



EESSI meeting

3 Nov 2022

<https://github.com/EESSI/meetings/wiki>

Agenda



1. Quick introduction by new people
2. EESSI-related meetings in last month
3. Progress update per EESSI layer (incl. bot for software layer)
4. 2021.12 version of pilot repository + outlook to next pilot version
5. AWS/Azure sponsorship update + OCRE funding opportunity
6. Update on MultiXscale EU project
7. Past & upcoming events
8. Q&A

Quick introduction by new people



New people on the call: feel free to introduce yourself!

- Who are you, where do you work, on what?
- Why are you interested in the EESSI project?
- Are you planning to actively contribute,
and if so, to which aspect(s) of the project?

EESSI-related meetings



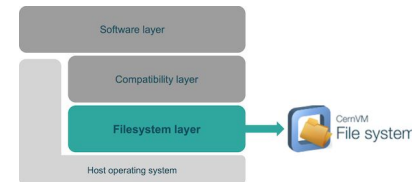
- CernVM-FS coordination meeting (10 Oct)
 - CernVM-FS 2.10.0 is tagged, call for testing (especially client side)
 - Includes fix for corruption bug ([CVM-2001](#))
- EESSI/Azure/SURF sync meeting (28 Oct)
 - Recent developments discussed, incl. MultiXscale EuroHPC project & OCRE
 - **Is anyone planning to attend SC'22 in Dallas (13-18 Nov'22)?**
- EESSI/AWS sync meeting (31 Oct)
 - No action taken yet by AWS on additional batch of sponsored credits
 - Will to keep sponsoring EESSI still very much there, will be followed up
 - Additional expertise will be pulled into next meeting w.r.t. EFA support in EESSI
- Various calls to coordinate effort on MultiXscale project

Next EESSI hackathon + community meeting?



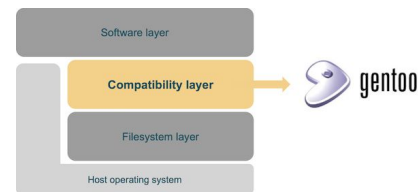
- EESSI hackathon before end of the year?
 - Week of 19-23 Dec'22?
 - Focused effort on build-and-deploy bot, GPU support, next EESSI pilot version, ...
- Next EESSI community meeting?
 - Coincide with EasyBuild User Meeting (likely to take place in spring 2023)?
 - Coincide with a MultiXscale meeting/event?
 - Jörg has been polling for interest for an EESSI meeting @ London

Progress update: filesystem layer



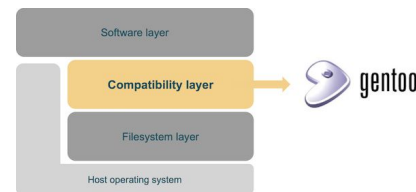
- Fix for corruption issue for files that are changed in-place is included with CernVM-FS 2.10.0
 - Clients that have a library open (glibc, ...) see mix of old/new chunks if library was updated
 - See [CVM-2001](#) for more details
 - CernVM-FS 2.10.0 release is there, but not announced yet?
 - **We should verify that a glibc update doesn't cause trouble anymore for active clients...**
- Old and outdated container images in `eessi` organisation on Docker Hub were removed (see [compat layer issue #129](#))

Progress update: compatibility layer (1/2)



- Several security updates (still) required for 2021.06 and 2021.12 versions (these were reported by Gentoo's `glsa-check` tool)
 - 2021.06: expat, glibc, gzip, libarchive, lxml, vim, **libgcrypt**, **libxml2**, **openssl**, **sqlite**, **zlib**, **libksba**
 - 2021.12: update expat, glibc, gzip, **libgcrypt**, **libxml2**, **openssl**, **sqlite**, **zlib**, **libksba**
- Script ([see PR #155](#)) to install security updates should be replaced by tasks in Ansible playbook
 - We should explore this while installing the additional security updates?

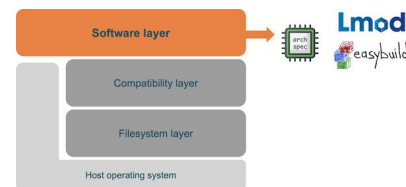
Progress update: compatibility layer (2/2)



Ongoing effort to build new version of compat layer (2022.11?)

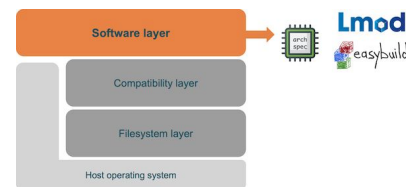
- Done:
 - Update Gentoo Prefix bootstrap script, fix problems that occur during build of compat layer ([EESSI/compatibility-layer PR #160](#))
 - Updated package sets for 2022.11 in [EESSI/gentoo-overlay PR #84](#)
 - Incl. update version-fixed packages to latest version (Lmod, ReFrame, archspec, opa-psm2)
 - Fix failing tests for Lmod (see also [Lmod issue #611](#))
- TODO:
 - Also test on ppc64le, to see if we can keep ppc64le support with minimal effort for now
 - Install additional packages: htop, rpm, libnss, direnv
 - Remove ReFrame from compat layer, only install as module in software layer?

Progress update: software layer (1/2)



- Security updates in 2021.12 compat layer caused trouble in software layer
 - Update of `setuptools` broke installation of EasyBuild with EasyBuild
 - Underlying cause: we were still using `setup.py install` rather than `pip install`...
 - Fixed in updated `EasyBuildMeta` `easyblock` included with EasyBuild v4.6.2 (see [issue #191](#))
- Not setting `$LD_LIBRARY_PATH` breaks some corner cases (see [issue #192](#))
 - Example: dynamic loading of libraries in Python via `cdll.LoadLibrary`
 - See [upstream issue #65241](#)
 - Fixed by ComputeCanada by patching Python's built-in `ctypes` library (see [here](#))
- `archdetect` pure bash alternative to `archspec` ([PR #187](#))
 - Requires that symlinks are added for `aarch64/arm/neoverse-v1` in 2021.12
 - Should be included in `init/` dir of 2021.12 version of EESSI pilot

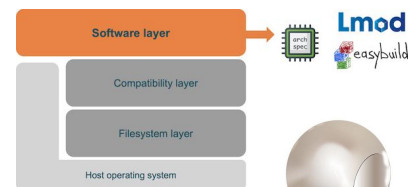
Progress update: software layer (2/2)



- Progress on enhancing (experimental) support for easystack files in EasyBuild
 - Easystack files can now specify custom configuration options for specific easyconfigs
 - Custom options are parsed but ignored in EasyBuild v4.6.2
 - EasyBuild framework [PR #4057](#) to actually apply these options is ready to merge
 - Also drops support for “software” key in easystack file
 - Preference goes to specifying installations via easyconfig filename
 - PR will be merged when companion [PR #832](#) for docs is ready to merge...
 - Example (YAML format):

```
easyconfigs:
- binutils-2.25-GCCcore-4.9.3:
  options: {
    'debug': True,
    'from-pr': 12345,
  }
```

Bot for building + deploying software layer (1/3)

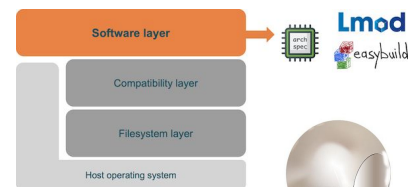


Progress on implementation of build-and-deploy bot

<https://github.com/EESSI/eessi-bot-software-layer>

- [PR #24](#) was finally merged (7 Oct): complete implementation of build phase of bot
 - Two parts: event handler (GitHub App) + job manager (for loop)
 - In use across 6 clusters, building for 11 targets (1+7 x86_64, 1+2 aarch64)
- Proof-of-concept implementation of deploy phase of bot ([PR #49](#))
 - Upload script works with AWS S3 and Minio S3 buckets (config setting)
 - O(100) ingests done
 - Added some metadata to enable auto ingest script (running on S0) to update PR comments
 - WIP because code refactoring work by Hafsa should be reused (see next two slides)

Bot for building + deploying software layer (2/3)

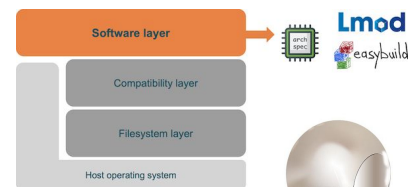


Progress on implementation of build-and-deploy bot

<https://github.com/EESSI/eessi-bot-software-layer>

- Created new [issues](#) for code cleanup such as [#51](#) to separate bot code from runtime environment
- Merged [PRs](#):
 - [PR #36](#): Refactor `build_easystack_from_pr` into smaller functions
 - [PR #37](#): Rename `eessi_bot_software_layer` to `eessi_bot_event_handler`
 - [PR #35](#): Hardcode holding of jobs bug
 - [PR #55](#): Set up CI workflow for running test suite + add trivial test for `mkdir` function
- Work in progress: [PR #56](#): add `run_cmd` method and unit testing (to fix [issue #44](#))
- Next Steps:
 - Get [PR #56](#) merged
 - [Issue #33](#): Job manager crashes when it encounters a non-bot job bug
 - [Issue #53](#): More refactoring/renaming in `tasks/build.py`

Bot for building + deploying software layer (3/3)



Example of the bot doing the build phase for a PR (see [here](#)):

add CaDiCaL v1.3.0 with GCC/9.3.0 #16

Edit <> Code

Closed Hafsa-Naeem wants to merge 1 commit into `Hafsa-Naeem:main` from `EESSI:add-CaDiCaL-9.3.0`

Conversation 2

Commits 1

Checks 0

Files changed 2

+11 -0



Hafsa-Naeem commented 8 days ago

Owner

No description provided.



add CaDiCaL v1.3.0 with GCC/9.3.0

Verified

dc60643



Hafsa-Naeem added the `bot.build` label 8 days ago



eessi-bot-app bot commented 8 days ago • edited

Job 2661 on My-eessi-bot-app for x86_64-generic in job dir /mnt/shared/home/hafsa/jobs/2022.10/pr_16/2661

date	job status	comment
Oct 26 14:17:42 UTC 2022	submitted	job waits for release by job manager
Oct 26 14:21:29 UTC 2022	released	job awaits launch by Slurm scheduler
Oct 26 14:29:40 UTC 2022	finished	🎉 SUCCESS tarball eessi-2021.12-software-linux-x86_64-generic-1666794527.tar.gz (0.001 GiB) in job dir

Reviewers

No reviews

Assignees

No one—assign yourself

Labels

`bot.build`

Projects

None yet

Milestone

No milestone

Notifications

Customize

Unsubscribe

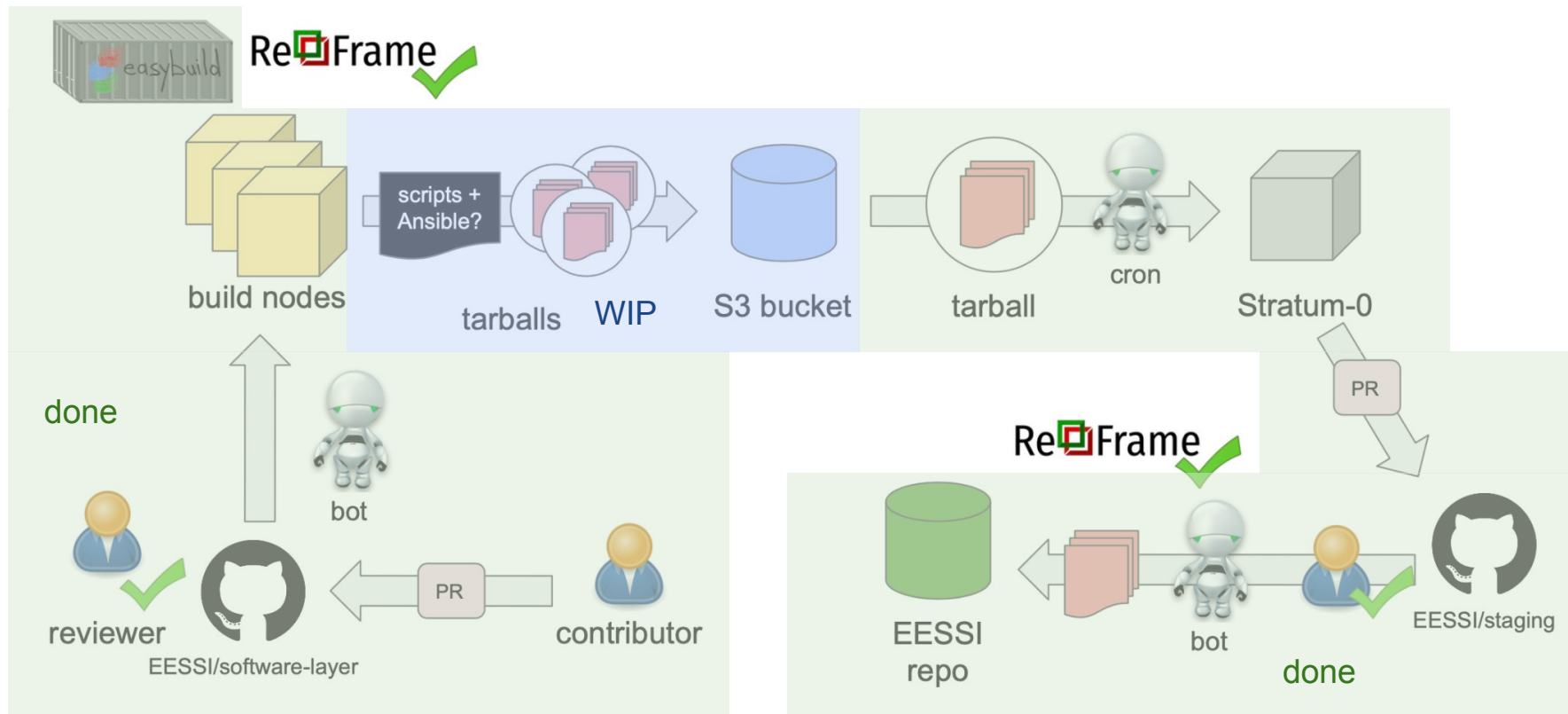
You're receiving notifications because you modified the open/close state.

2 participants



[Hafsa, Thomas, Kenneth]

Bot for building + deploying software layer: goal



Progress update : Infrastructure



Terraform woes:

- No native way to abstract away providers in modules
- No native way to abstract away regions/locations in modules
- So, one will have to specify each provider and each region/location explicitly for each resource
- Looking to make something work for ephemeral nodes, where you have to pick provider (Azure/AWS), and regions are locked.



EESSI pilot repository

<https://eessi.github.io/docs/pilot>

**NOT FOR
PRODUCTION USE!**



- 2021.06: considered “final”: no further changes, except security updates in compat layer if needed
- Current status for 2021.12 (default version)
 - Compatibility layer: in place for `aarch64` / `ppc64le` / `x86_64`
 - Security updates for a handful of packages were installed (ingested on 8 Sept'22) - **more are needed**
 - Software layer:
 - Software installations included in 2021.06 also in place for 2021.12, incl.
GROMACS, OpenFOAM, TensorFlow + Horovod, R + Bioconductor, QuantumESPRESSO
 - Additional software (vs 2021.06): SciPy-bundle with foss/2021a (excl. `ppc64le`), WRF
 - Targets: `aarch64/generic`, `aarch64/graviton2`, `aarch64/graviton3`,
`ppc64le/generic` (partial!), `ppc64le/power9le` (partial!), `x86_64/generic`, `x86_64/amd/zen2`,
`x86_64/amd/zen3` (Milan), `x86_64/intel/haswell`, `x86_64/intel/skylake_avx512`
 - TODO:
 - Ensure that Lmod cache update is done correctly, includes *all* available modules (first step: [PR #168](#))
 - Bot to automate workflow of adding software to EESSI (to avoid losing time doing it manually)
 - Build the stack for Azure's Ampere Altra (Arm) CPUs ([generally available since 1 Sept'22](#))

Time for the next pilot version?

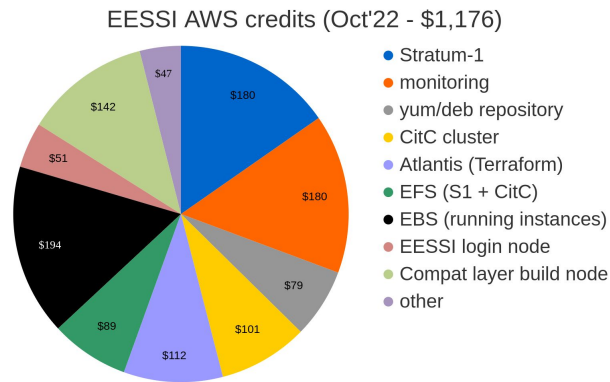
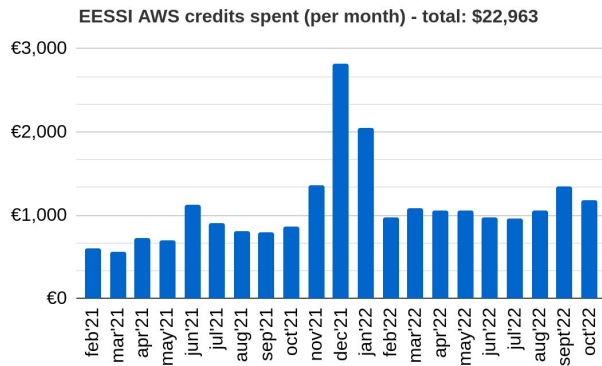


- Small changes to compatibility layer: updated Lmod, more tools, ...
- Include enhancements/changes that are necessary for CUDA GPU support
- Work towards getting rid of ugly install script, aim for easystack-only
- **Only add software installations via bot, no more manual deployments!**
- Initially include same software installations in software layer, then **gradually expand**
- Also install software with more recent toolchains + more applications
- Stop wasting time with supporting POWER (ppc64le), not used broadly enough
- Alpha/beta for production EESSI repository
- Switch to `eessi.io` domain + new Stratum 0 (dedicated hardware, yubikey)

Usage of sponsored AWS credits



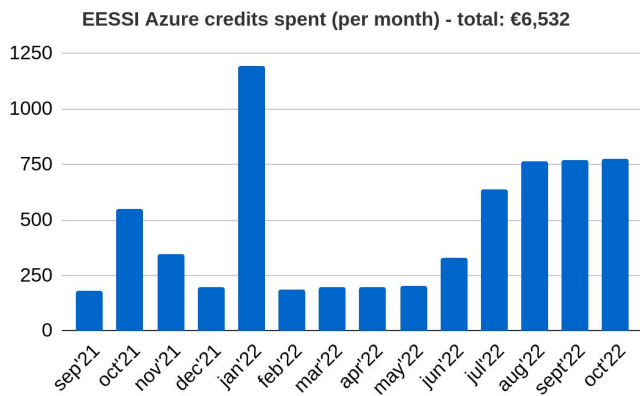
- **Ask in #aws-resources Slack channel to get access!**
- Original batch of \$25,000 worth of sponsored credits expired on Jan 31, 2022
- Request for new credits is WIP, extra \$15,000 worth of credits received to bridge the gap
- **~\$5,319 worth of sponsored credits left** (should be sufficient until Mar'23 at current spending rate)
- **Shared document with outline of how sponsored credits can be leveraged was shared with AWS**
- In Oct '22: ~\$1,176 worth of credits spent on Stratum-1, monitoring, CitC cluster, test VMs, ...
- ~\$22,963 worth of credits spent in total so far (since Feb'21), all covered by sponsored credits



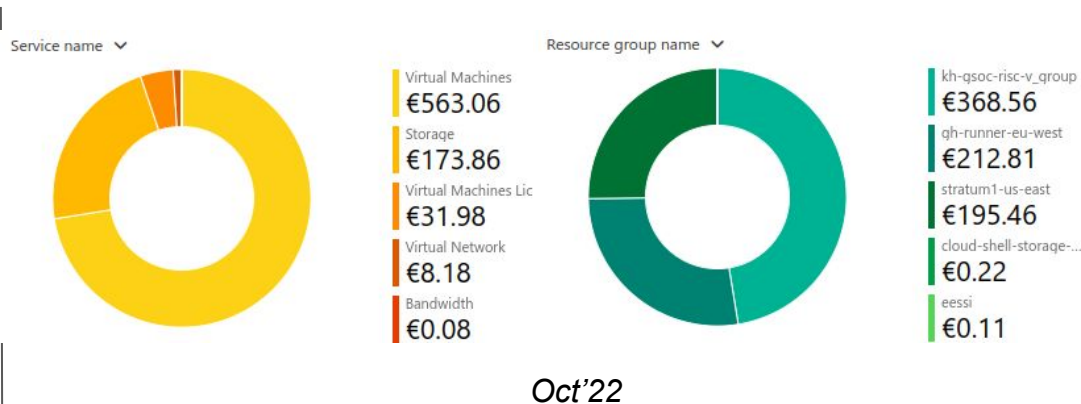
Azure sponsorship



- Sponsored credits (€40,000) are being put to good use!
- **Ask in #azure-resources Slack channel to get access!**
- In Oct'22: ~€777 worth of credits spent: Stratum-1 + ~~VM for GSoC RISC-V project~~ + GH Runners
- ~€6,532 worth of credits spent in total (since Sept'21)
- We should look into setting up a CitC cluster in Azure as well... (using Hugo's PRs [#118](#) + [#68](#))



Overview of spent credits per month



EU project: MultiXscale



EuroHPC
Joint Undertaking



- MultiXscale is a EuroHPC project: *Increasing performance, productivity and portability in the domain of multiscale simulations*
- 16 partners in 8 countries
- Total budget: ~6M EUR (of which ~50% for WPs related to EESSI)
- 4 year project (~2023-2027), ~5 FTE for WPs related to EESSI
- **Currently working through red tape towards grant agreement**
- **Expected project start: 1st January 2023**
- Presentation on MultiXscale project & relation to EESSI at EESSI Community Meeting see <https://eessi.github.io/docs/meetings/2022-09-amsterdam/#fri-16-sept-2022>

Upcoming events: BioHackathon Europe 2022



- Near Paris (7-11 Nov'22)
- Biology-oriented hackathon **but potentially** a good place to:
 - Reach new users and developers
 - Meet Galaxy users and community
- More information via https://easybuild.io/biohackathon_eu_2022.html
- Project #16:
“Make your own or favourite software available on your cluster with EasyBuild/EESSI”
- Only a small number of people selected our project, but this is still subject to change...
- Sébastien Moretti will prepare a quick demo on EESSI to showcase during the event
- Accounts at CitC AWS cluster can be provided