



CERNBox



CERNBox as the CERN Apps Hub

Giuseppe Lo Presti, CERN/IT

Michał Kwiatek, CERN/IT

Pb-Pb collision, CMS detector, 28 Nov 2018



CS3 Workshop | Roma 2019



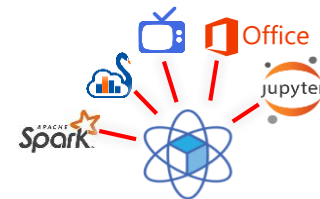
Outline

- CERN Apps Portfolio review
- CERNBox as the hub
- Future vision

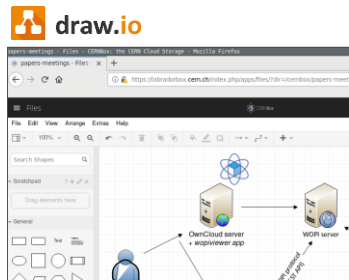
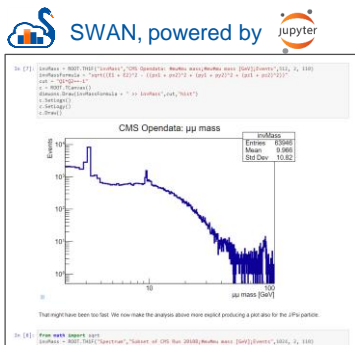
The CERN Apps

- In the process of reviewing our Apps portfolio
- Criteria: identify best app for each relevant use-case
 - Relevant = affecting a significant fraction of the user community
 - Prefer open-source as opposed to single-vendor and/or closed-source – avoid vendor lock-in!
 - **Web-based** and **collaborative** are an important plus

CERNBox as the hub



- Web-based, natural entry-point for the user community
 - Custom viewers for ROOT histograms
 - Notebooks (SWAN, Spark)
 - Office-oriented: MSOffice 365 (**WOPI**: cf. CS3 Krakow), ONLYOFFICE, Draw.io, DHTMLX Gantt Chart (coming soon), ...
 - WOPI: **150+** unique users daily

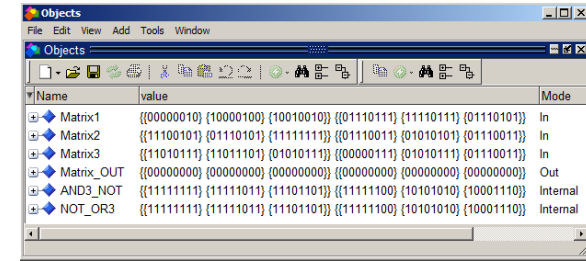


A *Generic* Apps Layer?

- Current CERNBox apps required **significant customization/adaptation work** w.r.t. what is available
- The CERN users community: **large, diverse**, with several specific domains of competency
 - The set of potential applications is expected to grow
 - Existing groups already use their favorite (web-based) app for their daily work
 - How to enable **them** integrating their apps in CERNBox?

Bring Your Own App: Example

- Scenario:
Design of electronic boards / FPGAs



Name	value	Mode
Matrix1	{{00000010} {10000100} {10010010}} {{01110111} {11110111} {01110101}}	In
Matrix2	{{11100101} {01110101} {11111111}} {{01110011} {01010101} {01110011}}	In
Matrix3	{{11010111} {11011101} {01010111}} {{00000111} {01010111} {01110011}}	In
Matrix_OUT	{{00000000} {00000000} {00000000}} {{00000000} {00000000} {00000000}}	Out
AND3_NOT	{{11111111} {11111011} {11101101}} {{11111100} {10101010} {10001110}}	Internal
NOT_OR3	{{11111111} {11111011} {11101101}} {{11111100} {10101010} {10001110}}	Internal

- Large use of VHDL and specific CAD software to simulate behavior and timing of circuits
- Users: group of experts in their domain, **not on web technologies**
- Data storage: CERNBox for offline sync

BYOA Example (Proof-of-Concept)

The screenshot shows the CERNBox Settings interface. The top navigation bar includes a hamburger menu, the text 'Settings', the CERNBox logo, and the user name 'Hugo Gonzalez Labrador (gonzalhu)'. The left sidebar contains categories: 'Personal' (with a 'General' sub-item) and 'Admin' (with sub-items: 'Apps', 'General', 'Storage', 'Encryption', 'Sharing', 'Help & Tips', and 'Additional').

The main content area displays a storage usage indicator: 'You are using 19 GB out of 1 TB'. Below this is the 'Document Associations' section, which lists mimetypes and their associated applications:

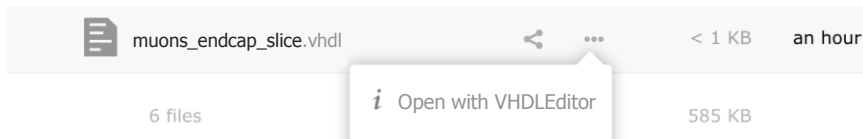
Mimetype	Application
application/pdf	PDFViewer
application/docx	OnlyOffice
application/png	Gallery

Below the table is a 'New application' section, which is circled in red. It contains a table with three columns: 'Mimetype', 'App Name', and 'App Server'. The 'Mimetype' field contains 'text/vhdl', the 'App Name' field contains 'VHDLeditor', and the 'App Server' field contains 'https://awesome-vhdl.cern.ch'. A 'Register application' button is located below the table.

Mimetype	App Name	App Server
text/vhdl	VHDLeditor	https://awesome-vhdl.cern.ch

[Register application](#)

BYOA Example (Proof-of-Concept)



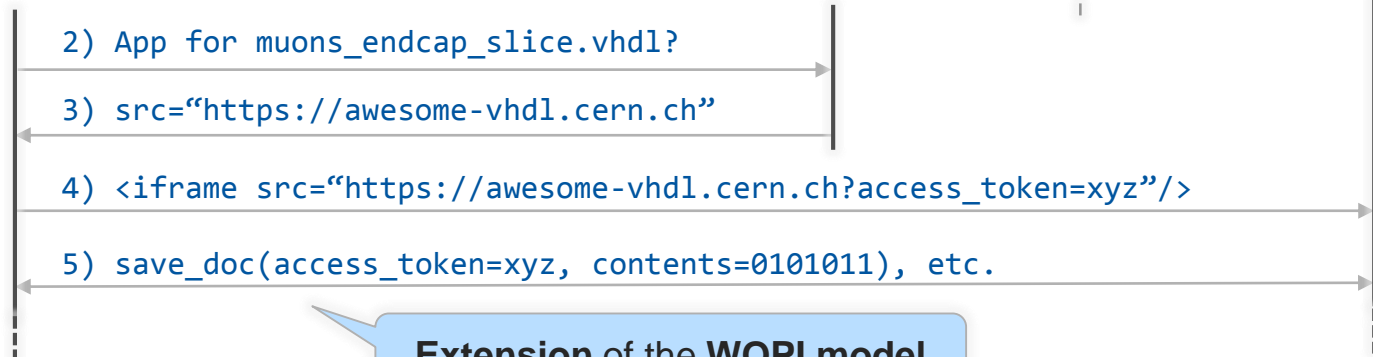
1) Open with VHDLEditor



Managed by experts of the application



<https://awesome-vhdl.cern.ch>



Extension of the WOPI model

Last year: “towards a web desktop”

- Demonstrated integration of different applications

Now: the vision is unchanged

- Storage-centric one-stop shop for all use-cases of the users community
- Evolving into an “application hub”
- Several CERN teams are already on board to make it happen!



www.cern.ch

Thank you for your attention!