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The European Environment for Scientific Software Installations (EESSI)

The European Environment for Scientific Software Installations (EESSI, pronounced as “easy”) is a collaboration between different HPC sites and industry partners, with the common goal to set up a shared repository of scientific software installations that can be used on a variety of systems, regardless of which flavor/version of Linux distribution or processor architecture is used, or whether it is a full-size HPC cluster, a cloud environment or a personal workstation, and without compromising on the performance of the software.

The EESSI codebase (<https://github.com/EESSI>) is open source and heavily relies on various other open-source software projects, including Ansible, archspec, CernVM-FS, Cluster-in-the-Cloud, EasyBuild, Gentoo Prefix, Lmod, ReFrame, Singularity, and Terraform.

The concept of the EESSI project was inspired by the Compute Canada software stack, and consists of three main layers:

- a filesystem layer leveraging CernVM-FS, to globally distribute the EESSI software stack;
- a compatibility layer using Gentoo Prefix, to ensure compatibility with different client operating systems (different Linux distributions, macOS, Windows Subsystem for Linux);
- a software layer, hosting optimized installations of scientific software along with required dependencies, which were built for different processor architectures, and where archspec, EasyBuild and Lmod are leveraged.

In this talk, we will introduce you to EESSI, outline the use cases it enables, present recent developments, and give an outlook to the promising future of EESSI.

About the speaker

Kenneth Hoste is a computer scientist and FOSS enthusiast from Belgium. He holds a Masters (2005) and PhD (2010) in Computer Science from Ghent University. His dissertation topic was “Analysis, Estimation and Optimization of Computer System Performance Using Machine Learning”.

Since October 2010, he is a member of the HPC team at Ghent University where he is mainly responsible for user support & training. As a part of his job, he is also the lead developer and release manager of EasyBuild, a software build and installation framework for (scientific) software on High Performance Computing (HPC) systems.

Since 2020, he is actively involved with the European Environment for Scientific Software Installations (EESSI) project, which aims to provide a central stack of scientific software installations that can be used across a wide range of systems, without compromising on performance.

In his free time, he is a family guy and a fan of loud music, frequently attending gigs and festivals.

He enjoys helping people & sharing his expertise, and likes joking around. He has a weak spot for stickers.

Presenter: RÖBLITZ, Thomas