On-Demand Distributed Workflows for CMS Physics Analyisis

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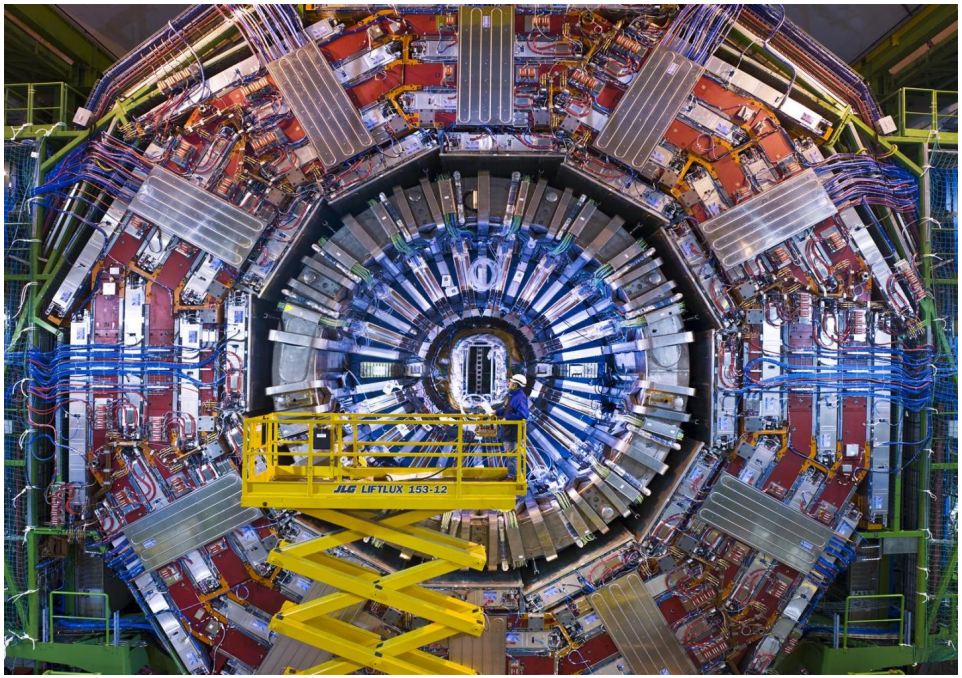


- The Compact Muon Solenoid (CMS) is a general-purpose detector at the LHC.
- CMS is a strong contributor to the CERN Open Data Portal
- CMS releases and distributes through CODP reconstructed data, simulations and software

opendata CERN

is the access point to data produced in research done at CERN

reana

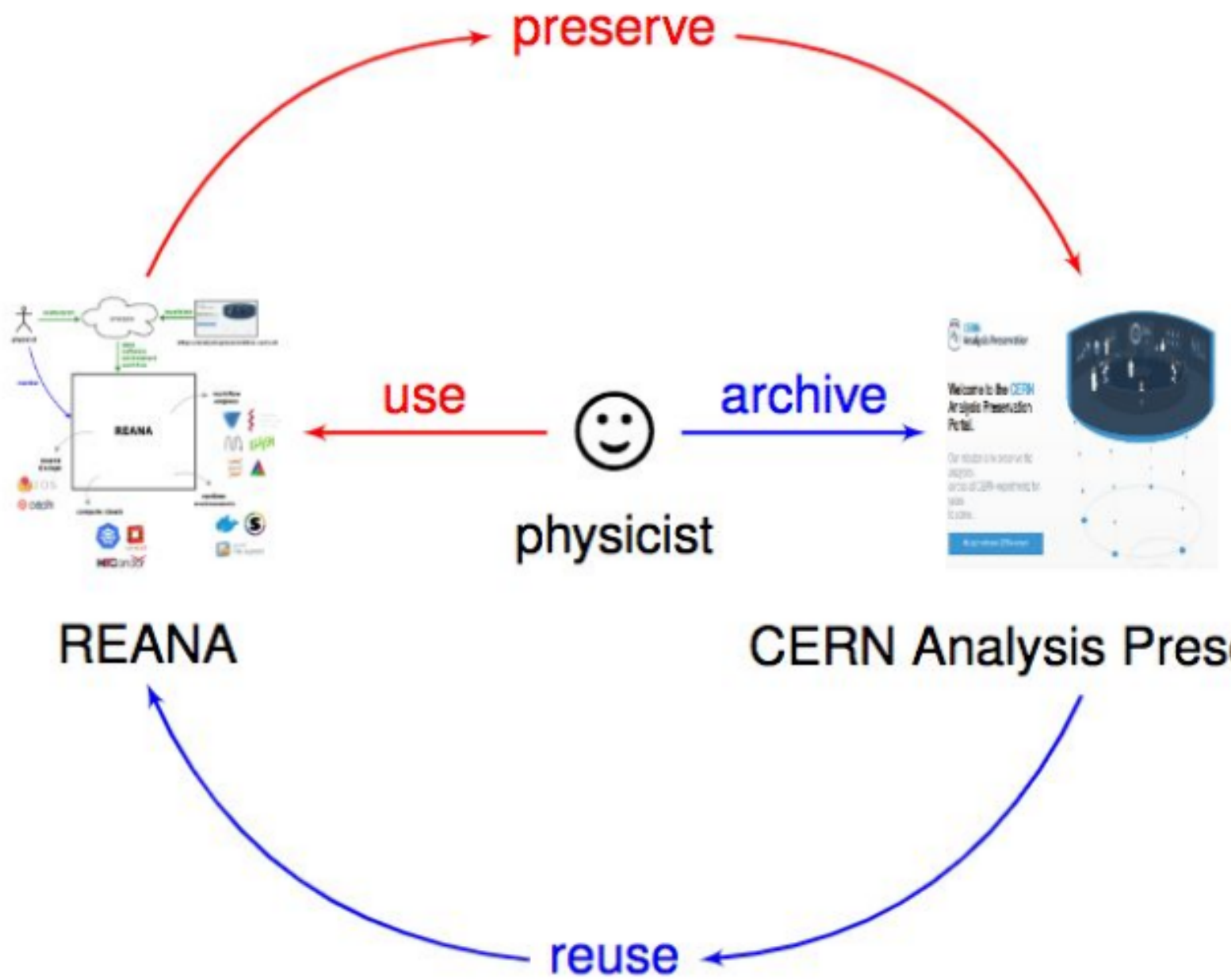
is a reusable and reproducible research data analysis platform.

- Structures input data, analysis code, containerized environments and computational workflows

CERN ANALYSIS PRESERVATION

is a central platform for the four LHC collaborations

- Developed to address the need for the long-term preservation of the data analysis process


preserve
use
archive
physicist
REANA
CERN Analysis Preservation
reuse

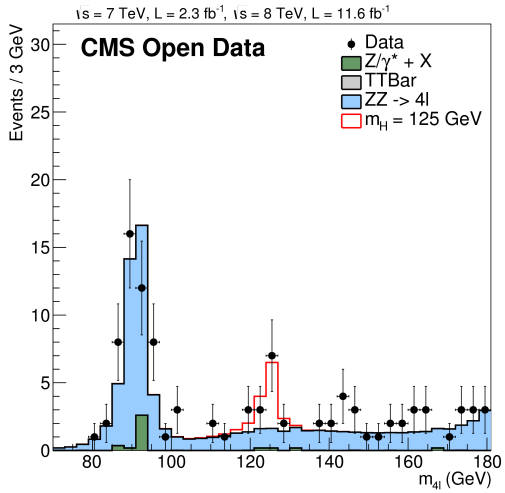
Higgs-to-four-lepton analysis example using 2011-2012 data

Simplified reimplementation of the Higgs discovery: Demo

- Uses CMS Open Data inputs and available CMS Software environment
- ReANA, captures the analysis workflow and runs the commands to obtain the output

Progress and Next Steps

- Test CWL workflows locally
- Run analysis inside Docker container locally
- Run analysis within the ReANA platform **(Waiting for Upgrade)**



- CERN Open Data Portal Validation Examples: Reprocessing AOD from 2010-2012 RAW samples
- CMS Data Analysis School Example: Top quark mass measurement from b-jet energy spectrum

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