hold college positions in addition to their faculty roles.
Usability

Change tracking in numbered lists

» When making changes within numbered lists, the numbering has now been fixed to show actual and original numbers within the document.
Typographical editing

» New optional hyphenation settings are available to give rules for adjusting text flow. You can now limit hyphenation within paragraphs, set a minimum word length for hyphenation and opt to not hyphenate the last word of a paragraph.
Usability

Reference management and bibliographic data with Zotero

» Browse all the existing records of your Zotero library - insert, remove, and refresh references, citations, and notes, or automatically generate bibliographies.
A quotation is the repetition of a sentence, phrase, or passage from speech or text that someone

Common sources

Famous quotations are frequently collected in books that are sometimes called quotation dictionaries or treasuries. Of these, Bartlett's Familiar Quotations, The Oxford Dictionary of Quotations, The Columbia Dictionary of Quotations, The Yale Book of Quotations, and The Macmillan Book of Proverbs, Maxims, and Famous Phrases are considered among the most
Usability

AI grammar checking with LanguageTool & DUDEN

» Connect LanguageTool and DUDEN for multilingual spelling, style, and grammar checking that helps correct or paraphrase texts.
Usability

AI based translations with DeepL

» Translating text with DeepL inside a Writer document is as easy as selecting it, clicking the “Translate” button and choosing the target language from dialog.
Usability

Play videos Embedded into your documents

» Embedding the content of your videos, ensures a smooth, advert-free presentation at the right time.
Getting support
L1 Support

» A dedicated team of support specialists to help with Level 1 support
  » Dedicated portal for customers and partners
  » Direct escalation with engineering as needed
Development support

» Partners and customers that have integration questions:
  » A dedicated team of pre-sales software engineers
    » Provide direct support for development of integration if needed
    » Drive engineering resolutions of problems
    » Can also step in to fix issues
  » In some cases consulting services are also available
Come and talk to us!
Free your documents
Any questions?
TOGETHER STRONG.

VIELEN DANK!

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