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CI/CD via EESSI: the dev.eessi.io repository



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10th EasyBuild User Meeting

Jülich, Germany - 27/03/2025



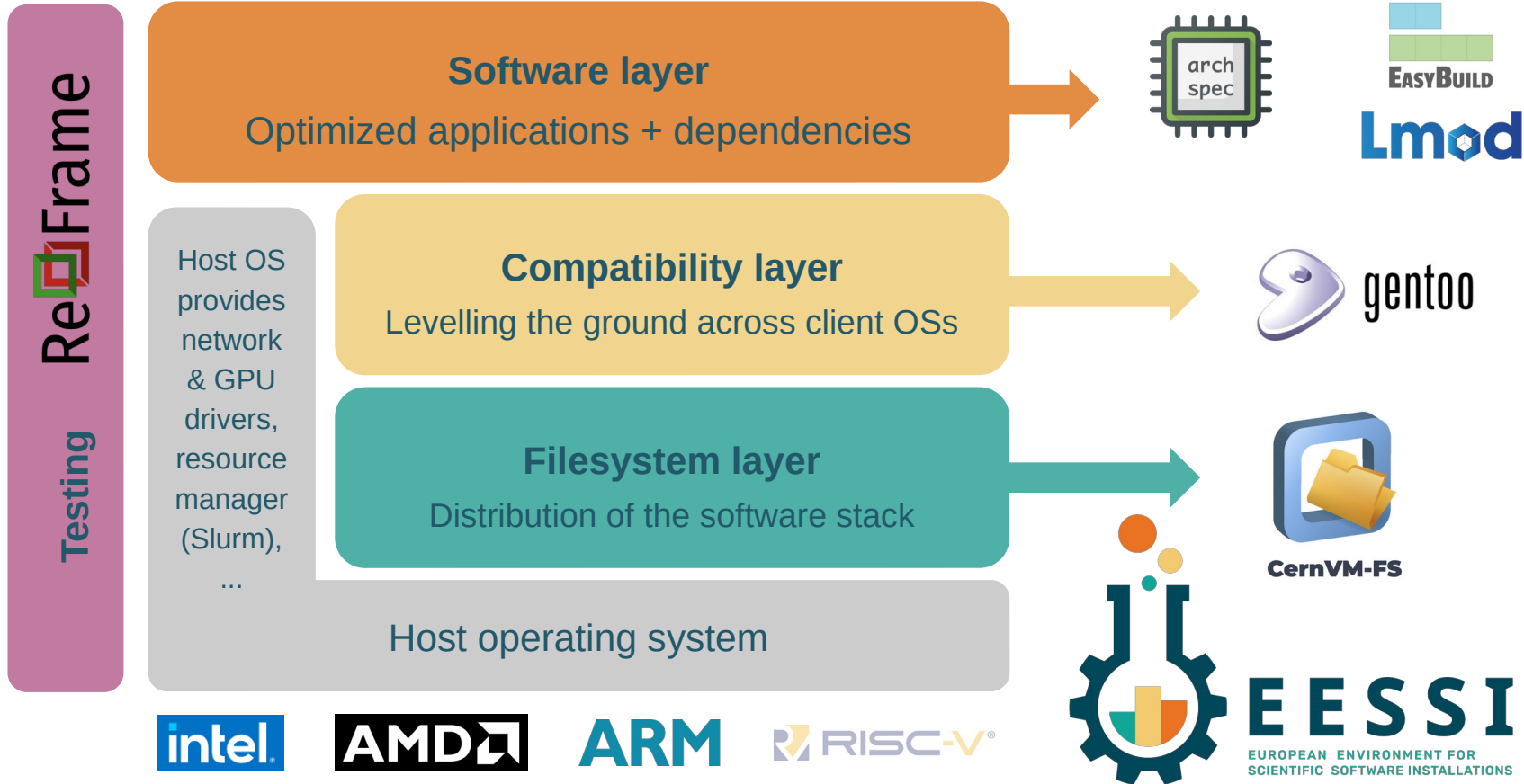
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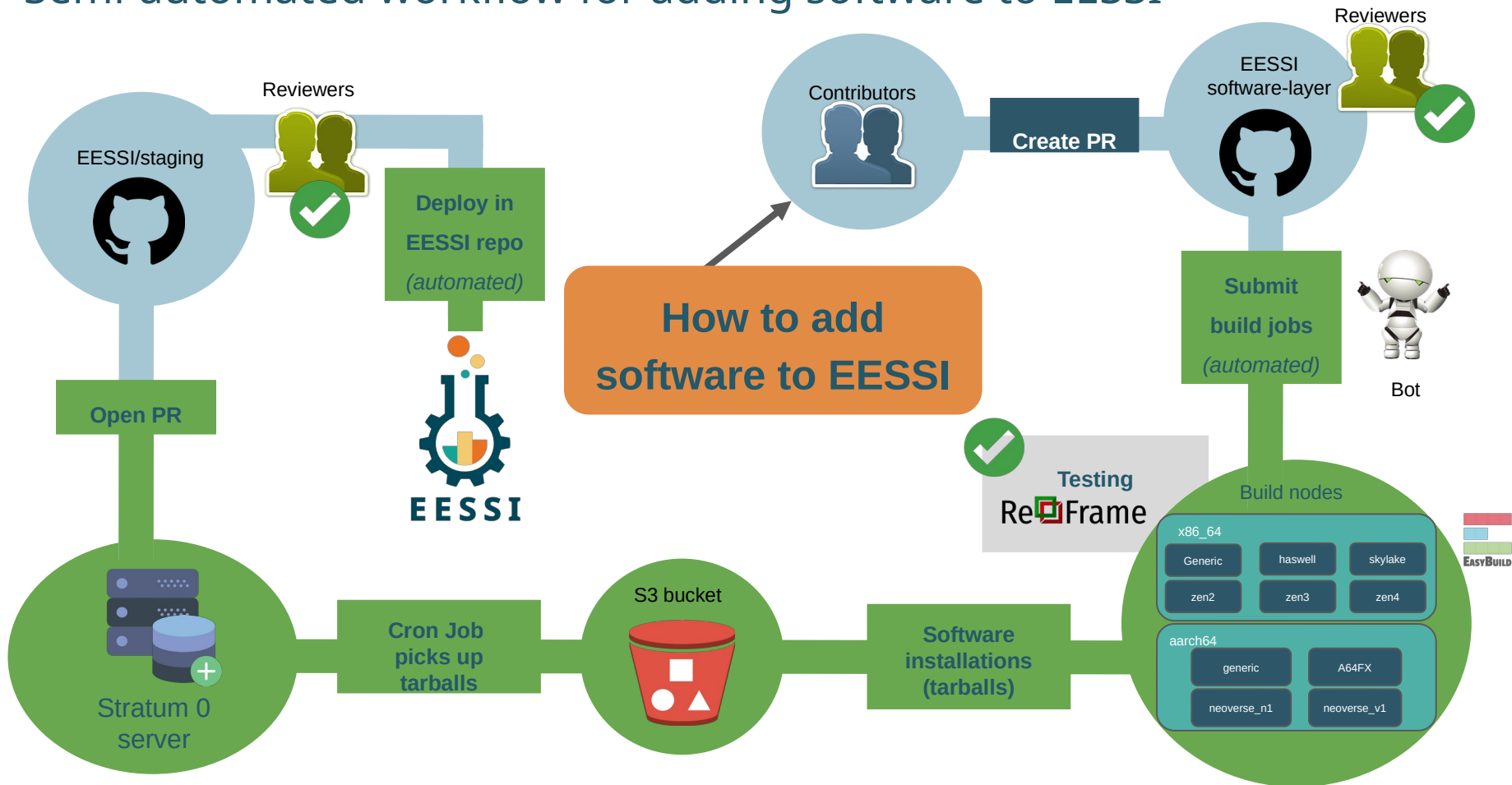
- Quick overview of EESSI workflow
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High-level overview of EESSI



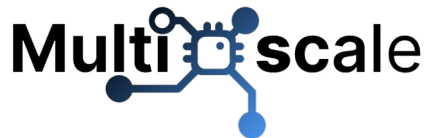
Semi-automated workflow for adding software to EESSI





Development repository - dev.eessi.io

- MultiXscale projects and key applications
- Heterogeneous experience with HPC and GitHub, CI/CD
- Active development – frequent changes



<https://www.eessi.io/docs/repositories/dev.eessi.io/>



Development repository - dev.eessi.io

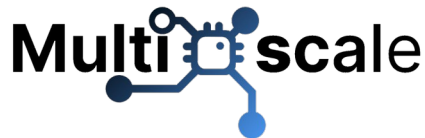
- Let developers deploy and test their pre-production code

Similar CernVM-FS repository:

- `/cvmfs/dev.eessi.io/project/version`

- Similar infrastructure:

- GitHub repository to track builds
- CI on PRs
- Bot instance that builds, runs tests, ingests software (semi-)automatically



https://www.eessi.io/docs/adding_software/adding_development_software/



dev.eessi.io - Key differences

software.eessi.io

- Permanent installations
- Only install releases
- Builds for all CPU architectures
- `/cvmfs/software.eessi.io/version/`

dev.eessi.io

- Temporary installations
- Can install from commits
- Can skip some CPU targets
- dev.eessi.io built on top of software.eessi.io
- Subdirectories per project
- `/cvmfs/dev.eessi.io/project/version/`





Building for dev.eessi.io

- Templated easyconfig file
 - Using `software-commit` functionality
- Install from any given commit hash, not a release
 - Can include patches, etc.

<https://github.com/EESSI/dev.eessi.io-example>

https://www.eessi.io/docs/using_eessi/building_on_eessi/

dev.eessi.io-lammps



A screenshot of a GitHub pull request page. The repository is 'multixscale / dev.eessi.io-lammps-plugin-obmd'. The pull request title is 'Test LAMMPS OBMD build with new bot #2'. It shows that 'laraPPr' merged 2 commits into 'multixscale:main' from 'laraPPr:Test_dev.eessi.io_build' on Feb 5. The pull request is marked as 'Merged'. Below the title, there are statistics: Conversation (34), Commits (2), Checks (0), and Files changed (1). A comment from 'laraPPr' is visible, stating 'Test PR the new dev.eessi.io bot'. Below the comment, a commit is shown: 'Create lammps-eb-4.9.4-dev.yml' with a 'Verified' badge and commit hash 'c93a4f5'. On the right side, there are sections for 'Reviewers' (No reviews), 'Assignees' (No one—assign yourself), and 'Labels'.

<https://github.com/multixscale/dev.eessi.io-lammps-plugin-obmd/pull/2>





Demo dev.eessi.io-example

https://www.eessi.io/docs/using_eessi/building_on_eessi/

<https://github.com/EESSI/dev.eessi.io-example/>

https://www.eessi.io/docs/adding_software/adding_development_software/





Building on top of EESSI - EESSI-extend

- **`$EESSI_SITE_INSTALL`**
 - HPC site managers can set `$EESSI_SITE_SOFTWARE_PATH` where software built on top of EESSI will be installed
 - Available to all users

- **`$EESSI_PROJECT_INSTALL`**
 - A directory shared by some users in `$EESSI_PROJECT_INSTALL`
 - **Can be used creatively!**

- **`$EESSI_USER_INSTALL`**
 - Default if envvar is not set on loading
 - Let end-users build their software on top of EESSI for themselves

Demo EESSI-extend

```
source /cvmfs/software.eessi.io/versions/2023.06/init/bash
```

```
module load EasyBuild
```

```
eb --show-config
```

```
export EESSI_PROJECT_INSTALL=/scratch/mydir
```

```
module load EESSI-extend
```

```
eb --show-config
```

```
eb --missing SAMtools-1.19.2-GCC-13.2.0.eb
```

```
eb --trace SAMtools-1.19.2-GCC-13.2.0.eb
```

```
module use $EESSI_PROJECT_INSTALL
```

```
module load SAMtools
```

```
module list
```



EESSI-extend - EESSI_PROJECT_INSTALL

- The `$EESSI_PROJECT_INSTALL` variable from `EESSI-extend` is very flexible.
- We can use it to write to a different CVMFS repository → `dev.eessi.io!`
- Depending on how you build software, it could also be a part of your build workflow
- Less setup needed to start building on top of EESSI
- **Keep an eye out for upcoming webinars!**



E E S S I

EUROPEAN ENVIRONMENT FOR
SCIENTIFIC SOFTWARE INSTALLATIONS

Website: eessi.io

GitHub: github.com/eessi

Documentation: eessi.io/docs

Blog: eessi.io/docs/blog

[Join](#) the EESSI Slack

YouTube channel: youtube.com/@eessi_community

Paper (open access): doi.org/10.1002/spe.3075

EESSI support portal: gitlab.com/eessi/support

[Bi-monthly online meetings](#) (1st Thu, odd months, 2pm CE(S)T)

MultiXscale

Web page: multixscale.eu

Facebook: [MultiXscale](https://www.facebook.com/MultiXscale)

Twitter: [@MultiXscale](https://twitter.com/MultiXscale)

LinkedIn: [MultiXscale](https://www.linkedin.com/company/multixscale)



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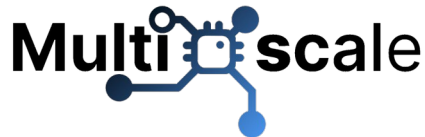


MAX-PLANCK-GESELLSCHAFT



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Thank you for listening! Questions?



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