

LCG Releases: An Analysis Ecosystem

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- ▶ This proposal is a “blue-sky” idea of mine
 - Supported by personal experience in analysis, ROOT and SWAN
 - This is not an announcement!
- ▶ Not in competition with HSF Packaging Group’s work

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- ▶ Base of experiments' stacks (e.g. LHCb, ATLAS, FCC)
- ▶ SWAN software ecosystem
 - For the data analysis (e.g. experiments, beam physics, computing centre & accelerator complex logs)
 - For the service functioning (Spark, Python core modules, kernels, integration of a single, thin container image)
- ▶ Also available from [Ixplus](#) and [Ixbatch](#)



Can we Increase our Pool of Users?

Reach the HEP analysis community with LCG releases

Potential advantages for analysers

- ▶ **No need to install/compile**
 - Just source a script
 - Stop fiddling around with self installed software
- ▶ **Latest versions of most useful packages (e.g. ROOT, Py*)**
 - Much newer than versions provided in stable stacks used for data taking
- ▶ **Reproducibility**
 - “Source this environment, run this python script”
 - Build analysis projects based on the same stack
- ▶ **Interoperable with other interfaces (e.g. SWAN)**

- ▶ **A variety of platforms**
 - Osx, Debian, Ubuntu, Fedora: not only SLC/CC
- ▶ **Need to mount CVMFS**
 - Widely varying computer skills, need to remove all obstacles
- ▶ **Need network connection**
 - Can be of bad quality, travel
- ▶ **Need to advertise these stacks**
 - Very few analysers are aware of LCG stacks

▶ A variety of platforms

- Provide releases for OSX, Ubuntu (besides already supported platforms!)
- Rely on container technology: “HEP Software in a Box”
- 1 script to boot, mount local space, CVMFS managed transparently

▶ Need to mount CVMFS

- One script to download and mount for aforementioned platforms

▶ Need network connection

- Yes, like with packages via package managers.
- Normal operation of CVMFS: cache on disk what has been used
- Selective, user-driven caching (steered by simple scripts): equivalent to installation

▶ Need to advertise these stacks

- More infrastructure: community based mattermost? Discourse? Talks during *Analysis* meetings/weeks of experiments?

- ▶ Container based solution: suitable for HT Condor
 - Isolate environment and submit it as is to the farm
- ▶ Inform users about the new stacks and the evolution of the bleeding edge
 - “Why we believe you might be interested in moving to the new stack”

- ▶ LCG releases and their distribution vector serve us well
- ▶ **Proposal: expand the user base reaching analysers**
- ▶ Clear advantages for scientists, no known blocking/difficult issues ahead of us
- ▶ Encourage even more **reproducibility and preservation**
- ▶ **Coherent offer at CERN:** scientific software usable from interactive login service, batch, web based analysis *and personal laptops?*