Consortium des Équipements de Calcul Intensif

CÉCI News by the Sysadmins

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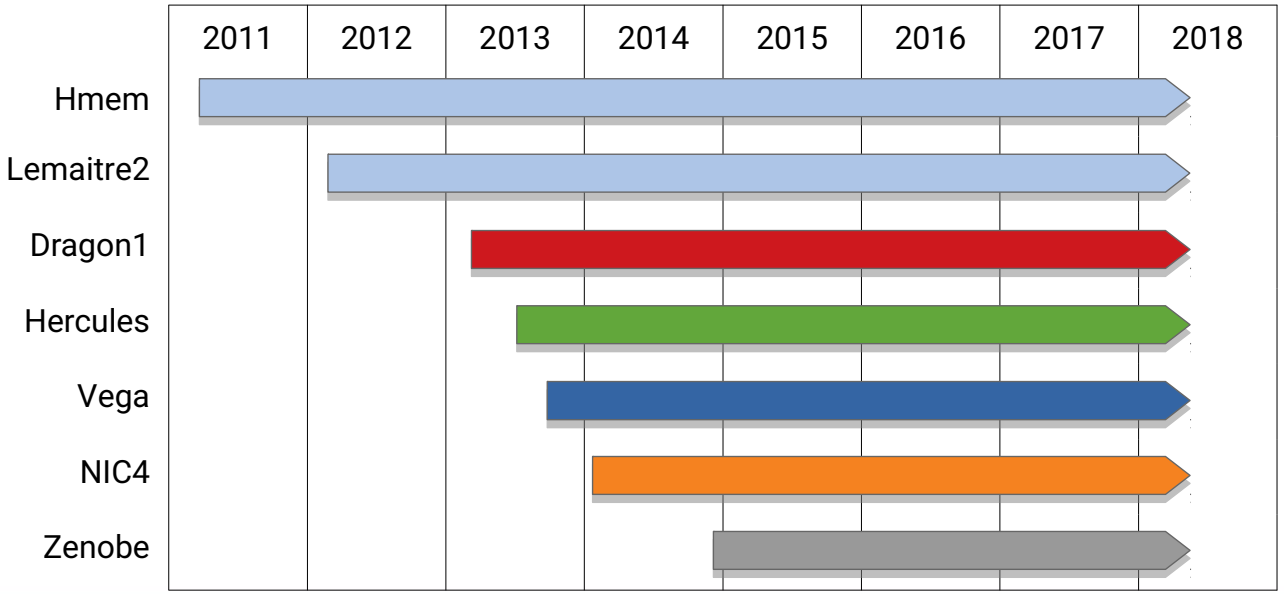
4th May 2018 - CÉCI Scientific Day @ UNamur

Outline

- Clusters Upgrades
- CÉCI Slurm Federation
- CÉCI support page
- Slurm scripts generation tool
- SSH config wizard
- Common CÉCI storage

Clusters upgrade

Cluster	Host	CPU type	CPU count*	RAM/node	Network	Filesystem**	Accelerator	Max time	Preferred jobs***
NIC4	ULg	SandyBridge 2.0 GHz IvyBridge 2.0 GHz	2048 (120 x 16 + 8 x 16)	64 GB	QDR Ib	FHGFS 144 TB	None	2 days	MPI
Vega	ULB	Bulldozer 2.1 GHz	2752 (43 x 64)	256 GB	QDR Ib	GPFS 70 TB	2x Tesla M2090	14 days	serial / SMP / MPI
Hercules	UNamur	SandyBridge 2.20 GHz Westmere 2.66 GHz	896 (32 x 16 + 32 x 12)	36..128 GB	GbE	NFS 20 TB	3x Tesla S2050	63 days	serial / SMP
Dragon1	UMons	SandyBridge 2.60 GHz	416 (26 x 16)	128 GB	GbE	RAID0 1.1 TB	4x Tesla C2075	41 days	serial / SMP
Lemaitre2	UCL	Westmere 2.53 GHz	1380 (115 x 12)	48 GB	QDR Ib	Lustre 120 TB	3x Quadro Q4000	3 days	MPI
Hmem	UCL	MagnyCours 2.2 GHz	816 (17 x 48)	128..512 GB	QDR Ib	FHGFS 30 TB	None	15 days	SMP



Clusters upgrade: Lemaitre3 @ UCL

- Hard:
  - **80 compute nodes** with 2 x Intel Xeon Gold 5118@2.3 Ghz (24 cores)
  - Skylake Xeons with AVX, AVX2, AVX-512 extensions
  - Total of **1920 cores**
  - **96 GB of RAM** per node (4 GB per core)
  - Intel Omni-Path Interconnect 56 Gb/s bandwith between nodes
  - **580 TB** Global Scratch with BeeGFS parallel file system
  - Cluster with fast interconnect meant for **big MPI jobs**

- Soft:
  - First cluster on the CÉCI Slurm Federation
  - Support for Singularity containers
  - Intel Parallel Studio XE 2018

Clusters upgrade: Hercules and Dragon1

Planed for ~late 2018 early 2019

- Hercules2 @ UNamur:
  - New nodes will be added
  - High memory nodes will be available (at least 1TB of RAM)

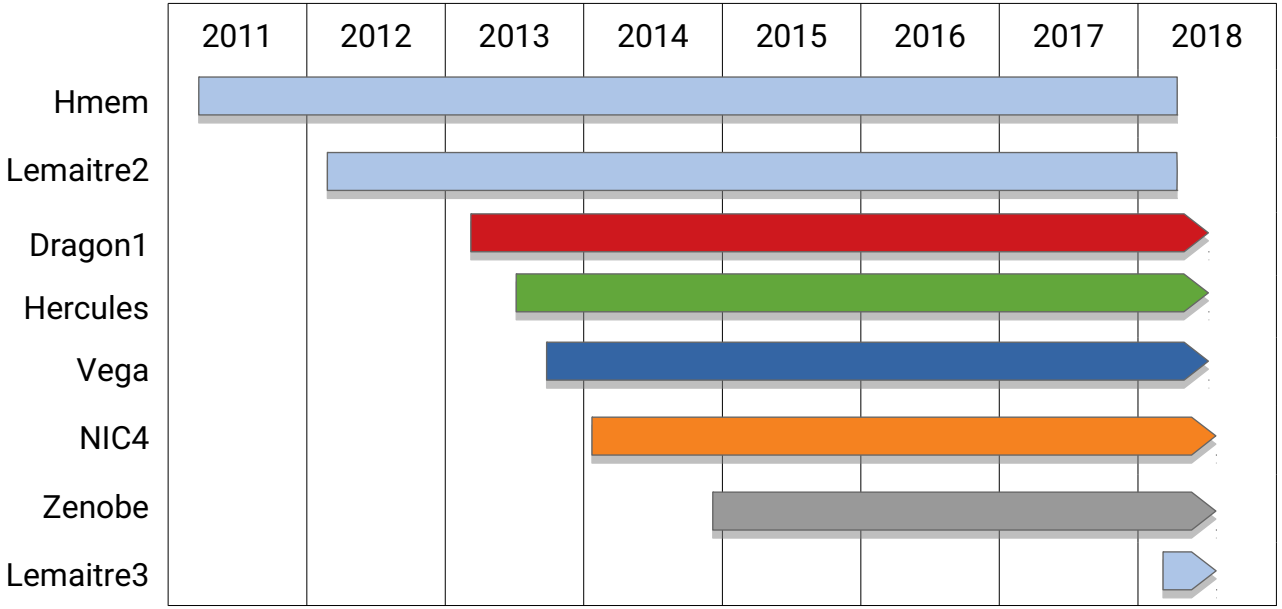
- Dragon1 @ UMons:
  - New nodes will be added with high frequency Intel Xeons (> 3GHz)
  - Latest generation GPUs Nvidia Volta V100 (~4)

Clusters upgrade: Vega2

- Vega2 @ ULB:
  - Will be oriented towards HTC (**High Throughput Computing**) and High Performance Data Analysis (HPDA) works & needs, covering **Big Data** and **Machine Learning**
  - If you are working or moving into those fields please fill the survey

Clusters upgrade: coming up timeline

- **Lemaitre3** already available since 30/04
- **Dragon1** and **Hercules** upgraded and expanded
- **Hmem** and **Lemaitre2** are planned to be **decommissioned!!**
- Only **Hmem 512 and 256 GB nodes** will temporarily stay until new high memory nodes are available on the CÉCI



CÉCI Slurm Federation

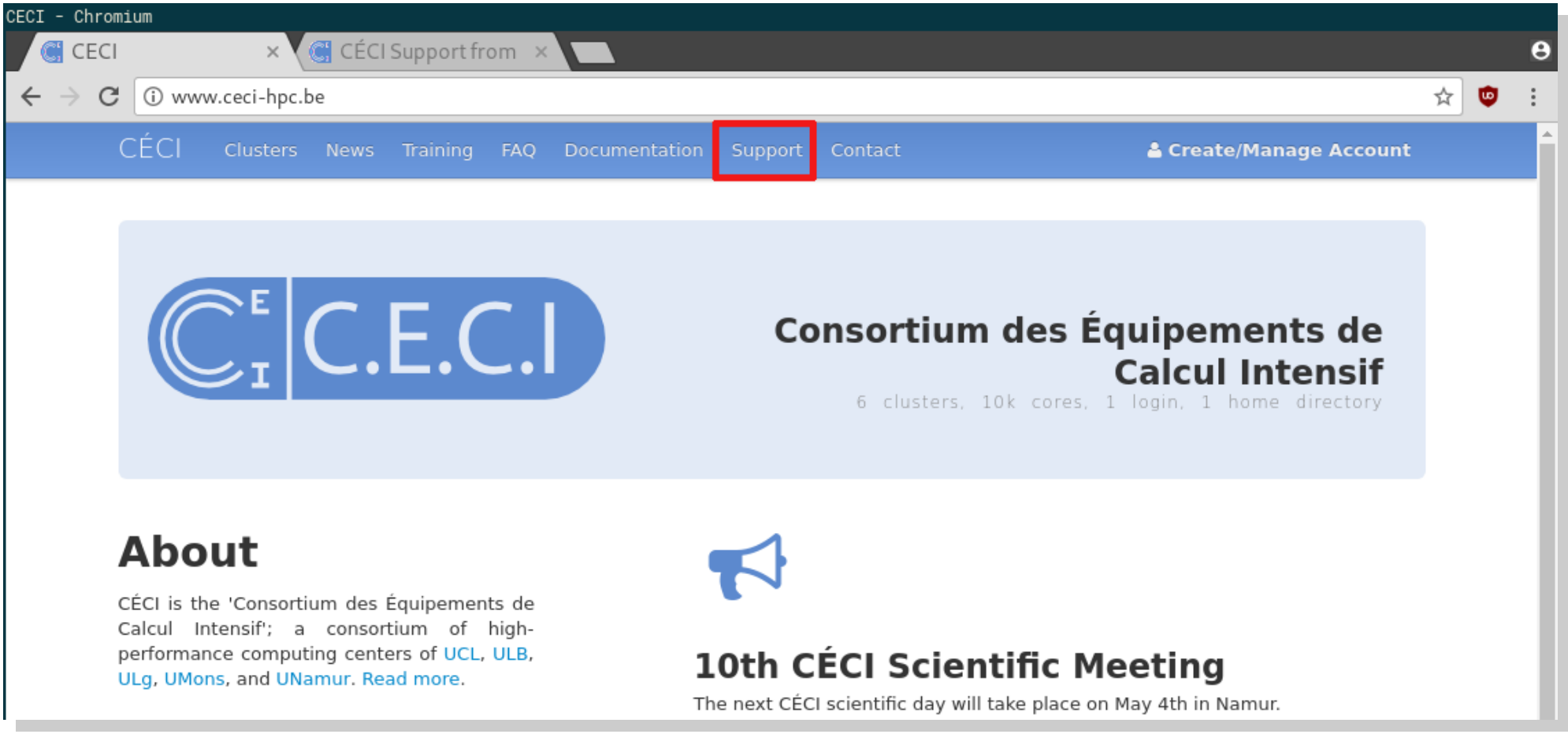
- New feature in Slurm as of November 2017
- Ability to see all jobs on all clusters with `squeue` on any of them
- Ability to submit a job to all clusters at once

- Lemaitre3 alone in the Federation at the moment
- New CÉCI clusters will join the Federation when installed

```
[dfr@lemaitre3 ~]$ sacctmgr show federation
Federation    Cluster ID             Features     Fed
---------- ---------- -- -------------------- -------
      ceci  lemaitre3  1    globalscratch,opa       A
```

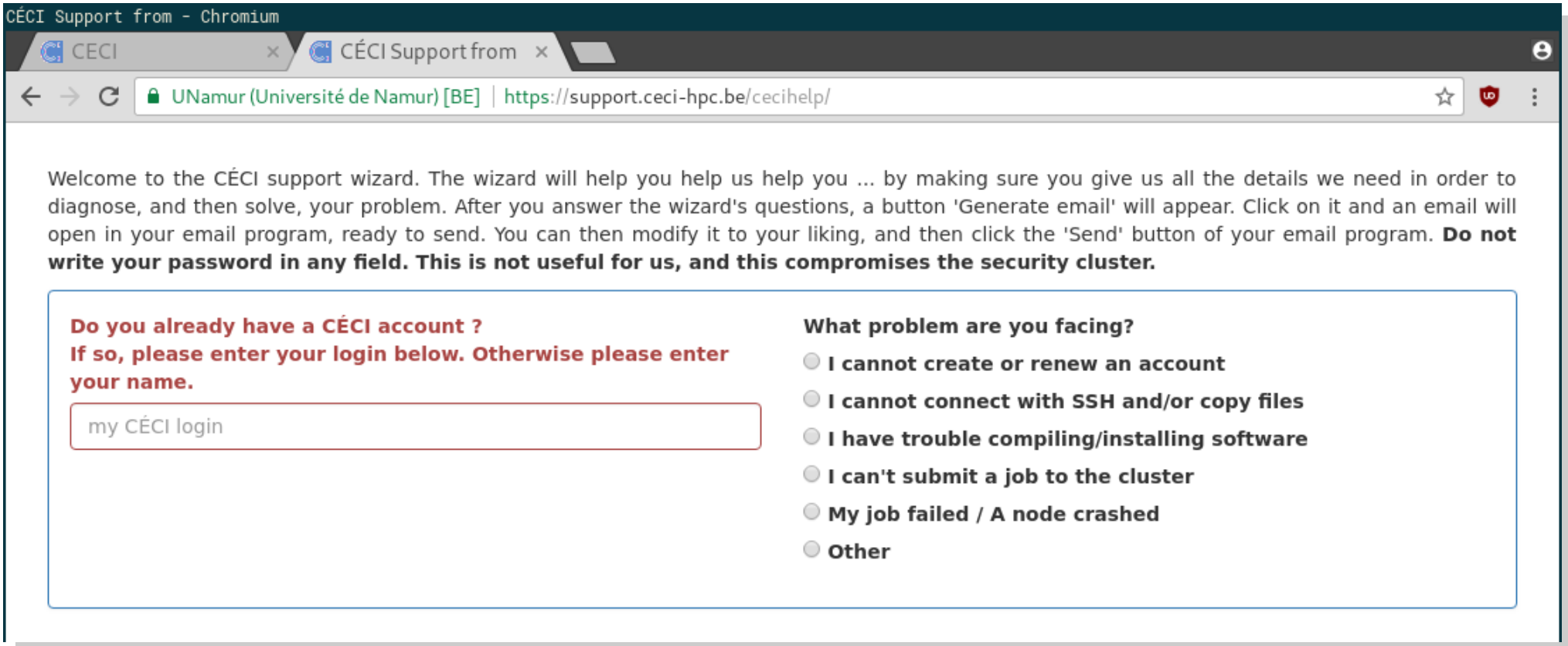
```
[dfr@lemaitre3 ~]$ squeue --cluster lemaitre3
CLUSTER: lemaitre3
             JOBID PARTITION     NAME     USER ST
          67108991     batch mix_mpi_ dcoligno  R
```

CÉCI support page



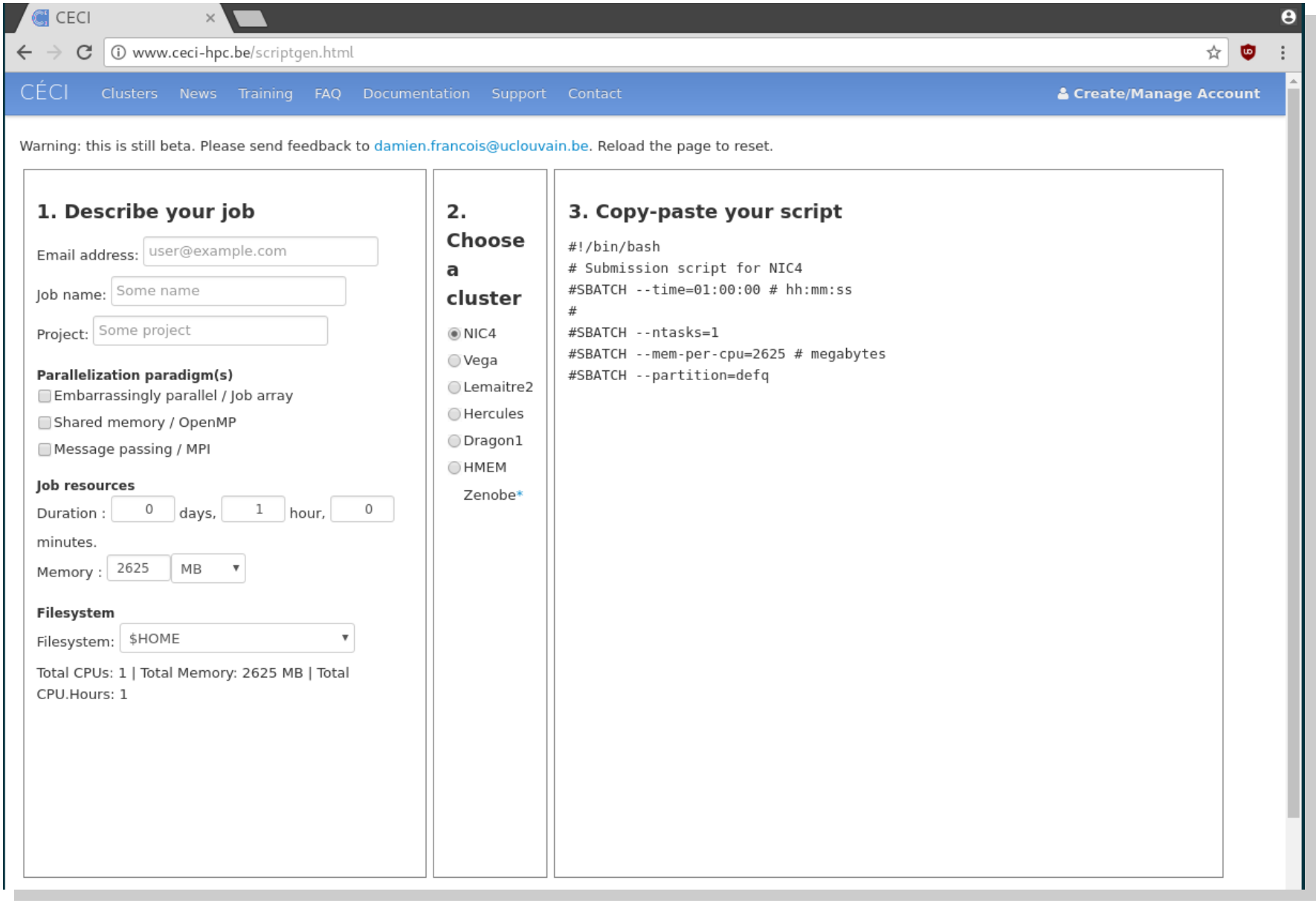
- Since +1 year we have available the **CÉCI Support page** with a ticket system

CÉCI support page



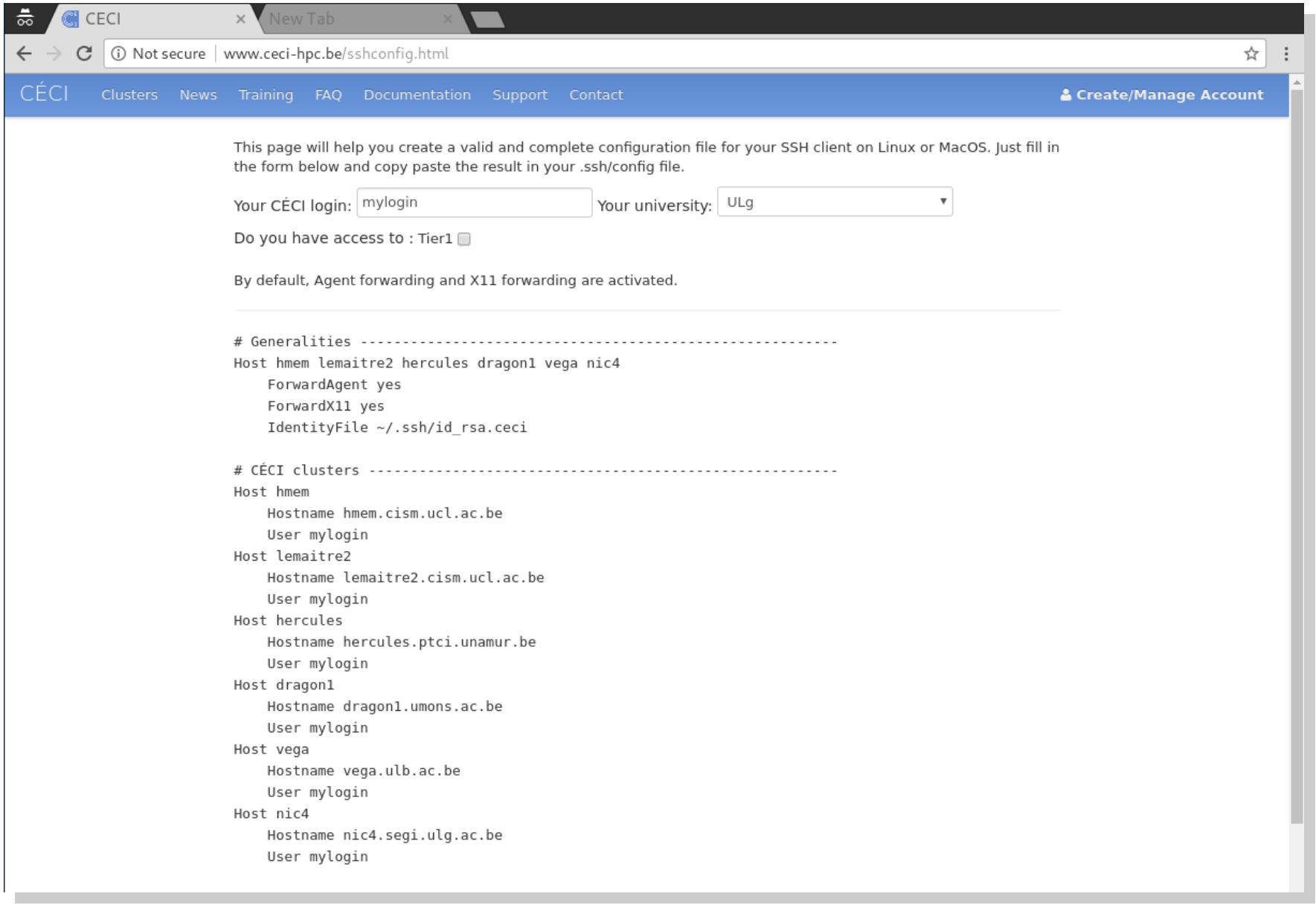
- As you describe your problem you might be pointed to answers already provided in the FAQ/User docs
- Using the support wizard to report your issue **increases the amount of persons alerted**

Interactive Slurm script generation



http://www.ceci-hpc.be/scriptgen.html

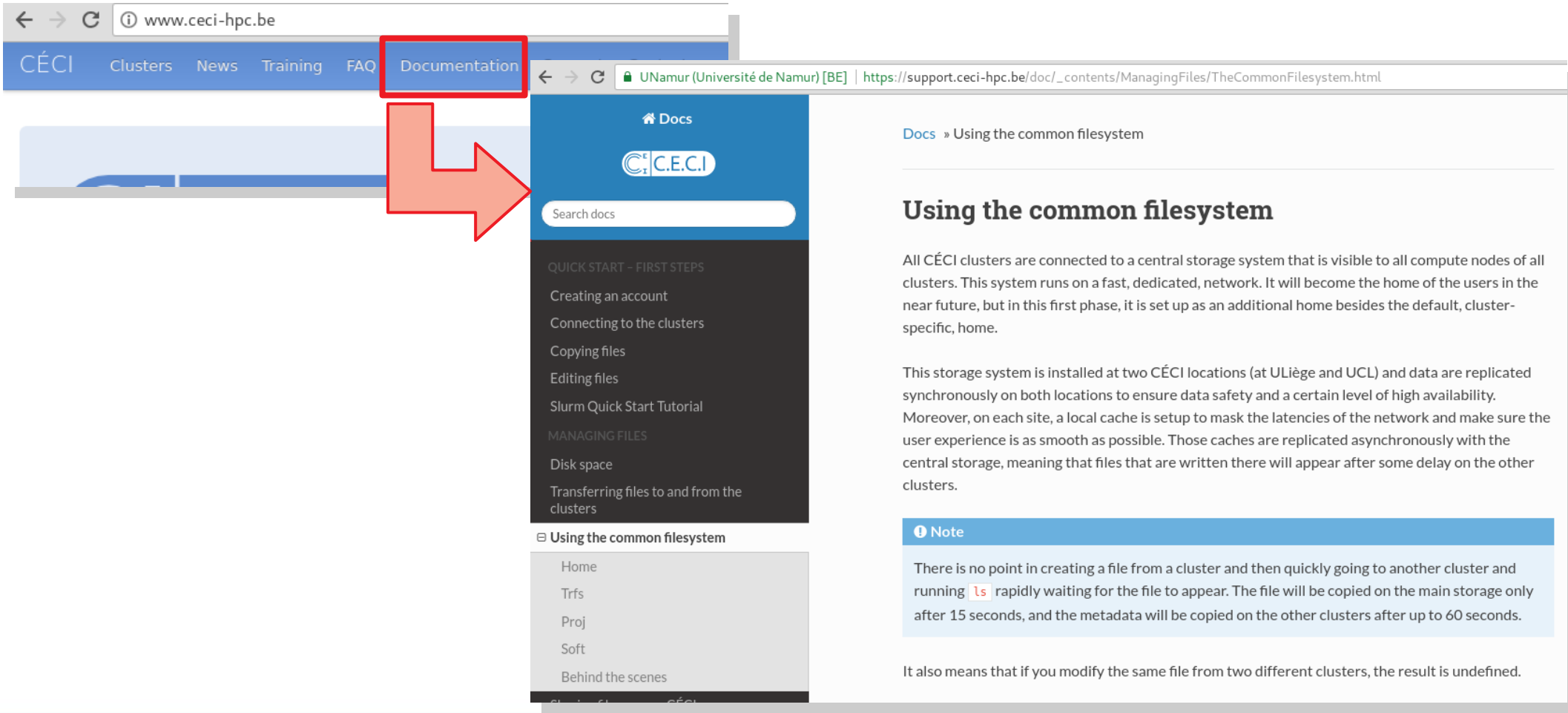
SSH config wizard



http://www.ceci-hpc.be/sshconfig.html

Common CÉCI storage

- Remember about the common storage for all CÉCI clusters:
  - `cd $CECIHOME`
  - `cd $CECITRSF`



Thanks for listening!