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High Performance  
 Computing

CHI

## University of Groningen Site Talk

11<sup>th</sup> EasyBuild User Meeting  
 23-04-2026 | Guimarães, Portugal

Pedro Santos Neves

H F B R X <



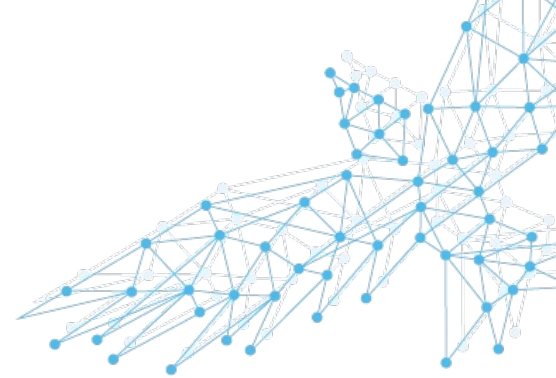
# Short introduction

- HPC Team University of Groningen since 2023
- Background in Modeling in (Island) Evolutionary Biology
- Scientific Programmer in Evolutionary Biology @ University of Groningen 2022-2023
- EESSI / MultiXscale
- User support, training, software development



# Projects @ CIT-RUG

- EESSI / MultiXscale
  - CernVM-FS Stratum 0



- Euclid



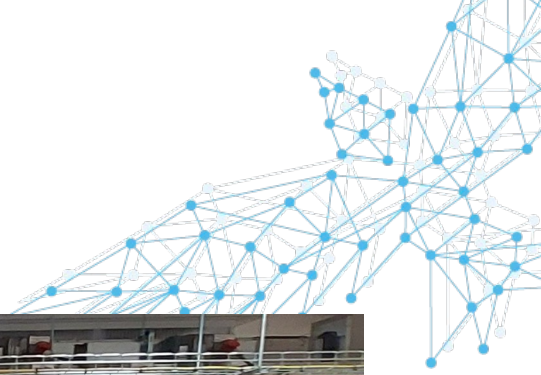
- Digital Lab



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# RUG HPC - Hábrók



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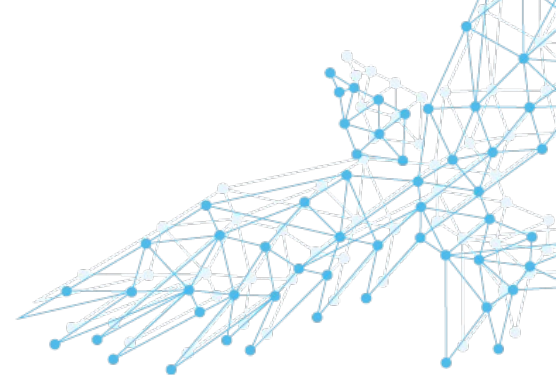
# RUG HPC - Hábrók




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# Overview of Hábrók

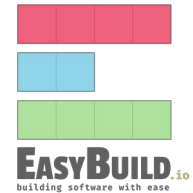
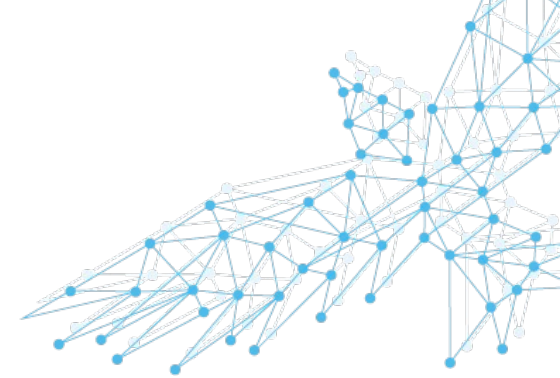


- Operational since 2022
- Alma Linux 8 → 9 
- 132 regular + parallel: AMD 7763 (Zen3) 512 GB memory
- 4 himem: Intel 8380 (Icelake) 4 TB memory
- 2 interactive GPU nodes: 1 x L40S, Intel 6240R (Cascadelake) 768 GB memory
- 3 GPU nodes: 8 x RTX Pro 6000, AMD EPYC 9575F (Zen5) 1.5 TB memory
- 6 GPU nodes: 4 x A100, Intel 8358 (Icelake) 512 GB memory
- 18 GPU nodes: 2 x V100, Intel 6150 (Skylake) 768 GB memory
- “restricted” nodes: 4 x H100, 2 x L40S owned by groups/projects
- 2.5 PB storage in Lustre filesystem



# Software stack (1)

- Fully built with EasyBuild from the start
- Available through CernVM-FS
- Handful of licensed apps on NFS
- All modules exposed via default meta-module “2023.01”
- Built for Zen3, Icelake, Skylake
- Not optimizing builds for Cascadelake and Zen5 (until EESSI!)
- EESSI already available for a long time



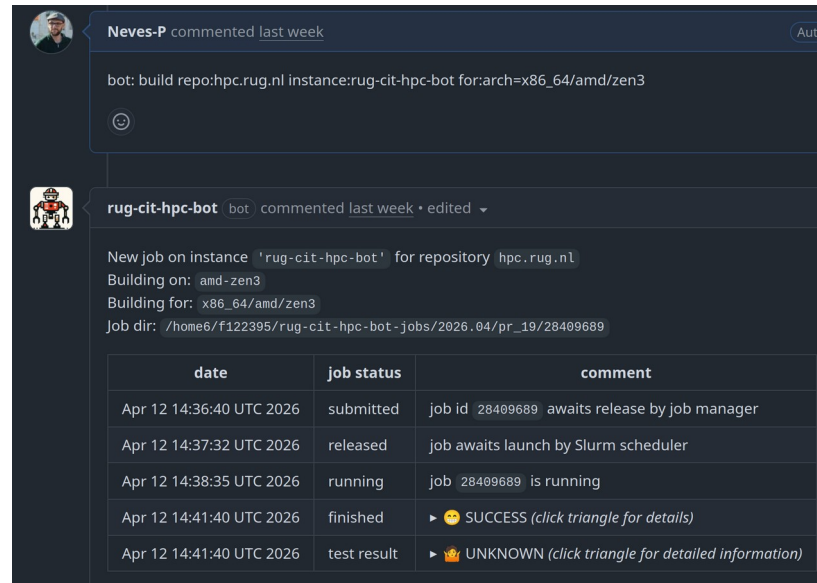
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# Software stack (2)

Built using private **EESSI bot** instance

- Uses custom build container based on Rocky 8 image
- Runs on service account in private GitHub repository
- Creates tarballs that can be ingested to Stratum 0
- Ingestion procedure is manual (for now)



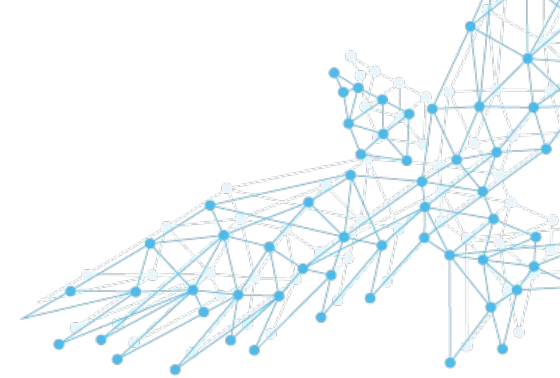
Neves-P commented last week

bot: build repo:hpc.rug.nl instance:rug-cit-hpc-bot for:arch=x86\_64/amd/zen3

rug-cit-hpc-bot bot commented last week • edited

New job on instance 'rug-cit-hpc-bot' for repository hpc.rug.nl  
Building on: amd-zen3  
Building for: x86\_64/amd/zen3  
Job dir: /home6/f122395/rug-cit-hpc-bot-jobs/2026.04/pr\_19/28409689

date	job status	comment
Apr 12 14:36:40 UTC 2026	submitted	job id 28409689 awaits release by job manager
Apr 12 14:37:32 UTC 2026	released	job awaits launch by Slurm scheduler
Apr 12 14:38:35 UTC 2026	running	job 28409689 is running
Apr 12 14:41:40 UTC 2026	finished	▶ 🎉 SUCCESS (click triangle for details)
Apr 12 14:41:40 UTC 2026	test result	▶ 🤖 UNKNOWN (click triangle for detailed information)

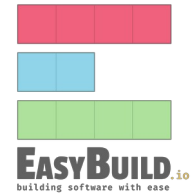
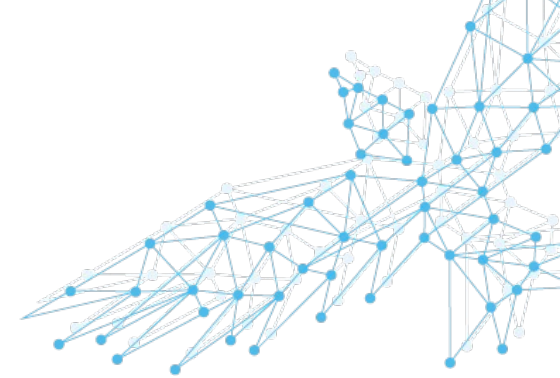


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# Software stack (3)

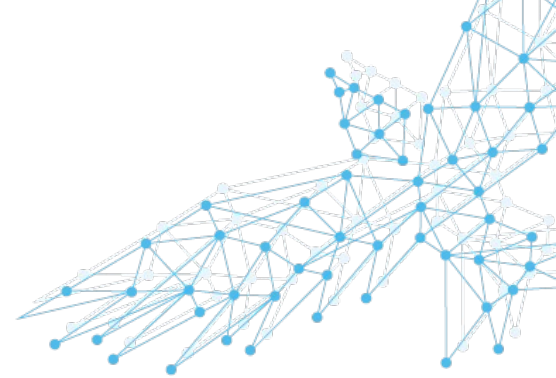
- Site specific code in [local GitLab instance](#)
  - Build container
  - Custom easyconfigs/easyblocks
  - All software tracked on easystack file
- Moving the bot to GitLab would make things even better



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# Challenges & surprises

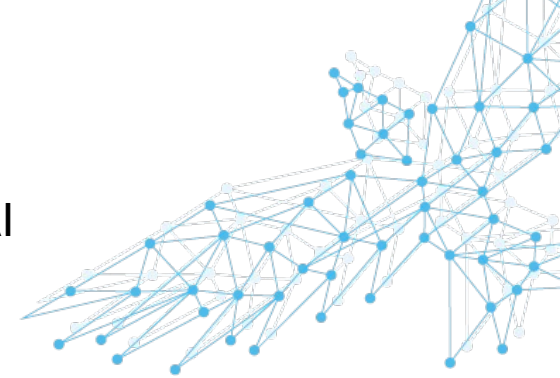


- Quite heterogeneous cluster
  - Oldest nodes purchased in 2019 (previous cluster) V100
  - Newest nodes commissioned in 2026: RTX PRO 6000
  - Some hardware out of support (V100 – drivers, compute capabilities)
  - Without EasyBuild, managing software stack would have been so much harder
- Not providing optimized builds for RTX PRO 6000 nodes (yet); EESSI will help



# Challenges & surprises - Whisper

- Popular open source transcription and translation tool by OpenAI
- >600 users in ~6 months (on top of usual rate of new users)
- Deployed as custom Open OnDemand App (Job Composer)
- Defaults to V100 nodes
- Low barrier of entry for non-technical users
- Not a good fit for traditional HPC systems / batch scheduling
  - Dedicated infrastructure needed!



# Challenges & surprises - Whisper

Home Application ▾ History Folders ▾ Shell Access Open OnDemand

## Whisper

This application submits a whisper job. See the [Whisper Guide](#) for more information.  
**Note:** The default model is now *large-v3-turbo* for transcription and *large-v3* for translation.

Script Location\*  Select Path

Script Name\*  Job Name

Hide script content

**GPU type (A100 or V100)\***

**Maximum hours (0 - 7)\***  **Maximum minutes (0 - 59)\***

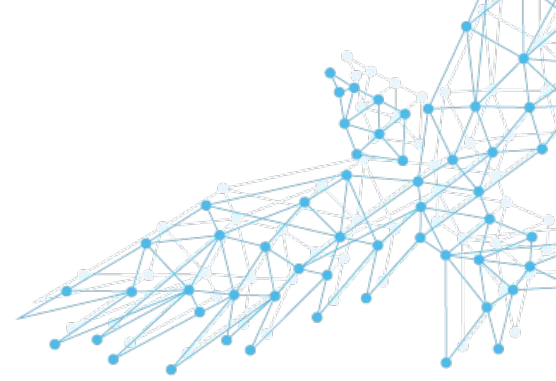
**Task\***  
 Transcribe  Translate  
Choose task for Whisper to perform

**Language\***

Choose a language or leave empty for Whisper to auto-detect

**Run speaker diarization**  
 Diarize  
Distinguish between different speakers





# Next steps

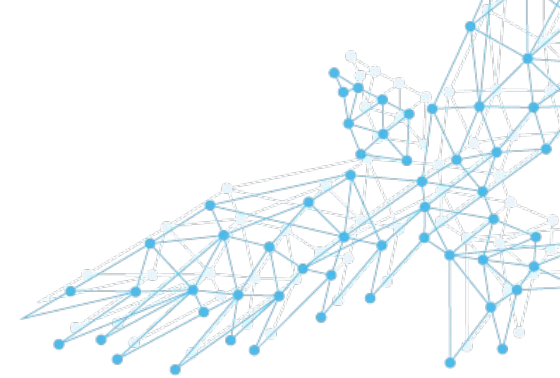


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# Next steps – Phased change to Alma 9

- Deploy subset of nodes with Alma 9
  - Testing indicates most (all?) software stack works
  - Interactive nodes
- Allocate Alma 9 nodes to reservation and let users test
- After initial phase, upgrade some interactive nodes to Alma 9
- New software **only built on top of EESSI**

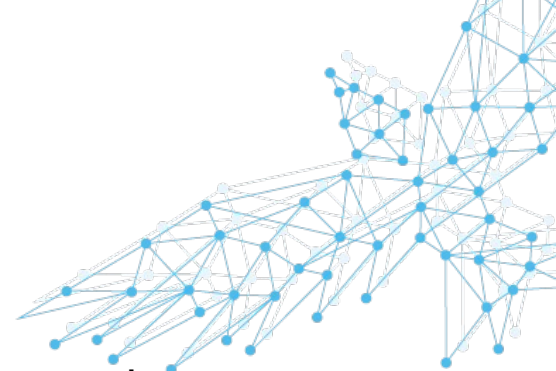


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# Alma Linux upgrade & adopting EESSI

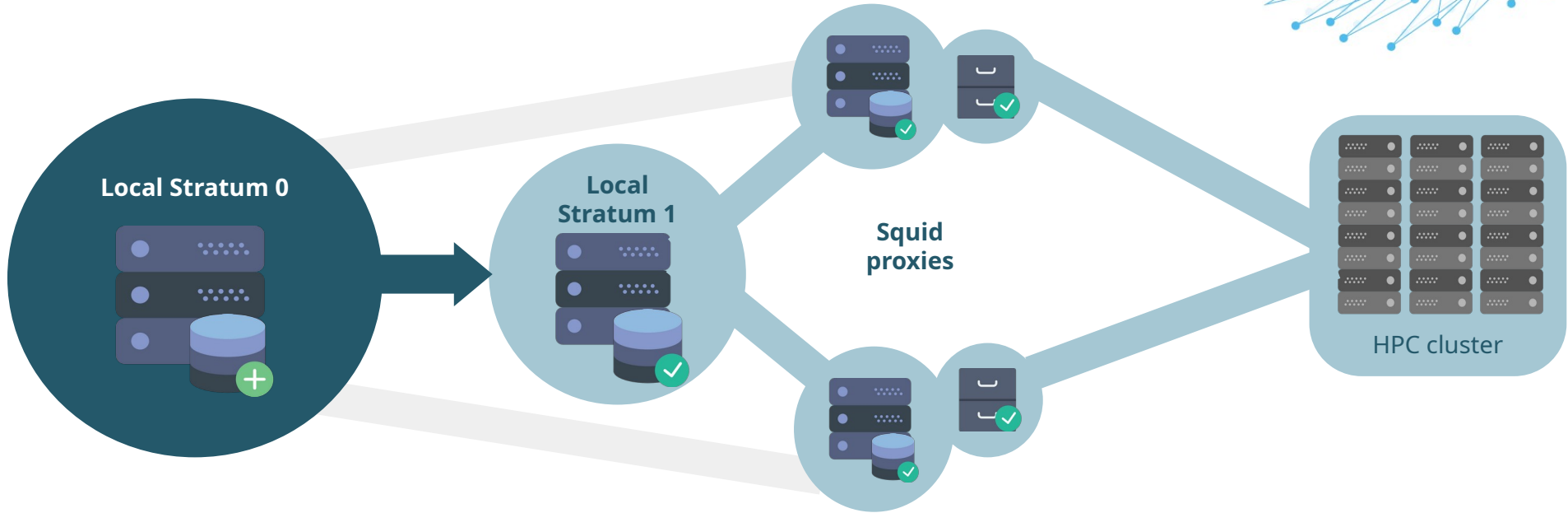
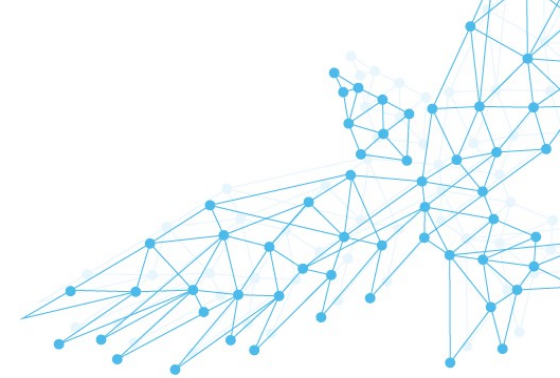
- Before
  - Alma Linux 8
  - Custom software stack + side mounted EESSI
- 2940 total modules per CPU target
  - We could never have managed without EasyBuild!
- After
  - Alma Linux 9
  - EESSI as base stack + **EESSI-extend** built modules
- Much reduced number of custom modules
- Old software stack still available for compatibility
- Now software only via EESSI / **EESSI-extend**



# Recent and ongoing work – EESSI as base stack

- EESSI has been available at RUG for a long time
  - `setenv EESSI_MODULE_FAMILY_NAME software_stack`
- Write documentation on using EESSI stack
  - Rework training materials
  - Mitigate and catch issues at source (e.g., users who run self-compiled code)
- **EESSI-extend** configuration
- Major milestone:
  - Rework CernVM-FS server deployment

# CernVM-FS setup - before



2 cores  
4 GB RAM  
500 GB disk

3 cores  
16 GB RAM  
500 GB disk

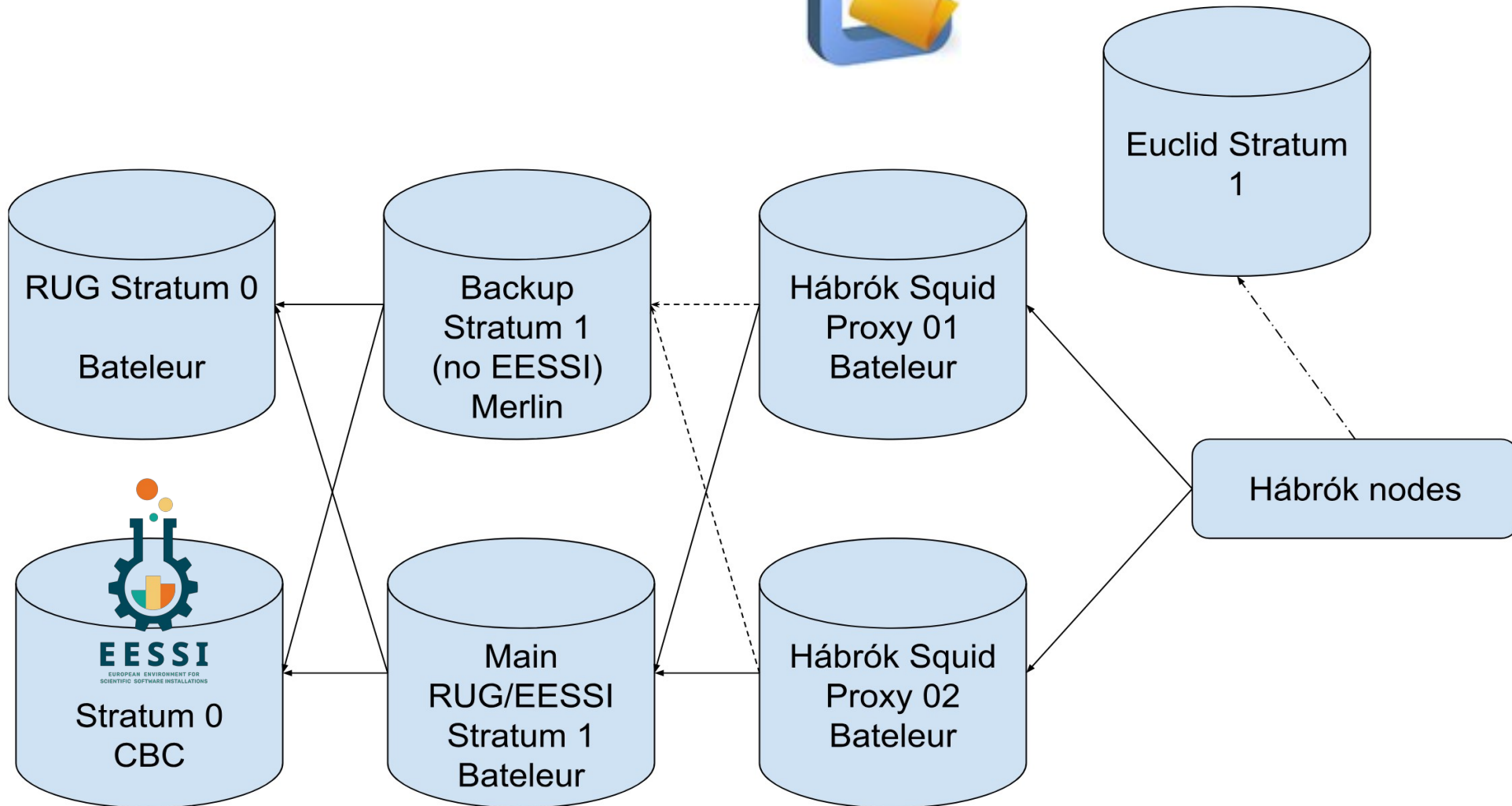
3 cores  
16 GB RAM  
100 GB disk

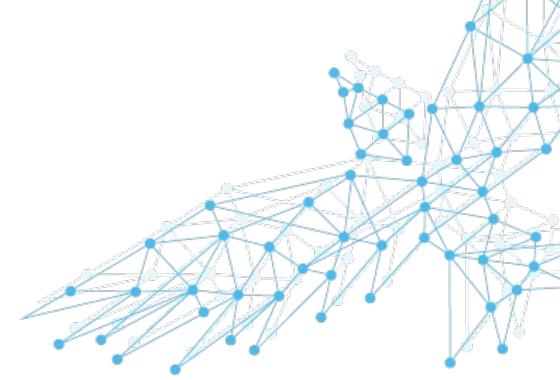
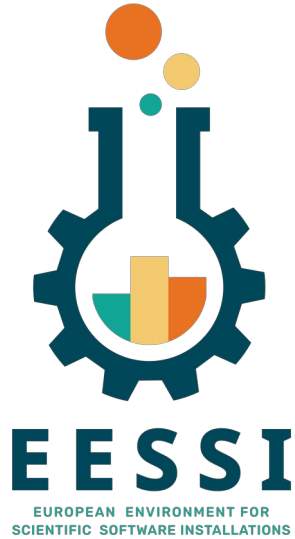


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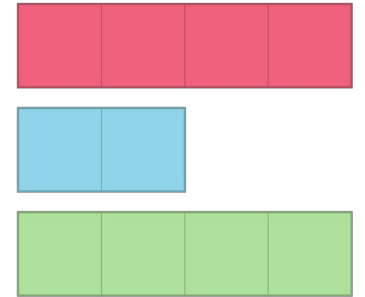
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# CernVM-FS setup - now





Thank you!  
Questions?



**EASYBUILD**.io  
building software with ease



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