

LibreOffice

Online & the Cloud

Michael Meeks <michael.meeks@collabora.com>

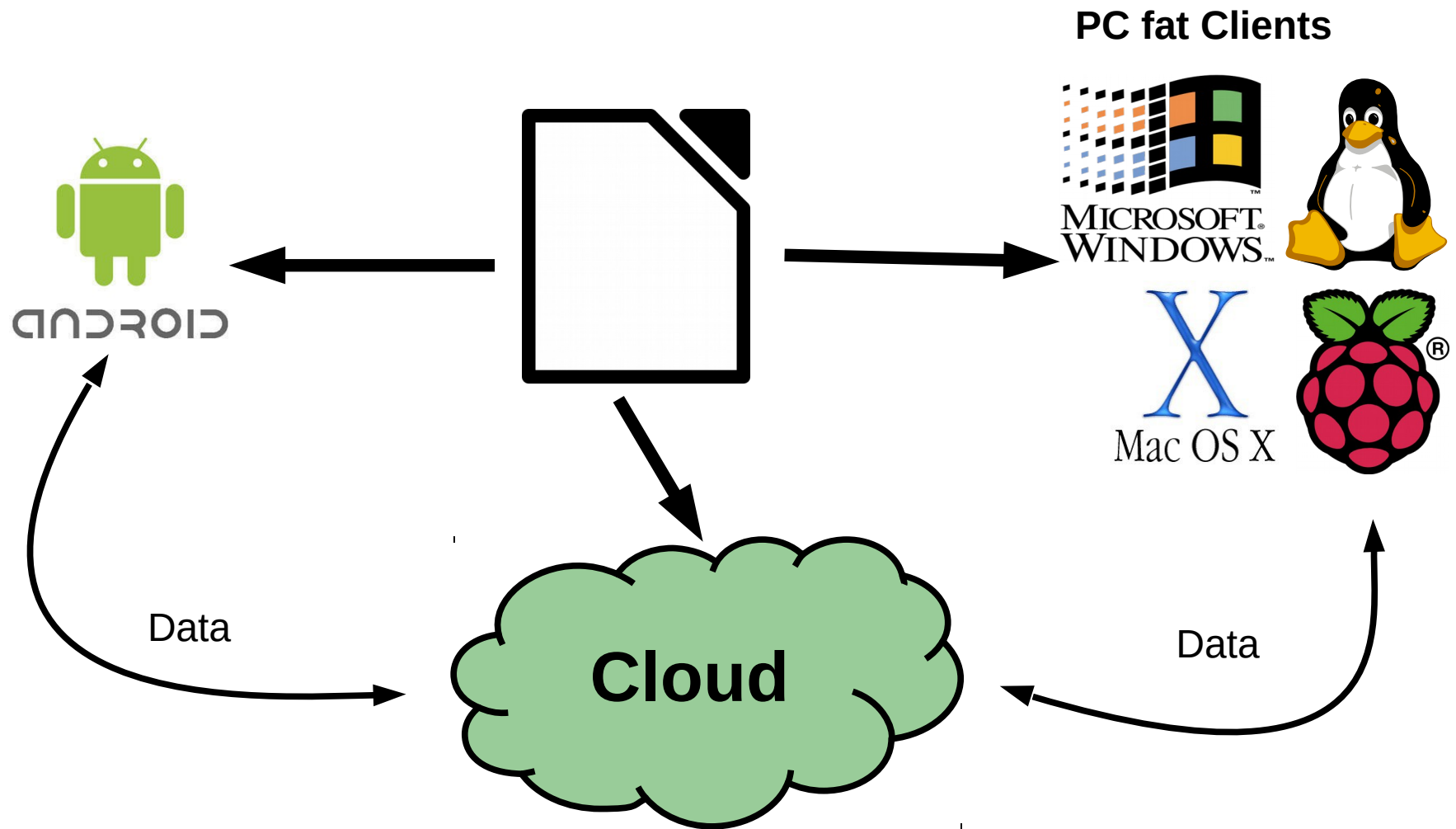
mmeeeks, #libreoffice-dev, irc.freenode.net

*“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*

Talk Overview

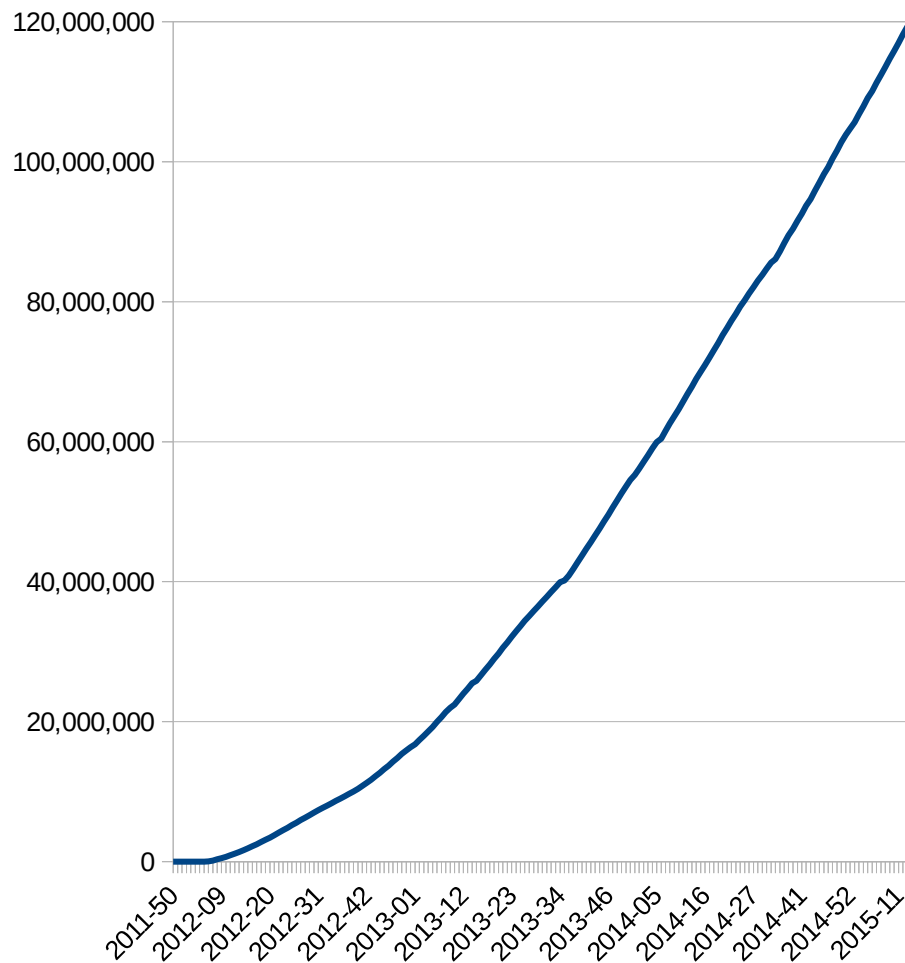
- The goal – Ubiquity
 - PC, Mobile, Cloud
- PC update
- Android / Mobile bit
- Cloud Grist
 - Architecture
 - Security
 - Integration
- Conclusion

LibreOffice Ubiquity ...



Achieving Ubiquity

The PC part of the story ...

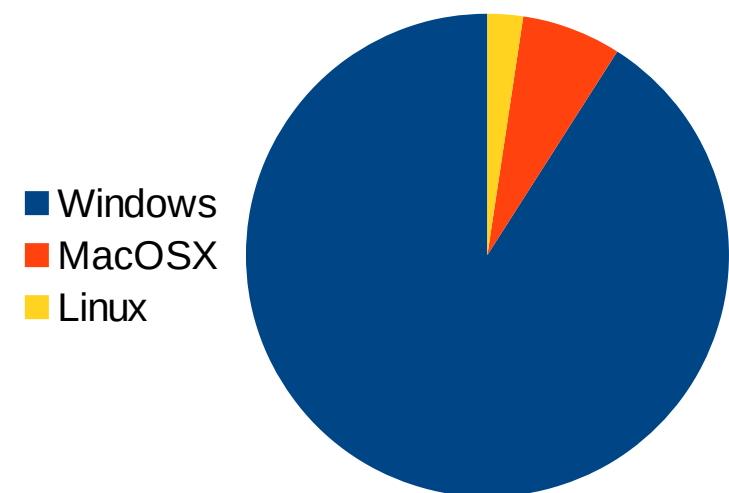


Tracking direct download
Update Ping origins.

Excludes all Linux Distributions
downloads

~120m so far (+ Linux)

This time last year was ~65m



There is no silver-bullet
(but code re-use is nearly it)

LibreOfficeKit – re-using a core

- A very simple C & C++ API for LibreOffice
- Exposes the core value of LibreOffice:
 - File format filters
 - Tiled rendering (converting documents to pixels)
 - Exposes editing, selections etc.
- A very simple ~header-only API – no linking
 - fully abstract: fn pointers, opaque structs etc.
 - No sockets opened, no plugins / simple init.
 - Global error messages.
- LibreOffice Online, Android, 'loconv' built on this.

Android / Editing

Android Editing Work ...

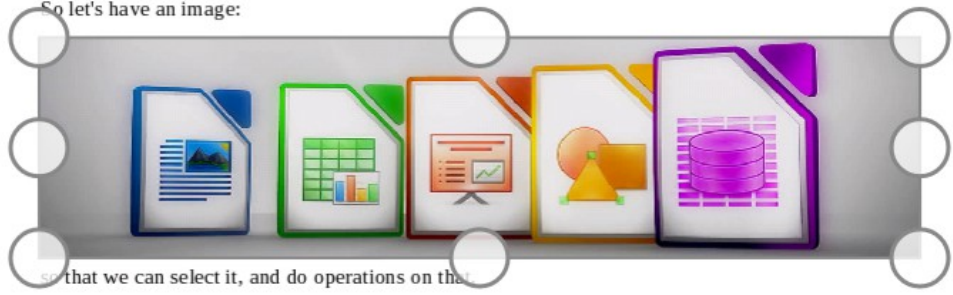
- Infrastructural work for tiled editing funded by TDF & our **donors**.
 - Also implemented **OwnCloud** remote-file-system plugin demonstration
 - Done by Collabora & Igalia
- Not creating a perfect UI, but infrastructure for document editing.
- Built on previous Viewer Work from Collabora / Smoose.
- Ideal client for Cloud Data ...

The numbered list is on the second page:

- 1. First.
- 2. Second.
- 3. Third!

We need to support images too

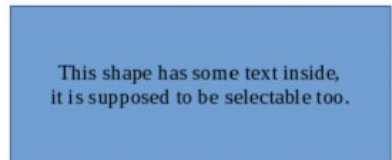
So let's have an image:



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

Oh, and shapes too:

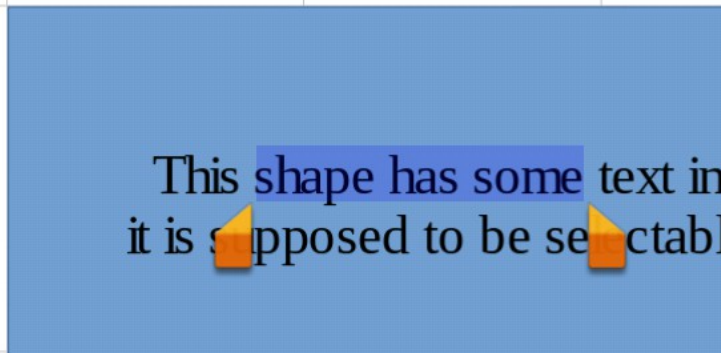
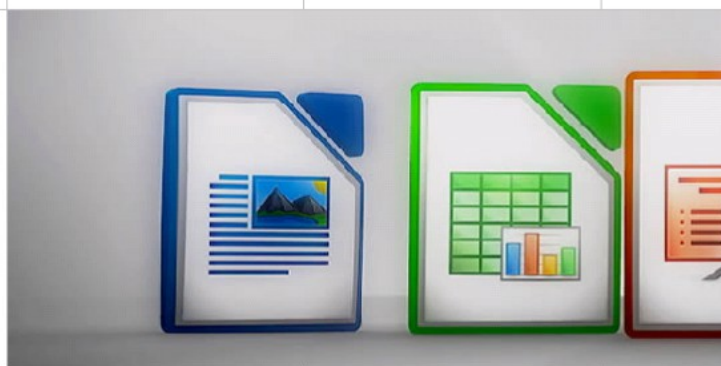
Let's have a shape with text; we need to be able to select the text inside the shape, but also the various individual shapes too:



And this is all for Writer

As much as the above looks as trivial use cases, internally they mean that basically everything has to work, and in fact much more documents (and more complex ones) will work too. This one is just easy to evaluate & test the development against.

ation Document

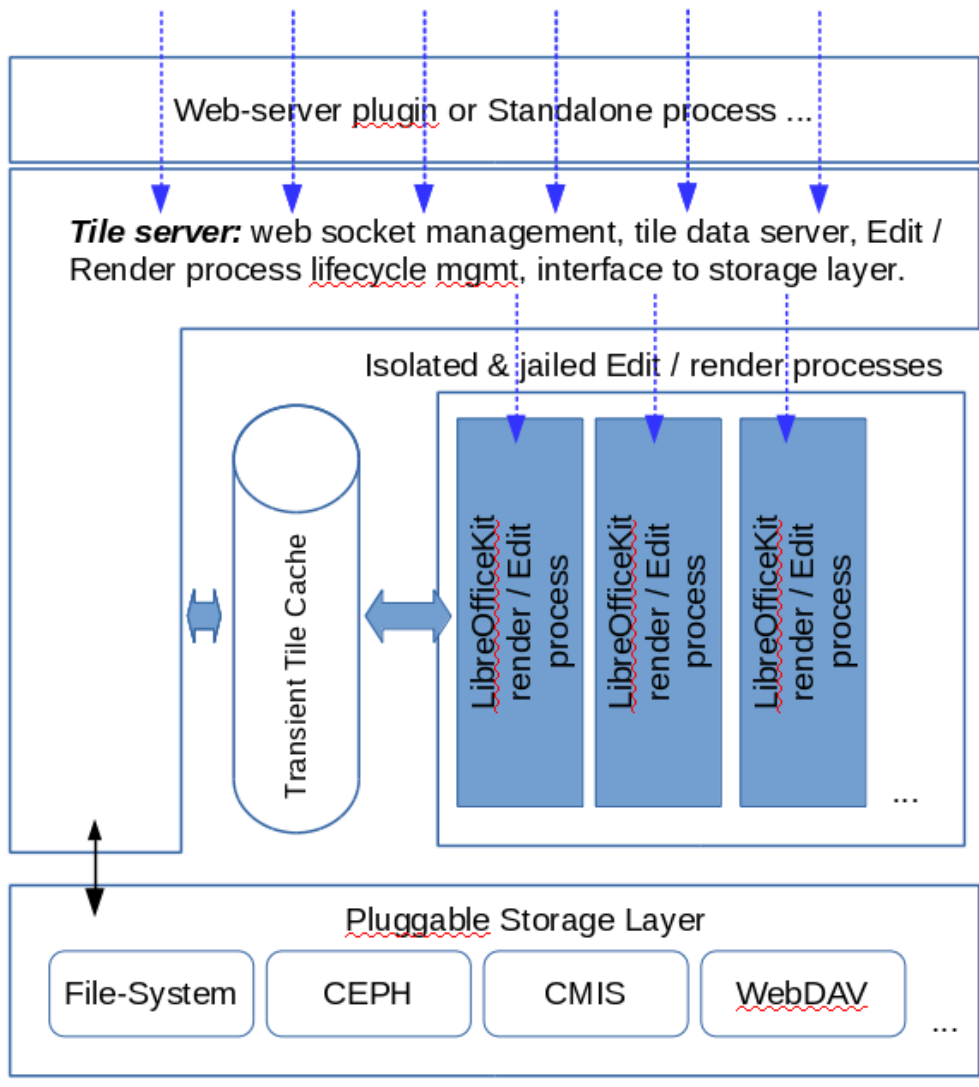


Grab me for a demo ...
Or checkout the app-store ...

LibreOffice Online

Architecturally ...

LibreOffice On-Line Architecture Sketch.



- Strong process isolation in chroots
- Tile caching, to release LibreOffice processes
- Javascript front-end based on Leaflet.

Tiles cached in client

The screenshot shows a browser window with the following content:

- Address bar: <https://libreoffice-from-collabora.com>
- Page Title: LibreOffice / Android 4.x
- Text: "A small table with an embedded imager" (with "imager" underlined)
- Text: "This is a picture of our wedding with some nice text flow going on around it of course you can edit a custom contour as well as having a crude ellipse, which makes for a very nice look. Below it is an alpha blended free-hand, filled spline with drop shadow and gradient." (with "with some" and "of course" on separate lines)
- Image: A circular photo of a couple at a wedding.
- Text: "And chart of the week:"
- Section Title: "Persistant Sins" (with a typo)
- Legend for sins: Jealousy (purple), Pride (red), Lust (yellow), Idleness (blue)

A yellow callout box on the right contains the text: **Browser caches large pre-rendered area of tiles.** An arrow points from this box to the browser window.

Performance Background #1

- LibreOffice in-use in multi-user remote/X environments
- Load avg 0.05/0.3/0.34 for 73 live users in writer, and 10 in calc.
- 4 CPU Quad-Core estimated 200-300 concurrent users.
- If rented servers in the cloud are truly cheaper it should be cheap.

```
xterm (on linux-i3od)
top - 12:11:29 up 5:35, 2 users, load average: 0.05, 0.30, 0.34
Tasks: 693 total, 1 running, 687 sleeping, 0 stopped, 5 zombie
Cpu0  : 30.5%us, 4.4%sy, 0.0%ni, 63.8%id, 0.0%wa, 0.3%hi, 1.0%si, 0.0%st
Cpu1  : 1.3%us, 0.3%sy, 0.0%ni, 98.4%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu2  : 5.9%us, 1.3%sy, 0.0%ni, 92.8%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu3  : 2.3%us, 1.0%sy, 0.0%ni, 96.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu4  : 13.3%us, 2.3%sy, 0.0%ni, 84.1%id, 0.0%wa, 0.0%hi, 0.3%si, 0.0%st
Cpu5  : 0.7%us, 0.3%sy, 0.0%ni, 99.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu6  : 4.0%us, 1.0%sy, 0.0%ni, 96.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu7  : 0.3%us, 0.0%sy, 0.0%ni, 99.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu8  : 5.6%us, 1.0%sy, 0.0%ni, 93.5%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu9  : 0.3%us, 2.0%sy, 0.0%ni, 97.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu10 : 5.3%us, 2.6%sy, 0.0%ni, 92.1%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu11 : 1.0%us, 0.3%sy, 0.0%ni, 98.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu12 : 1.3%us, 0.3%sy, 0.0%ni, 98.3%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu13 : 0.3%us, 0.3%sy, 0.0%ni, 99.3%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu14 : 0.3%us, 0.0%sy, 0.0%ni, 99.7%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu15 : 0.3%us, 1.6%sy, 0.0%ni, 98.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem:  48394M total, 34196M used, 14198M free, 263M buffers
Swap: 20489M total, 0M used, 20489M free, 1845M cached

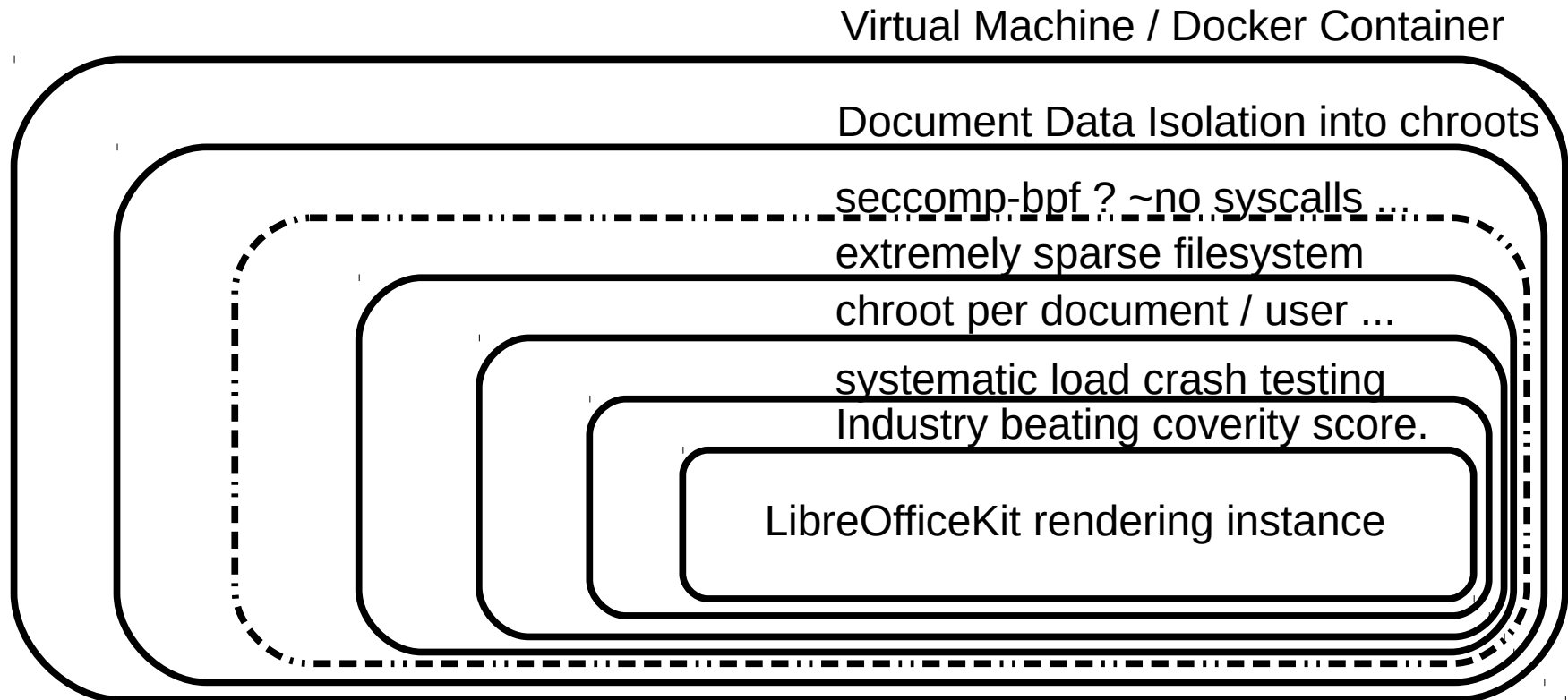
  PID USER      PR  NI  VIRT  RES  SHR  S %CPU  %MEM    TIME+  COMMAND
 27496      20    0  631m 104m  68m  S   43   0.2    0:01.31 soffice.bin
 26196      20    0  12.8g 1.6g  91m  S    5   3.4    2:28.24 soffice.bin
 2313      20    0  12.7g 238m  89m  S    4   0.5    0:13.94 soffice.bin
 27547      20    0  160m  19m  10m  S    3   0.0    0:00.10 ooolaunching.py
 412       20    0  12.8g 1.6g  85m  S    3   3.4    2:45.94 soffice.bin
 27489      20    0  157m  19m  10m  S    3   0.0    0:00.09 ooolaunching.py
 32029      20    0  12.8g 363m  92m  S    3   0.8    0:44.67 soffice.bin
 13337      20    0  1069m 484m  91m  S    2   1.0    0:41.76 soffice.bin
 27175      20    0  655m 122m  76m  S    2   0.3    0:03.40 soffice.bin
 23915      20    0  13.0g 419m  96m  S    2   0.9    0:18.96 soffice.bin
 15997      20    0  12.8g 451m  92m  S    1   0.9    1:47.29 soffice.bin
 17200      20    0  12.7g 254m  87m  S    1   0.5    0:50.27 soffice.bin
 18159      20    0  13.1g 561m  93m  S    1   1.2    9:23.87 soffice.bin
 21149      20    0  12.9g 1.7g 108m  S    1   3.6    2:55.13 soffice.bin
 26885      20    0  653m 117m  73m  S    1   0.2    0:03.79 soffice.bin
 32663      20    0  12.9g 353m  96m  S    1   0.7    1:19.61 soffice.bin
 27434      20    0  8940 1672  852  R    1   0.0    0:00.39 top
 819       39    19    0    0    0  S    0   0.0    0:04.30 kipmi0
 1677      20    0  12.8g 257m  90m  S    0   0.5    0:37.73 soffice.bin
 2805      20    0  69968 4820 2772  S    0   0.0    0:14.48 cupsd
 2813      20    0  12.8g 320m  82m  S    0   0.7    0:14.27 soffice.bin
 2826      20    0  3840  516  372  S    0   0.0    0:08.05 nscd
 4783      20    0  12.8g 372m  81m  S    0   0.8    0:18.36 soffice.bin
 5916      20    0  12.8g 327m  86m  S    0   0.7    0:23.40 soffice.bin
 11115      20    0  12.7g 200m  87m  S    0   0.4    0:17.43 soffice.bin
 12105      20    0  12.9g 331m  92m  S    0   0.7    0:14.43 soffice.bin
 12279      20    0  662m 120m  69m  S    0   0.2    0:07.60 soffice.bin
 12412      20    0  1098m 551m  86m  S    0   1.1    0:38.52 soffice.bin
 19568      20    0  13.0g 1.7g  96m  S    0   3.6    2:06.37 soffice.bin
 20246      20    0  12.8g 528m  82m  S    0   1.1    0:22.29 soffice.bin
 21063      20    0  833m 292m  79m  S    0   0.6    0:32.10 soffice.bin
 26972      20    0  13.2g 607m  99m  S    0   1.3    1:37.90 soffice.bin
 27879      20    0  12.8g 382m  98m  S    0   0.8    1:32.71 soffice.bin
 29839      20    0  690m 151m  80m  S    0   0.3    0:50.05 soffice.bin
 32005      20    0  12.8g 420m  96m  S    0   0.9    1:05.29 soffice.bin
 1 root      20    0  8072  748  628  S    0   0.0    0:02.45 init
 2 root     15   -5    0    0    0  S    0   0.0    0:00.00 kthreadd
 3 root     RT   -5    0    0    0  S    0   0.0    0:00.01 migration/0
 4 root     15   -5    0    0    0  S    0   0.0    0:07.35 ksoftirqd/0
 5 root     RT   -5    0    0    0  S    0   0.0    0:00.00 watchdog/0
 6 root     RT   -5    0    0    0  S    0   0.0    0:00.02 migration/1
 7 root     15   -5    0    0    0  S    0   0.0    0:07.57 ksoftirqd/1
 8 root     RT   -5    0    0    0  S    0   0.0    0:00.00 watchdog/1
 9 root     RT   -5    0    0    0  S    0   0.0    0:00.05 migration/2
10 root     15   -5    0    0    0  S    0   0.0    0:02.41 ksoftirqd/2
11 root     RT   -5    0    0    0  S    0   0.0    0:00.00 watchdog/2
12 root     RT   -5    0    0    0  S    0   0.0    0:00.10 migration/3
13 root     15   -5    0    0    0  S    0   0.0    0:01.81 ksoftirqd/3
14 root     RT   -5    0    0    0  S    0   0.0    0:00.00 watchdog/3
15 root     RT   -5    0    0    0  S    0   0.0    0:00.10 migration/4
16 root     15   -5    0    0    0  S    0   0.0    0:03.08 ksoftirqd/4
17 root     RT   -5    0    0    0  S    0   0.0    0:00.00 watchdog/4
```

Performance Background #2

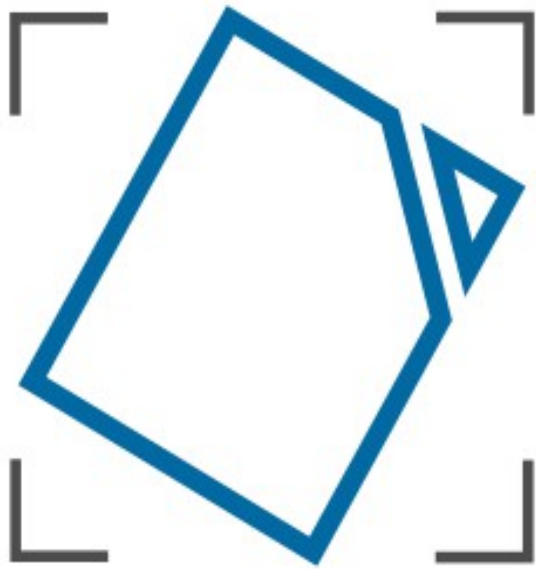
- Tile caching server
 - Avoids need to retain dedicated loaded document state, RAM, etc. for quiescent Office.
 - A serious problem:
 - How many un-closed tabs do you have ?
 - Render tiles → return to idle.
- Tiles pushed into the client for rapid & smooth panning

Security: the onion ...

- Layered approach to protecting infrastructure ...



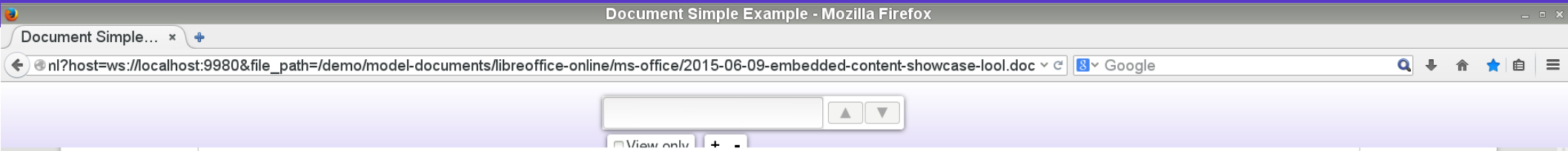
Deep Document Support



Document Liberation

- **Document Liberation**
- Core Office formats:
 - ODT, ODS, ODP ...
 - DOC, DOCX, XLS, XLSX ...
- And deeper:
Visio, Keynote, Publisher, Works, Corel Draw, Adobe Pagemaker, Freehand ...
- The multi-tool folding knife ...

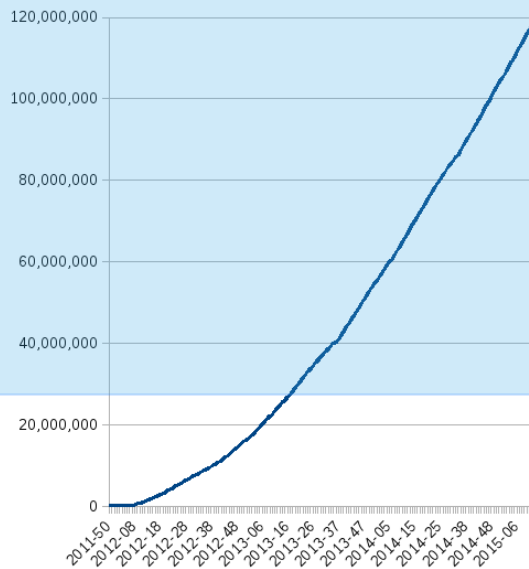
Demos



LibreOffice-from-Collabora 4.3

Embedded editable chart

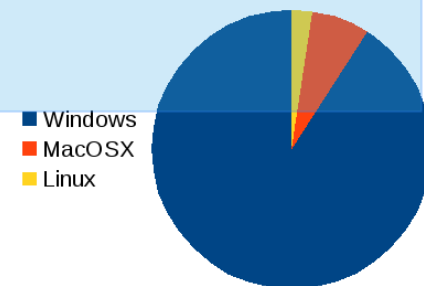
Charts imported from spreadsheet applications remain connected to their original data set and can be easily updated. Settings such as labels, colours, and layout are configurable from within the document in which the chart is embedded.



Tracking direct download Update Ping origins.

Excludes all Linux Distributions downloads

~120m so far, from 65m



Jenny

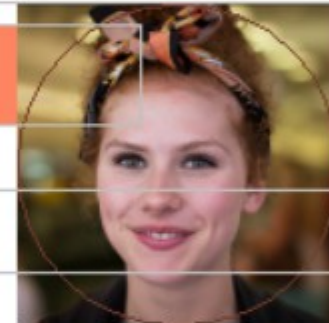
Search document

View only

+ -

Jenny

Miller

Graphic Designer /
Communication Specialist

Hello there!



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!



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// Education

2011 Design Communications, Master's
University of Maryland

// Employment History

2015 Design Lead: Spring Catalogue,

▲ ▼ View only + -

▲ ▼

Users

Each of the below cells must have a value, even if it is zero.

Internal Users (e.g., employees, students, contractors)

Number of internal users

Number of internal users with access to legacy/host applications

Number of internal users with access to Web applications

Current average number of identities per internal user

Average number of identities per internal user after deployment

Average % of additions per year for internal users

Average % of changes per year for internal users

Average % of removes per year for internal users

Internal user salary

Benefits/loaded rate uplift percentage

| |
|--------|
| |
| |
| |
| 8 |
| 6 |
| 15% |
| 30% |
| 10% |
| 55,183 |
| 35% |

US Dollars

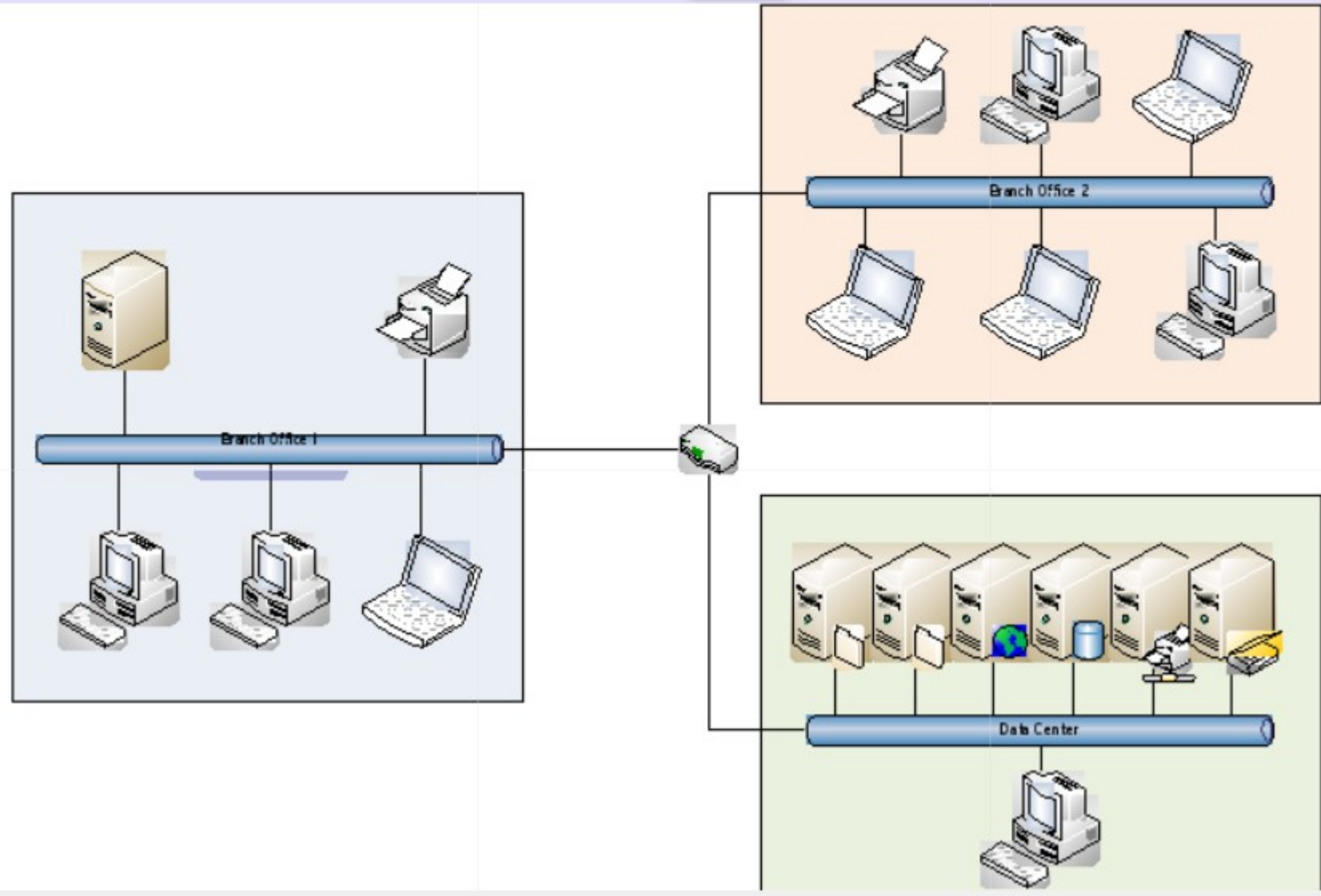
Resulting Calculations

| | Internal | External |
|----------------------------------|----------|----------|
| Total Months Before Deployment | NA | NA |
| Total Months After Deployment | NA | NA |
| ----- | | |
| Number of Annual Additions | NA | NA |
| Number of Annual Changes | NA | NA |
| Number of Annual Removes | NA | NA |
| Total Number of Events | NA | NA |
| ----- | | |
| Current Number of Transactions | NA | NA |
| Number of Trans after Deployment | NA | NA |
| ----- | | |
| | Annual | Hourly |
| Fully Loaded User Salary | 74,487 | 38 |

US Dollars



Visio Example ▲ ▼ View only + -
▲ ▼



A take from our sponsor:

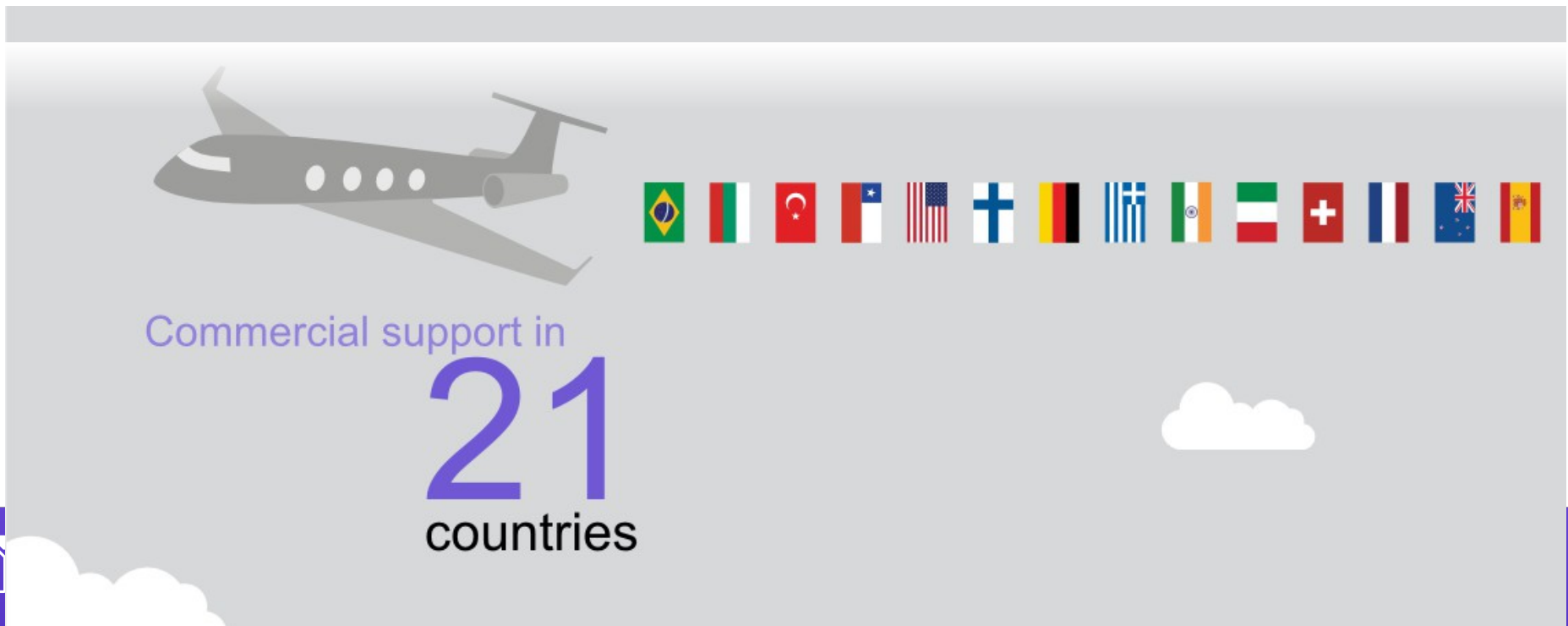
- Press release:

<https://libreoffice-from-collabora.com/icewarp-and-collabora-are-working-on-libreoffice-online-document-editing-an-open-source-alternative-to-google-apps-office-365/>

- **IceWarp** with its enterprise solutions background and over 14 years of expertise will help LibreOffice to accelerate the development towards a **real product** which can be **reused** by the **open source community** in a wide range of deployment scenarios.
- By creating a **free alternative** that **any provider can implement** without restrictions, the companies aim to restore fair competition to a market dominated by monopoly suppliers, to **drive innovation, compatibility and interoperability** through **open formats**, across **all platforms** and **for everybody**.
- *“Creating alternatives is in our DNA. In the same way customers were looking for Exchange alternatives and made IceWarp what it is today, they will be seeking Google Apps alternatives and we will be ready.”*
— Adam Paclt, IceWarp CEO

A completing puzzle ...

- LibreOffice Online:
 - 8million+ lines of code
 - Fundamental format, rendering, core functionality improvements, fixes etc. ...



Commercial support in
21
countries

The graphic features a grey airplane silhouette on the left, a horizontal row of 21 national flags in the center, and a white cloud on the right. The text 'Commercial support in 21 countries' is positioned below the airplane and flags.

| Country | Flag |
|-------------|------|
| Brazil | |
| Italy | |
| Turkey | |
| Chile | |
| USA | |
| Finland | |
| Germany | |
| Greece | |
| India | |
| France | |
| Switzerland | |
| Spain | |
| Australia | |
| Japan | |
| South Korea | |
| China | |
| Canada | |
| UK | |
| Sweden | |
| Norway | |
| Denmark | |
| Netherlands | |
| Belgium | |
| Austria | |

Conclusions

- LibreOffice Online is coming ...
 - Checkout IceWarp's implementation
 - Get support & development services from Collabora or ... get stuck in yourself:
 - Become part of an exciting story that is still at the beginning: our best days are ahead of us ...
 - Lots of opportunities to contribute ...
- Thanks to all who support us in the Free Software Community – we can't do it without you.
- Thanks to all who engage constructively in the ecosystem to support and fund our work.

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

