EESSI meeting

Oct 7th 2021

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

Agenda

1. Quick introduction by new people
2. EESSI-related meetings in last month [Bob]
3. Progress update per EESSI layer [Kenneth, Bob]
4. 2021.06 version of pilot repository [Kenneth, Bob]
5. ReFrame updates w.r.t. test libraries [Vasileios]
6. Infrastructure updates [Terje]
7. AWS/Azure sponsorship update [Kenneth, Bob, Henk-Jan]
8. Update on EESSI journal paper + S4 NeIC project proposal [Thomas]
9. Q&A

Quick introduction by new people

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

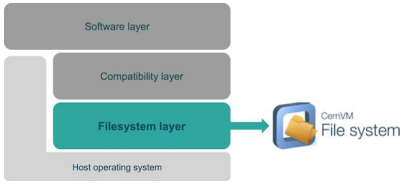
- Who are you, where do you work, on what?
- Why are you interested in the EESSI project?
- Are you planning to actively contribute,
  and if so, to which aspect(s) of the project?

EESSI-related meetings

- Sept 14th: monthly CernVM-FS coordination meeting [Bob]
  - Version 2.8.2 about to be released: patch release with some bug fixes
  - Release plan for 2.9
  - CernVM Workshop 2022 on Sept 12-14 in Amsterdam (Nikhef)
  - State of “zombie mountpoints” and new “`cvmfs_config fuser`” command

[Bob]

Progress update: filesystem layer

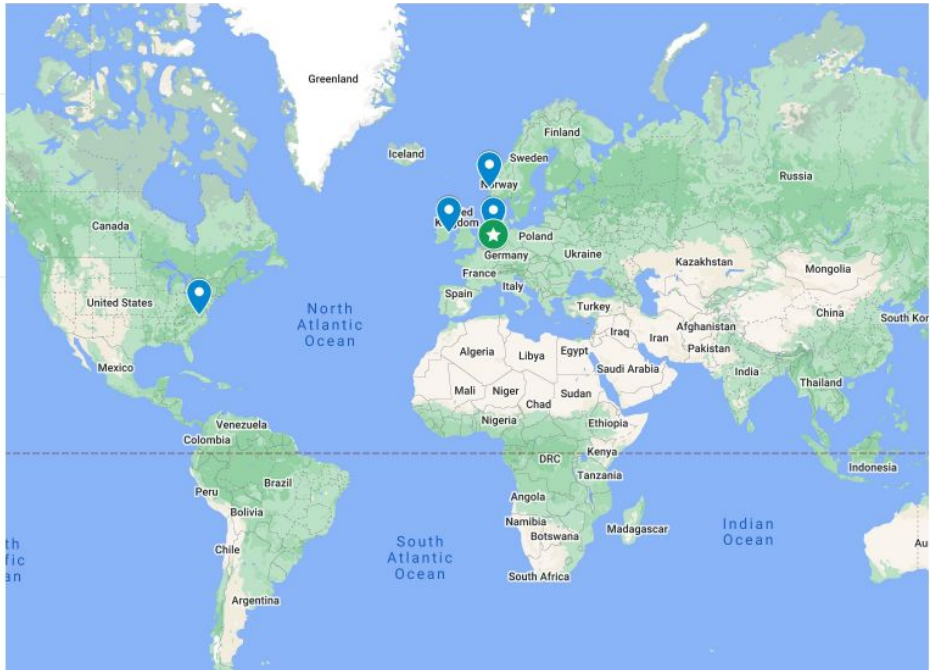


- New release of CernVM-FS config packages: [version 0.4.0]
  - Additional Stratum 1 servers in AWS (eu-west) and Azure (us-east)

Stratum 0
- University of Groningen

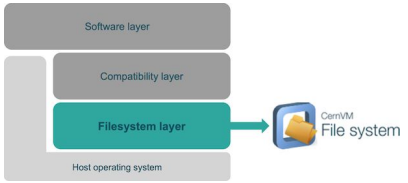
Stratum 1
- University of Groningen
- AWS eu-west-1
- Azure us-east-1
- University of Oslo

Locations of the CernVM-FS Stratum 0 and Stratum 1 servers of the EESSI project



[Bob]

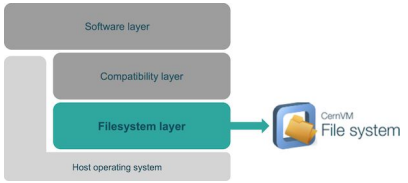
Progress update: filesystem layer



- Github Action that checks the status of Stratum 0/1 servers (PR #94 and #96)
  - Runs once per day, and for every push and PR. Example: Wednesday's check
  - Will report to Slack `#stratum-1` when a Stratum 1 is serving old revision and/or hasn't synced for a while
- The build and client containers have been (automatically) rebuilt
  - Added some extra tools, e.g. the tarball upload script
  - Use the new CernVM-FS configuration package (v0.4.0)
- Started some self-hosted GitHub runners in Azure
  - Container builds sometimes take longer than the 6-hour limit
  - Speed up the builds by throwing more resources at it
  - Better solution: use prebuilt CVMFS packages instead of building from source...

[Bob]

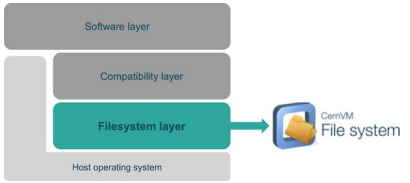
Progress update: filesystem layer



- Automated ingestion script now running as cronjob on Stratum 0
  - Automatically picks up new tarballs that were uploaded to S3 bucket
  - Opens a pull request to (private) EESSI/staging repository to get ingestion approval
  - Runs the CernVM-FS ingestion commands for approved tarballs
  - Opens a GitHub issue in EESSI/staging repository if something fails,
    e.g.: https://github.com/EESSI/staging/issues/17
  - Sends a Slack notification in `#staging` for successful ingestions
- Several tarballs have already been automatically ingested this way! \o/

[Bob]

Progress update: filesystem layer



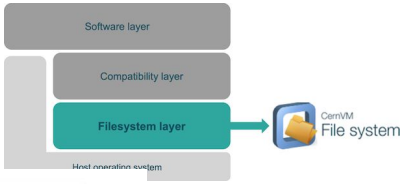
EESSI bot APP 1:51 PM

New tarball uploaded! 🎉

> **Tarball uploaded to bucket "eessi-staging"**
> 2021.06/software/linux/ppc64le/generic/1632985388/eessi-2021.06-software-linux-ppc64le-generic-1632985388.tar.gz has been uploaded to bucket
> on: 2021-09-30T11:51:18.417Z
> by: khoste
> file size: 10GB
> URL: https://eessi-staging.s3.amazonaws.com/2021.06/software/linux/ppc64le/generic/1632985388/eessi-2021.06-software-linux-ppc64le-generic-1632985388.tar.gz
> source: 140.211.168.101

[Bob]

Progress update: filesystem layer



Ingest eessi-2021.06-software-linux-ppc64le-generic-1632985388.tar.gz #16

Edit | Open with

Merged **bedroge** merged 2 commits into `main` from `eessi-2021.06-software-linux-ppc64le-generic-1632985388.tar.gz_approved` 6 days ago

Conversation 0 | Commits 2 | Checks 0 | Files changed 1 | +0 −0

EESSIbot commented 6 days ago

A new tarball has been staged.
Please review the contents of this tarball carefully.
Merging this PR will lead to automatic ingestion of the tarball.

▶ Details

EESSIbot added 2 commits 6 days ago

`remove from staged` 22c267b

`move to approved` a14cd5c

bedroge approved these changes 6 days ago — View changes

bedroge merged commit `750ec63` into `main` 6 days ago — Revert

bedroge deleted the `eessi-2021.06-software-linux-ppc64le-generic-1632985388.tar.gz_approved` branch 6 days ago — Restore branch

Reviewers
bedroge ✓

Assignees
No one—assign yourself

Labels
None yet

Projects
None yet

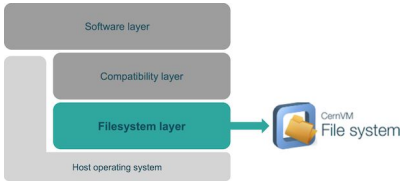
Milestone
No milestone

Linked issues
Successfully merging this pull request may close these issues.
None yet

Notifications Customize

[Bob]

Progress update: filesystem layer



EESSIbot commented 6 days ago

A new tarball has been staged.
Please review the contents of this tarball carefully.
Merging this PR will lead to automatic ingestion of the tarball.

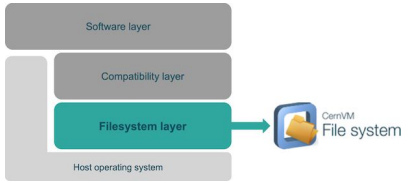
▼ Details

Total number of items in the tarball: 386458
URL to the tarball: https://eessi-staging.s3.amazonaws.com/2021.06/software/linux/ppc64le/generic/1632985388/eessi-2021.06-software-linux-ppc64le-generic-1632985388.tar.gz
Summarized overview of the contents of the tarball:

```
software/linux/ppc64le/generic/.lmod/cache/spiderT.lua
software/linux/ppc64le/generic/.lmod/cache/spiderT.luac_5.1
software/linux/ppc64le/generic/.lmod/cache/timestamp
software/linux/ppc64le/generic/.lmod/lmodrc.lua
software/linux/ppc64le/generic/modules/all/Arrow/0.17.1-foss-2020a-Python-3.8.2.lua
software/linux/ppc64le/generic/modules/all/Bazel/3.6.0-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/Bison/3.5.3-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/Boost/1.72.0-gompi-2020a.lua
software/linux/ppc64le/generic/modules/all/CGAL/4.14.3-gompi-2020a-Python-3.8.2.lua
software/linux/ppc64le/generic/modules/all/CMake/3.16.4-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/DB/18.1.32-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/Doxygen/1.8.17-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/EasyBuild/4.4.1.lua
software/linux/ppc64le/generic/modules/all/EasyBuild/4.4.2.lua
software/linux/ppc64le/generic/modules/all/Eigen/3.3.7-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/FFTW/3.3.8-gompi-2020a.lua
software/linux/ppc64le/generic/modules/all/FFmpeg/4.2.2-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/FriBidi/1.0.9-GCCcore-9.3.0.lua
software/linux/ppc64le/generic/modules/all/GCC/9.3.0.lua
software/linux/ppc64le/generic/modules/all/GCCcore/9.3.0.lua
software/linux/ppc64le/generic/modules/all/GLPK/4.65-GCCcore-9.3.0.lua
```

[Bob]

Progress update: filesystem layer

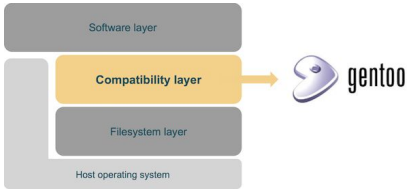


EESSI bot APP 3:01 PM

Tarball `eessi-2021.06-software-linux-ppc64le-generic-1632985388.tar.gz` has been ingested into the CVMFS repository.

[Bob]

Progress update: compatibility layer

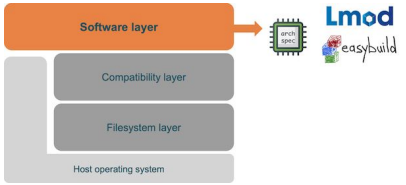


- No updates or changes to 2021.06 (or 2021.03) compat layer installations
- No security updates required (as reported by Gentoo's `glsa-check` tool)
- Now that we have a self-hosted runner for GitHub Actions,

  we could also use it to test the Gentoo Prefix installation task in our Ansible playbook...

[Bob]

Progress update: software layer



- Added a script to create a tarball of the `init` dir for a specific pilot version (PR #133)
  - Can be ingested in the same (automated) way as software tarballs
- Fix some small issues with the build script
  - Ensure that the correct EasyBuild version is installed (PR #134)
  - Don't fail to create `lmodrc.lua` if its parent directory already exists (PR #135)
- Script to create tarball for additional installations in software layer ready (PR #111)
- Missing parts for 2021.06 pilot (`ppc64le/{generic,power9}`) have been added
- Alan revived PR to change build script to easily install new module tree (PR #100)

[Kenneth]

EESSI pilot repository

NOT FOR PRODUCTION USE!

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

2021.06 version of pilot software stack

- Target CPUs:
  - `{aarch64,x86_64,ppc64le}/generic`
  - `intel/{haswell,skylake_avx512}`, `amd/zen2`, `aarch64/graviton2`, `ppc64le/power9le`
- Software: Bioconductor, GROMACS, OpenFOAM, R, TensorFlow, Spark, IPython, Horovod, QuantumESPRESSO, ReFrame, … (some stuff excluded for `ppc64le`…)

Current status:

- Compatibility layer in place for `x86_64` + `aarch64` + `ppc64le`
- Software layer fully built and (partially automatically!) ingested for all targets
- Init scripts added
- Binaries linked to OpenMPI will pick up on libraries in `host_injections/rpath_overrides/OpenMPI/system/lib`

To do:

- GPU installations: on hold…
- Make `2021.06` the default version (by setting `latest -> 2021.06`)
- Deprecate and terminate `2021.03` pilot version (no longer relevant?)

[Kenneth, Alan, Bob]

ReFrame updates: new features

ReFrame

- A set of new features has been recently implemented that enable more composable and reusable tests, which is the essence of library tests.
  - Variable and parameter syntax [new in 3.4.2]
  - Processor architecture and topology auto-detection for both local and remote partitions [new in 3.7.0]
  - New `@performance_function` decorator for defining and extracting performance metrics; much easier to add new performance metrics in derived tests [new in 3.8.0]
  - Test variables can be now set from the command line using the `-S` option, e.g., `reframe -S modules=A,B -S num_tasks=4 …` [new in 3.8.0]

[Vasileios]

ReFrame updates: test libraries

Separate site-specific logic from the test logic

- Site-specific: modules, valid_systems, valid_prog_environs etc.
- Test-specific: how to set up, how to run, sanity checks, performance metrics

Summer internship with a goal to "librarify" CSCS tests

- https://github.com/eth-cscs/reframe/pull/2172 (an example)

[Vasileios]

ReFrame updates: test libraries – Amber example

The simplest test instantiation:

```
import reframe as rfm
from hpctestlib.apps.amber.nve import amber_nve_check

@rfm.simple_test
class my_amber_check(amber_nve_check):
    valid_prog_environs = ['*']
    valid_systems = ['*']
```

Which can be adapted to any system from the command line!

```
reframe --system=dom:gpu -n '.*cuda$' -p builtin -S modules=Amber -S num_tasks=1 -r

reframe --system=dom:mc -n '.*mpi$' -p builtin -S modules=Amber -S num_tasks=2 -r
```

[Vasileios]

ReFrame updates: what's next?

ReFrame

- Publish a first experimental version of the test library (target release: 3.9.0)
- Support for test fixtures (target release: 3.9.0)
- Improve the test naming scheme (target release: 4.0.0)

[Vasileios]

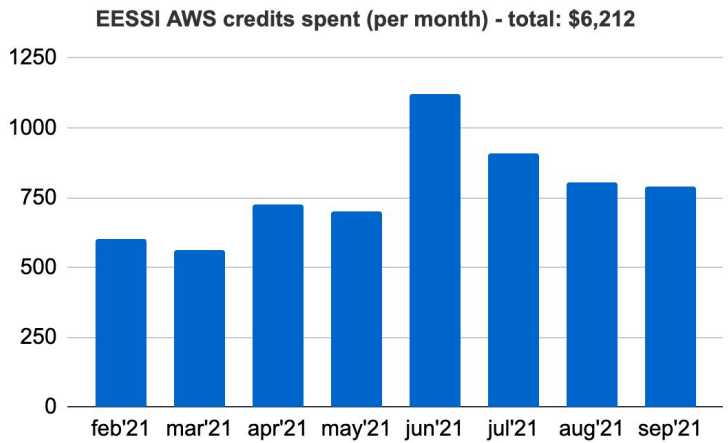
Infrastructure: updates

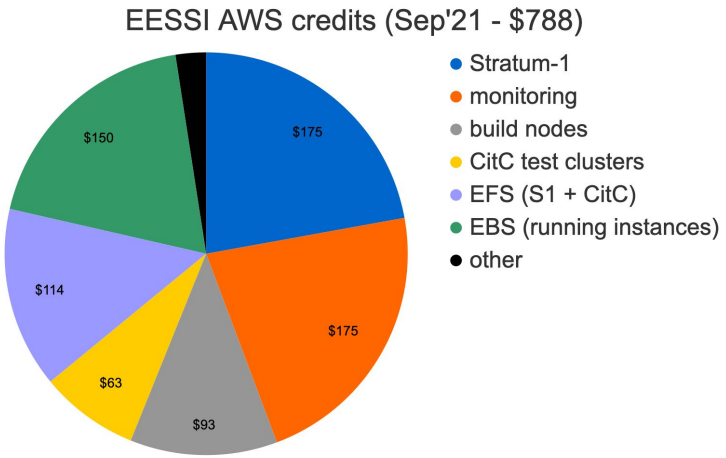
- Restructured stratum server DNS setups
- Datacenter hosted: *location*-*country*.stratumtype.backend.eessi-infra.org
  Cloud hosted: *cloudprovider*-*region*.stratumtype.backend.eessi-infra.org
  - bgo-no.stratum1.cvmfs.eessi-infra.org
  - rug-nl.stratum1.cvmfs.eessi-infra.org
  - aws-eu-west1.stratum1.cvmfs.eessi-infra.org **(new!)**
  - azure-us-east1.stratum1.cvmfs.eessi-infra.org **(new!)**
  - rug-nl.stratum0.cvmfs.eessi-infra.org with cvmfs-s0.eessi-infra.org as a CNAME
- Managed via Terraform as part of our core infrastructure repository
- Only core EESSI personnel have access to these records

[Terje]

Usage of sponsored AWS credits

- Sponsored credits ($25,000) are being put to good use!
- **Ask in #aws-resources Slack channel to get access!**
- In September ‘21: ~$788 worth of credits spent
- On Stratum-1, monitoring node, build nodes, ...
- ~$6,212 worth of credits spent in total

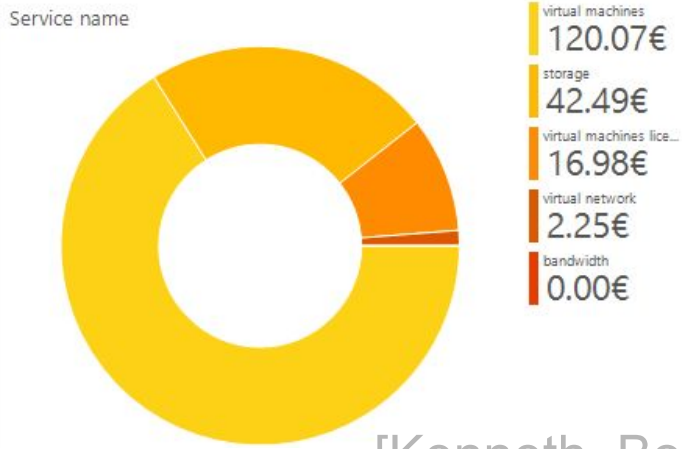




[Kenneth, Bob]

Azure sponsorship

- **Ask in #azure-resources Slack channel to get access!**
- Martin has set up API access, which we can use for Terraform
- Access to AMD Milan nodes (not used yet)
- Started some first machines: Stratum 1, self-hosted GitHub Action runners
- In September ‘21: ~€182 worth of credits spent



[Kenneth, Bob]

Update on S4 project NeIC proposal

- Proposal was not selected for funding
- Might be interesting to submit at next year's call (Feb/Mar 2022)
  - Be aware of likely lower total budget for call
  - S4 one of five proposals which may consider a resubmission
  - Need to check overall interest, state of EESSI ... competition
  - Need to factor in specialities of call (mostly Nordic partners + 50 % in-kind)
- Was a worthwhile attempt, great consortium
  - Some ideas may be relevant for other calls
- **Thanks to everyone who helped with the proposal!**

[Thomas]

Update on EESSI journal paper

- Title: “**EESSI: A cross-platform ready-to-use optimized scientific software stack**”
- Submitted to special issue “New Trends in HPC: Software Systems and Applications” in “Software: Practice and Experience” journal (Wiley)
- Authors: Bob, Kenneth, Victor, Alan, Caspar, Thomas (proof-reading by Adam)
- Received reviews in mid August (overall fairly positive)
- Valuable comments and suggestions for improvements
- Discussed necessary changes and distributed work
- **Working on revised version due mid November**
- No guarantee of final approval

[Thomas]

Upcoming events

- Computing Insight UK (CIUK) 2021: https://www.scd.stfc.ac.uk/Pages/CIUK2021.aspx
  - December 9-10, 2021, Manchester (and online)
  - Call for Presentations deadline: October 11 (next Monday!)
  - Jörg is planning to submit an abstract