Offline Documentation, Release Validation, Cloud on HLT cluster

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CERN ALICE

ALICE Offline Week - Genève, 19.11.2014

Documentation

Official AliRoot installation doc

- https://dberzano.github.io/alice/install-aliroot/
- How to build the ALICE software on Ubuntu, Fedora and OS X
- Constantly updated and tested for the latest OS versions
- List of minimum requirements for every operating system
- The environment script (alice-env.sh) updates automatically
  - completely eliminates problems related to an outdated script

- Note: refer to this installation guide, it is the official one
  - outdated docs will be removed for clarity
  - if everybody follows the same instructions, support is much easier

Automatic installation and bug report

- https://dberzano.github.io/alice/install-aliroot/auto/
- Follows the exact same procedure for the manual instructions
  - just pick a version and start it
- Has a procedure to collect system information for requesting support
- Note: if the manual procedure does not work for you, try the automatic installation *before* reporting issues!

Use AliRoot from CVMFS

- https://dberzano.github.io/alice/install-aliroot/cvmfs/
- Use AliRoot from CVMFS without installation on supported OSes:
  - appears as if it was installed under /cvmfs
  - needed files downloaded on demand *(requires a connection)*
  - same versions available on the Grid
- Simple instructions on how to install CVMFS are provided
- CVMFS is already installed on lxplus.cern.ch
  - just SSH and start using the software as explained on the doc
- It takes seconds to start using AliRoot from CVMFS, so give it a try

Using Git

- https://dberzano.github.io/alice/git/
- The most common Git operations are described there
- Several diagrams illustrate what to do to get things done
- Best practices are also suggested

- Note: presentations are discouraged for tutorials
  - presentations are static: lots of outdated static content out there
  - use web pages instead (as for this Git tutorial)

Reference guide

- Reference manual
  http://aliroot-docs.web.cern.ch/aliroot-docs/
- List of all AliRoot classes
  http://aliroot-docs.web.cern.ch/aliroot-docs/ClassIndex.html
- List of all AliRoot macros
  http://aliroot-docs.web.cern.ch/aliroot-docs/MacroIndex.html
- The manual is generated overnight using ROOT's THtml
- Thanks to Ruediger Haake for providing this machinery

From THtml to Doxygen

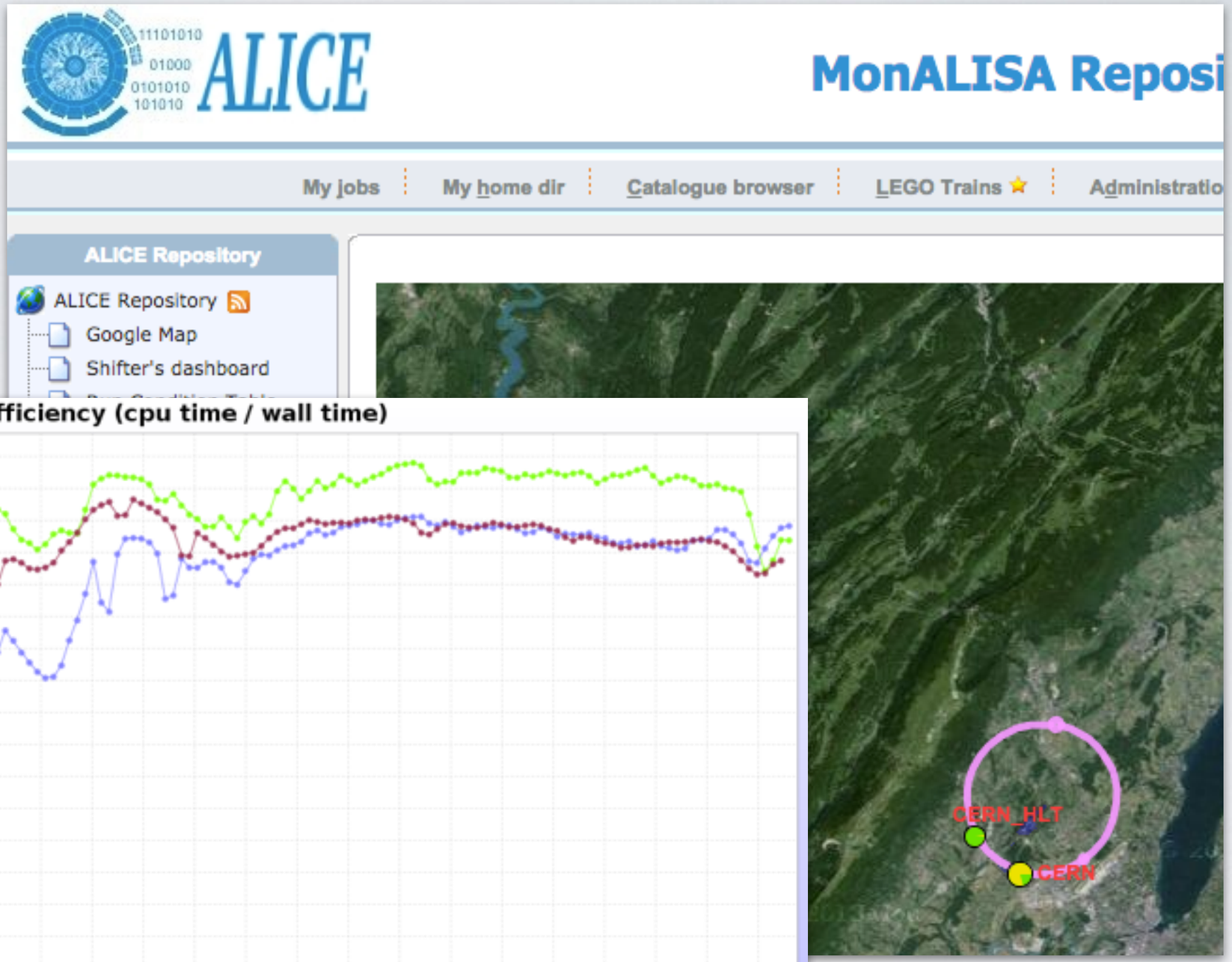
- As for O^2, we are planning to migrate doc generation to Doxygen
  - http://www.stack.nl/~dimitri/doxygen/
  - generates browsable HTML docs for all AliRoot classes
  - specially formatted C++ comments are converted to doc
- Just as ROOT's THtml, but:
  - even ROOT is going to abandon THtml in favor of Doxygen
  - Doxygen has more support and generates more modern docs
- In contact with Olivier Couet from ROOT to collaborate
  - we both need to migrate THtml → Doxygen

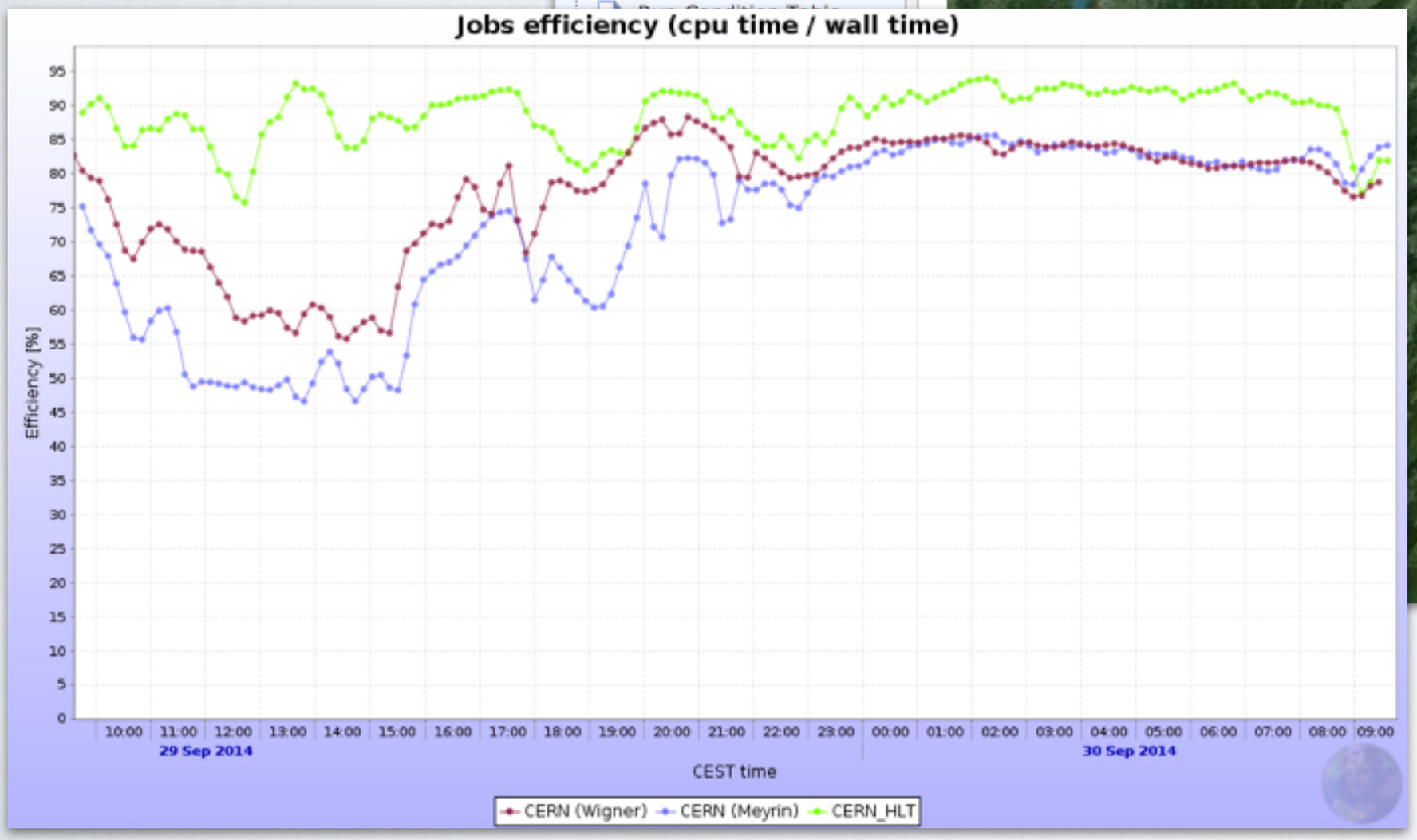
Cloud on the HLT cluster

Opportunistic exploitation of HLT

- HLT nodes on the *development* cluster are, as of now, also configured as OpenStack KVM hypervisors:
  - active collaboration between us (the Offline) and HLT
  - Config on Puppet: can be ported effortlessly on the *production* cluster as soon as it is installed
  - HLT has admin access on OpenStack for reclaiming resources
- AliEn jobs running on dynamically deployed VMs:
  - ALICE::CERN::CONDOR: new AliEn site based on HTCondor
  - Custom OpenStack profiles: 2800 MB RAM and 20 GB disk per core
- Everything is ready: we are finally able to exploit HLT opportunistically

HLT AliEn site on MonALISA





HLT cloud network configuration

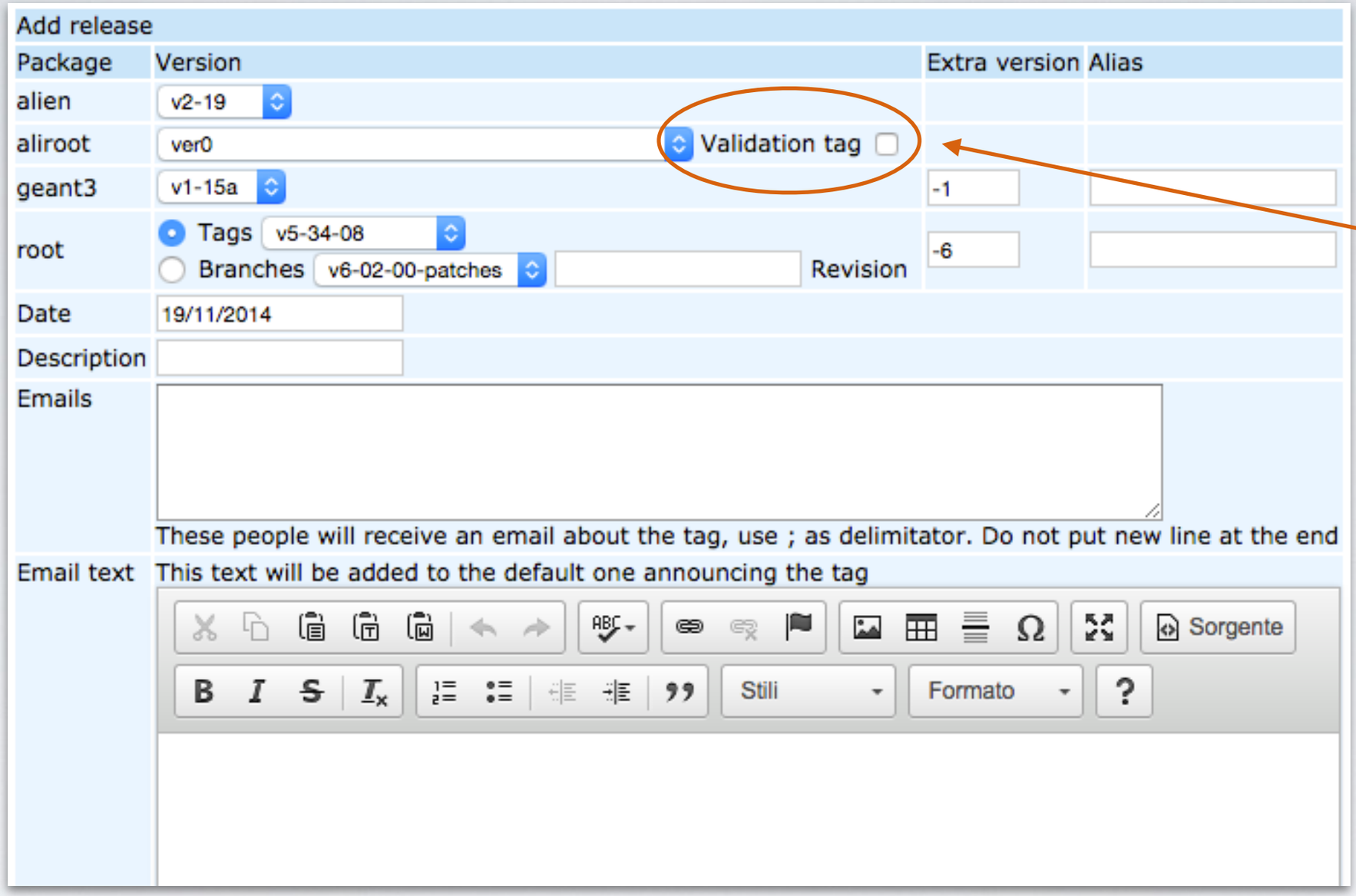
- Current network setup is preliminary
  - it works, but no true isolation between HLT nodes and VMs
  - limited by current HLT switches configuration
- A new network setup has been discussed
  - valuable feedback and practical help from the HLT
  - makes use of VLANs for real isolation
  - we will put it in place on the HLT devel cluster soon for tests
  - when this is addressed, finally ready to port it to the prod cluster

Release Validation cluster

Release Validation cluster

- Validation cluster up and running since August:
  - ~50 CernVMs on CERN Agile Infrastructure: scalability via HTCondor+elastiq (github.com/dberzano/elastiq)
  - AliRoot rel candidate on private cvmfs, input/output data on EOS
  - Integrated with the build system: one checkbox on web interface
    - Validation control tool: github.com/dberzano/cern-alice-relval
- Validation code and visualization of results:
  - Using the same code running at GSI: thanks Mikolaj Krzewicki!
  - Reports, plots, ROOT files available on a web page for the experts to analyze (also: summary HTML pages)

Integration with the build system



- Our build interface has one validation tag checkbox: just check it!
- AliRoot built/published, entire CernVM cluster spawned, validation run

Validation results published on the web

- http://alirelval.cern.ch/ *(accessible only from CERN)*
- Validation macros also generate quick lookup plots

Long Term Data Preservation

- CernVM Online: https://cernvm-online.cern.ch
- CernVM 3 allows for selecting any version of the OS from the past
- All versions will always be available via CVMFS which uses plain HTTP
- We can certify an AliRoot release for a precise CernVM snapshot
- Useful to re-run software "20 years from now"