EESSI meeting

6 July 2023

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

Agenda

1. Quick introduction by new people
2. EESSI-related meetings and events in last month
3. Progress update per EESSI layer (incl. build-and-deploy bot + test suite)
4. EESSI pilot repository (2023.06)
5. Contribution policy (proposal)
6. EESSI support portal
7. AWS/Azure sponsorship update
8. Update on MultiXscale EuroHPC project
9. Past & upcoming events
10. Q&A

Quick introduction by new people

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

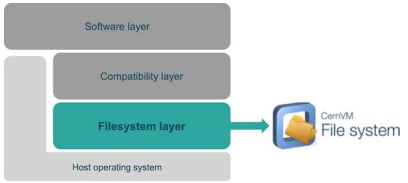
- Who are you, where do you work, on what?
- Why are you interested in the EESSI project?
- Are you planning to actively contribute,
  and if so, to which aspect(s) of the project?

EESSI-related meetings

- *(2 June'23)* EESSI support portal meeting (MultiXscale task 5.1) (notes)
- *(8 June'23)* AWS/EESSI sync meeting (notes)
- *(14 June'23)* Sync meeting on 2023.06 compat + software layer (notes)
- *(15 June'23)* Sync meeting on EESSI test suite (notes)
- *(19 June'23)* AWS/EESSI sync meeting (notes)
- *(23 June'23)* Build-and-deploy bot tutorial meeting (notes)
- *(28 June'23)* Sync meeting on EESSI test suite (notes)
- *(29 June'23)* EESSI support portal meeting (MultiXscale task 5.1) (notes)

[Kenneth,Bob, Alan]

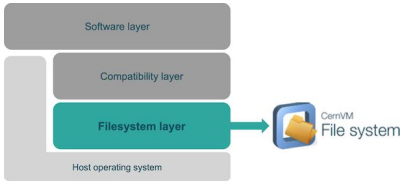
Progress update: filesystem layer (1/2)



- Fixed an issue with determining the content type of an "init" tarball (PR #157)
- The Github Action for building client packages is currently broken (issue #155)
- New Stratum-0 server for EESSI is up and running at Univ. of Groningen
  - Plan is to use this for `*.eessi.io` CernVM-FS repositories
  - Still needs some additional RAID, network, firewall configuration
  - Determine access rules

[Bob, Kenneth]

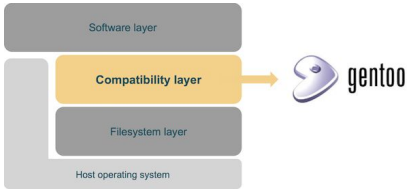
Filesystem layer - performance monitoring



- Large performance (bandwidth) variation of Stratum-1 server at RUG
  - Extensive testing but no clear source for issue
  - Full discussion in https://github.com/EESSI/filesystem-layer/issues/151
  - PR for performance tests of public S1's: https://github.com/EESSI/eessi-demo/pull/24
- TODO: we need to start monitoring the performance of our Stratum-1 servers since these are the gateway to EESSI (particularly for new users)
  - S1's should give broadly similar performance or GeoAPI makes little sense
  - Work needs to be done to figure out if CDNs like Cloudflare are a good solution
    - For cloud providers, Stratum-1 per region may be faster/cheaper
  - Due to our Azure subscription via SURF, we have a special situation where we think we don't need to pay for outbound traffic… should verify this?
    - When using CDN, what happens with GeoAPI?

[Bob, Alan, Kenneth]

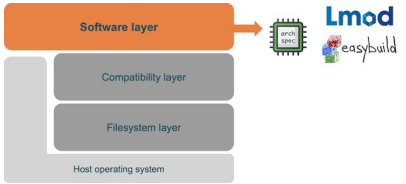
Progress update: compatibility layer



- Due to issues with OpenSSL v3 in 2023.04, the compat layer was reinstalled (2023.06)
  - More details in software-layer issues #257, #258, #259
  - Mask OpenSSL v3.x, stick to OpenSSL v1.1.1
  - Bump GCC version from 9.x to 10.x
  - Bump archspec to v0.2.1
  - Some minor changes in the playbooks and bootstrap script
- 2023.06 is now available in the `pilot.eessi-hpc.org` repository
- 2023.04 compat layer should be removed from the repository (no software layer for 2023.04)

[Bob, Thomas, Kenneth]

Progress update: software layer

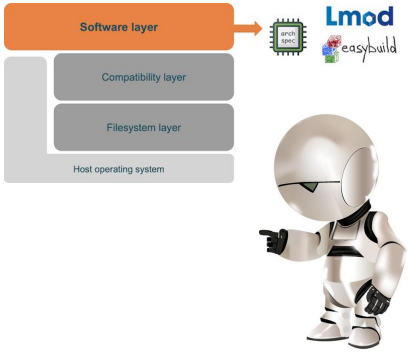


Software layer for EESSI pilot 2023.06 is gradually being populated

- All software installations are performed by the build-and-deploy bot, no exceptions
- EasyBuild v4.7.2 + easystack files are used to specify what should be installed
- Via pull request to software-layer repo + bot instructions, see documented procedure
- Current status:
  - Building + deploying with bot is working well, several more people actively involved now
  - 14 merged PRs to build + deploy software for EESSI pilot 2023.06 (+ 5 work-in-progress PRs)
  - Already installed:
    - GCC 10.3.0 + 11.2.0 + 11.3.0 + 12.2.0
    - ReFrame, CMake, FlexiBLAS + OpenBLAS + OpenMPI, Qt5, …
    - GROMACS + QuantumESPRESSO with `foss/2021a`

[Kenneth, Thomas, Lara, Bob]

Bot for building + deploying software layer



Progress on implementation of build-and-deploy bot

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

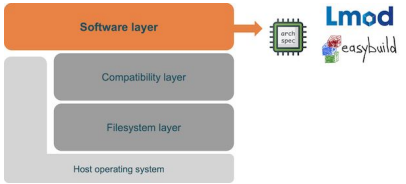
- June'23
  - 7 merged PRs + 3 open PRs to get back to
  - 6 issues created, 0 closed, 66 still open (+6 in June'23)
- Support for sending commands to bot instances via PR comments (PR #172 + docs)
  - Bot can be instructed to build software in a software-layer PR via a comment: `bot: build …`
  - Use of bot:build label is disabled (PR #187)
- Don't use non-existent `fatal_error` function in bot-build.slurm script (PR #183)
- Fix job manager crashes due to wrong value for `pr_comment_id` (PR #185)
- Add pointer to bot docs in help message (PR #188)
- Move check result to target repo (bot/check-build.sh script) (PR #174 + PR #189)

[Thomas, Kenneth, Bob]

EESSI test suite

github.com/EESSI/test-suite

recent meeting notes here



ReFrame

Pull requests:

- Namespace refactor to `eessi.testsuite.*` completed (PR #45)
- GitHub Actions workflow to test installation of test suite with pip (PR #47)
- Added configs for AWS (CitC, PR #53), Snellius (SURF PR #66), Vega (EuroHPC PR #62)
  - Issue with ReFrame's CPU autodetect on Graviton nodes in AWS
- Support for test filtering on vendor name: modules with "CUDA" in the name will only be tested if you specify you have NVIDIA GPUs in your system configuration (PR #60)
- TensorFlow test: reviewed, work-in-progress (PR #38)
- Issue on Vega where hyperthreading is enabled: work-in-progress, not functional (feature branch)
- Add test for OSU Microbenchmarks (PR #54, CPU point-to-point works, working on GPU)
- Setup daily run of testsuite on Vega (GROMACS multi-node tests fail, some MPI issue)

[Caspar, Sam, Satish, Kenneth]

EESSI pilot repository

NOT FOR PRODUCTION USE!

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

- 2021.12 version is “frozen”, no more changes planned there, but it's still the default ("`latest`") version
- 2023.06 is being populated (via build-and-deploy bot)
  - Compatibility layer: in place for `aarch64` + `x86_64` (`ppc64le` no longer supported)
  - Software layer:
    - Targets: `aarch64/generic`, **`aarch64/neoverse_n1`**, **`aarch64/neoverse_v1`**, `x86_64/generic`, `x86_64/amd/zen2`, `x86_64/amd/zen3`, `x86_64/intel/haswell`, `x86_64/intel/skylake_avx512`
    - Aiming to have same software available as in 2021.12 version:
      GROMACS, OpenFOAM, TensorFlow + Horovod, R + Bioconductor, QuantumESPRESSO, WRF, …
    - Also expanding with more software (for MultiXscale): ESPResSo, waLBerla, LAMMPS, …
  - TODO / work-in-progress:
    - Ensure that Lmod cache update is done correctly, includes *all* available modules

[Kenneth]

Contribution policy (proposal)

- **Proposal** for contribution policy for adding software to EESSI (docs PR #108)
  - Preview available here - **feedback welcome!**
  - Initial policy - can be revised later as needed
- Summary:
  - Only open source software (we should verify this by requiring SPDX license IDs)
  - Software must be built by the bot (no manual builds)
  - Software must be supported by latest EasyBuild release (can be relaxed later); `--from-pr` and `--include-easyblocks-from-pr` should be used sparingly
  - A compiler toolchain still supported by latest EasyBuild release must be used
  - Ideally all software is installed for all supported CPU targets (exceptions allowed)
  - Recent software versions and toolchains should be preferred
  - There should be a way of testing the installations - ideally via the EESSI test suite

[Kenneth, Bob]

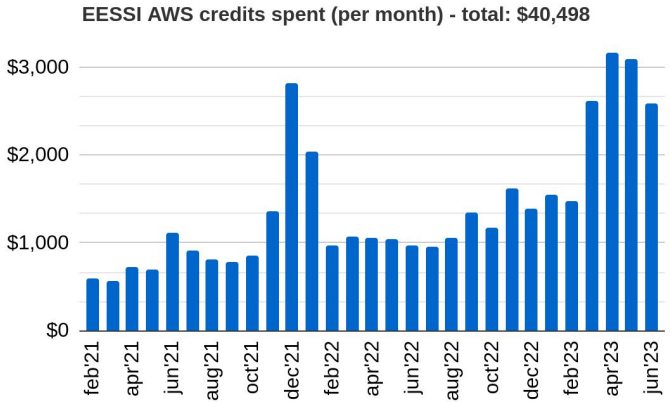
Support portal (MultiXscale task 5.1)

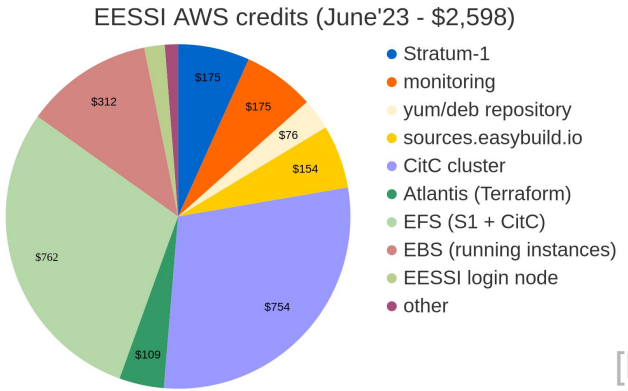
- **GitLab** will be used for the EESSI support portal
  - Voted on final choices, GitLab was clear winner
  - Test environment was set up to evaluate GitLab (https://gitlab.com/eessi.io/support-test)
  - Did testing on the client side and team member side
  - Investigated self-hosting of GitLab instance
- **TODO**
  - Setting up support portal at https://gitlab.com/eessi/support
  - Define initial level of support fo EESSI
  - Set up support rotation

[Lara, Kenneth, Alan, …]

Sponsored AWS credits

- Ask in #aws-resources Slack channel to get access!
- Currently ~$13k worth of sponsored credits left (valid until Nov'23)
- ~$2,598 "spent" in June'23 on Stratum-1, monitoring, sources.easybuild.io, **Slurm cluster (build bot)**
- ~$40,498 worth of credits spent in total so far (since Feb'21), all covered by sponsored credits
- **Increase in consumed credits due to extensive activity with build-and-deploy bot**
- Monthly sync meetings with Brendan/Angel/Matt/Francesco (AWS) every 2nd Thursday of the month

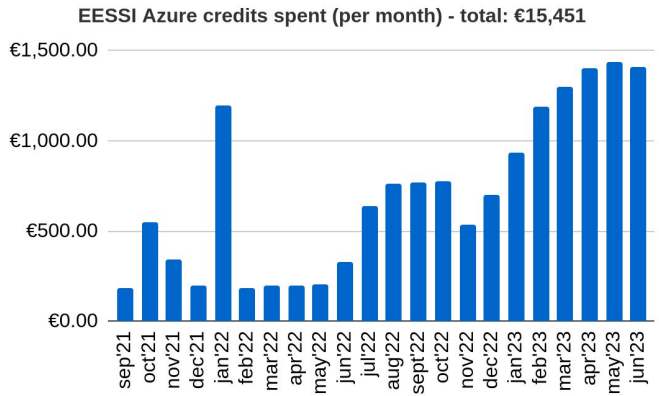


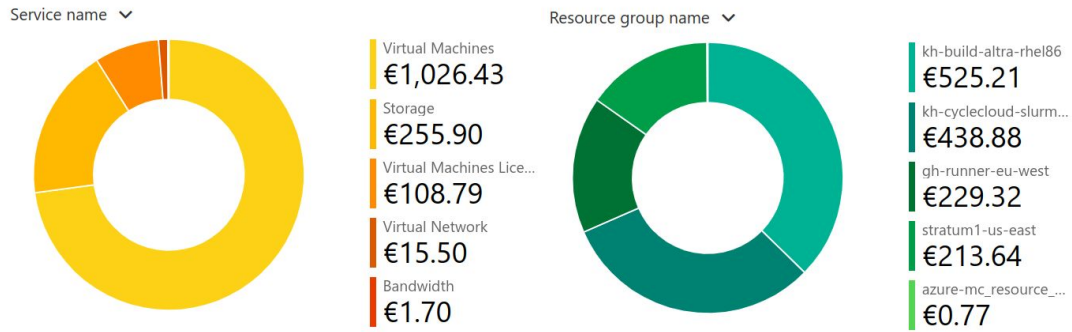


[Kenneth]

Sponsored Azure credits

- Sponsored credits (€40,000) are being put to good use!
- **Ask in #azure-resources Slack channel to get access!**
- In June'23: ~€1,408 worth of credits spent
- ~€15,451 worth of (sponsored) credits spent in total (since Sept'21)
- Used for: Stratum-1, GitHub Runners, heterogeneous Slurm cluster, Ampere Altra build node
- Virtual Slurm cluster in Azure
    - Current setup using Azure Cyclecloud is WIP - may start over with Magic Castle instead





June'23

[Kenneth]

www.multixscale.eu github.com/multixscale

- CI/CD collaboration with Deucalion (Portugal) via CASTIEL2
  - Deucalion not available until Q3, using Vega (Slovenia)
  - **EESSI already available on Vega**
  - **Discussion with Karolina ongoing**

- Next training event planned this year
  - “Best Practices for CernVM-FS on HPC systems”
    - Being developed in https://github.com/multixscale/cvmfs-tutorial-hpc-best-practices
    - In collaboration with CernVM-FS developers & experts
    - Date to be determined, likely Sept-Oct’23 - most likely fully virtual
    - Initial discussion with CernVM-FS developers has taken place, outline done
    - Sync meeting planned on Fri 7 July to plan further work

- Support portal for EESSI is a deliverable in MultiXscale due by end of 2023

[Alan, Kenneth, Lara, Bob, Thomas, Caspar, Satish, Elisabeth, …]

- hpckp.org/annual-meeting
- 17-18 May 2023 - Barcelona, Spain.
- **2-hour EESSI tutorial** Thu 18 May (afternoon)
    - Video recording of the session available: https://youtu.be/FRtCUKYnACw

[Alan]