



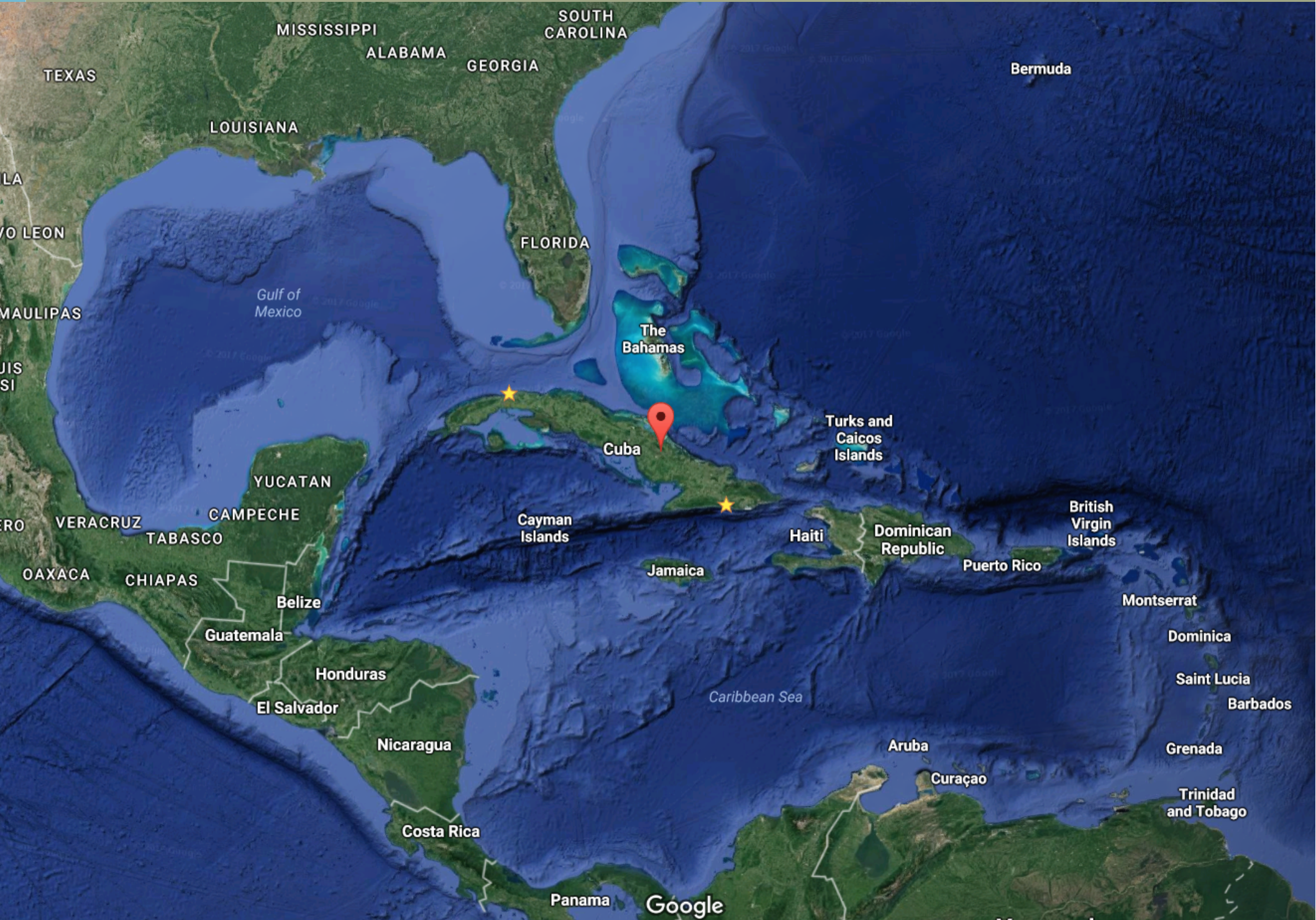
HPC Cuba

How supercomputing is being made available to all Cuban researchers using FOSS

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Dieter Roefs, Ghent University, Belgium

Ghent University HPC User Day
28 January 2019





Havana: Universidad de las Ciencias Informaticas



Cuban Universities



HPC Cuba

Red Académica de Computación de Alto Desempeño



HPC Cuba infrastructure

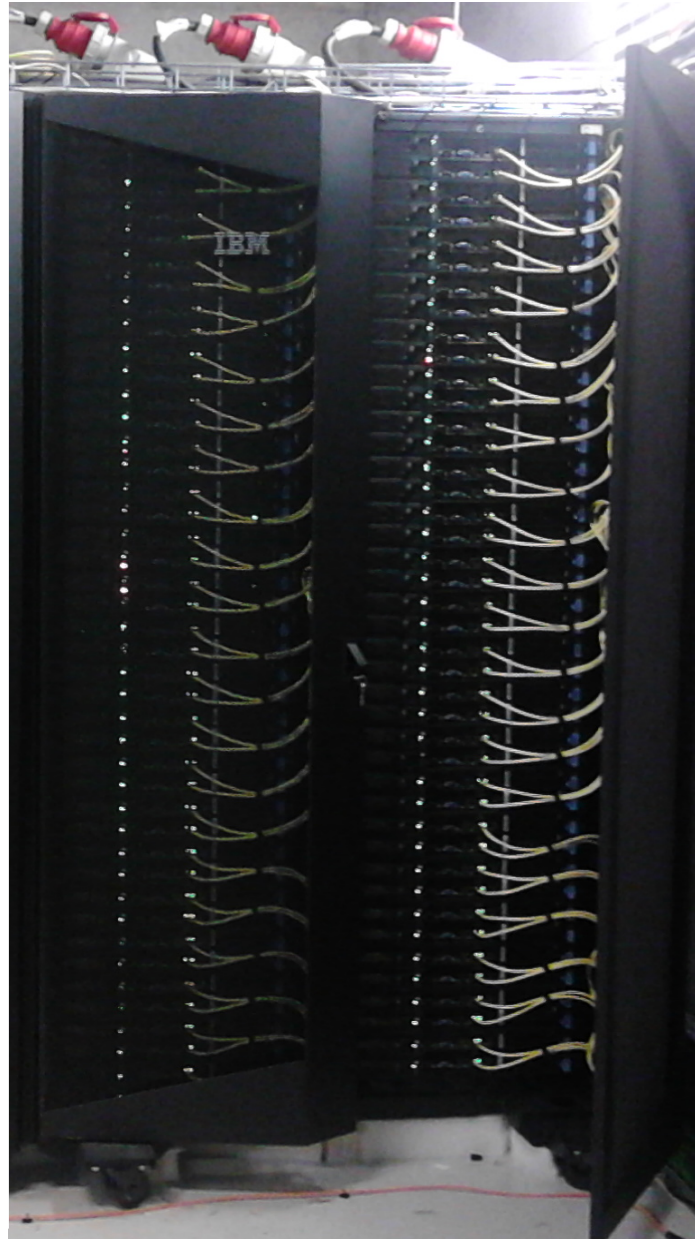


HPC Cuba Infrastructure

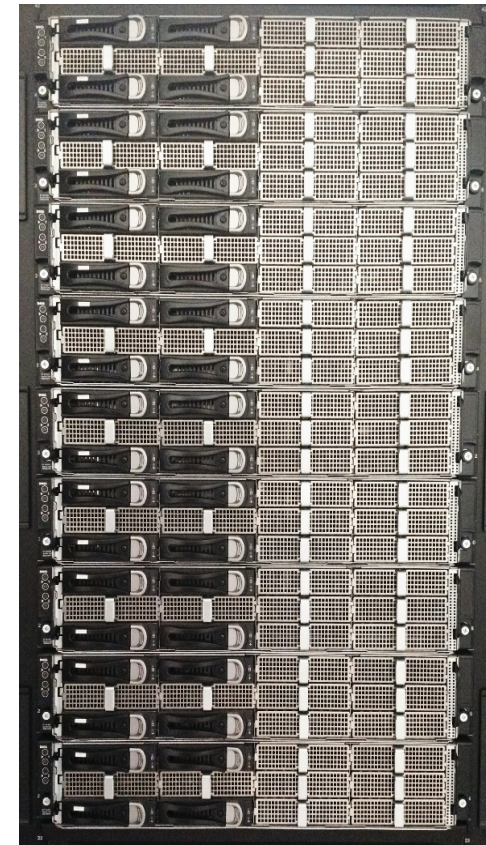
UCI (Havana)



UCLV (central)



UO (orient)



HPC UCLV & HPC UCI each

- IBM iDataPlex
- 74 nodes
- 592 cores
- CPU's Intel Xeon Nehalem 2.26GHz
- 12GB RAM/node
- Almost 1TB RAM

HPC UO

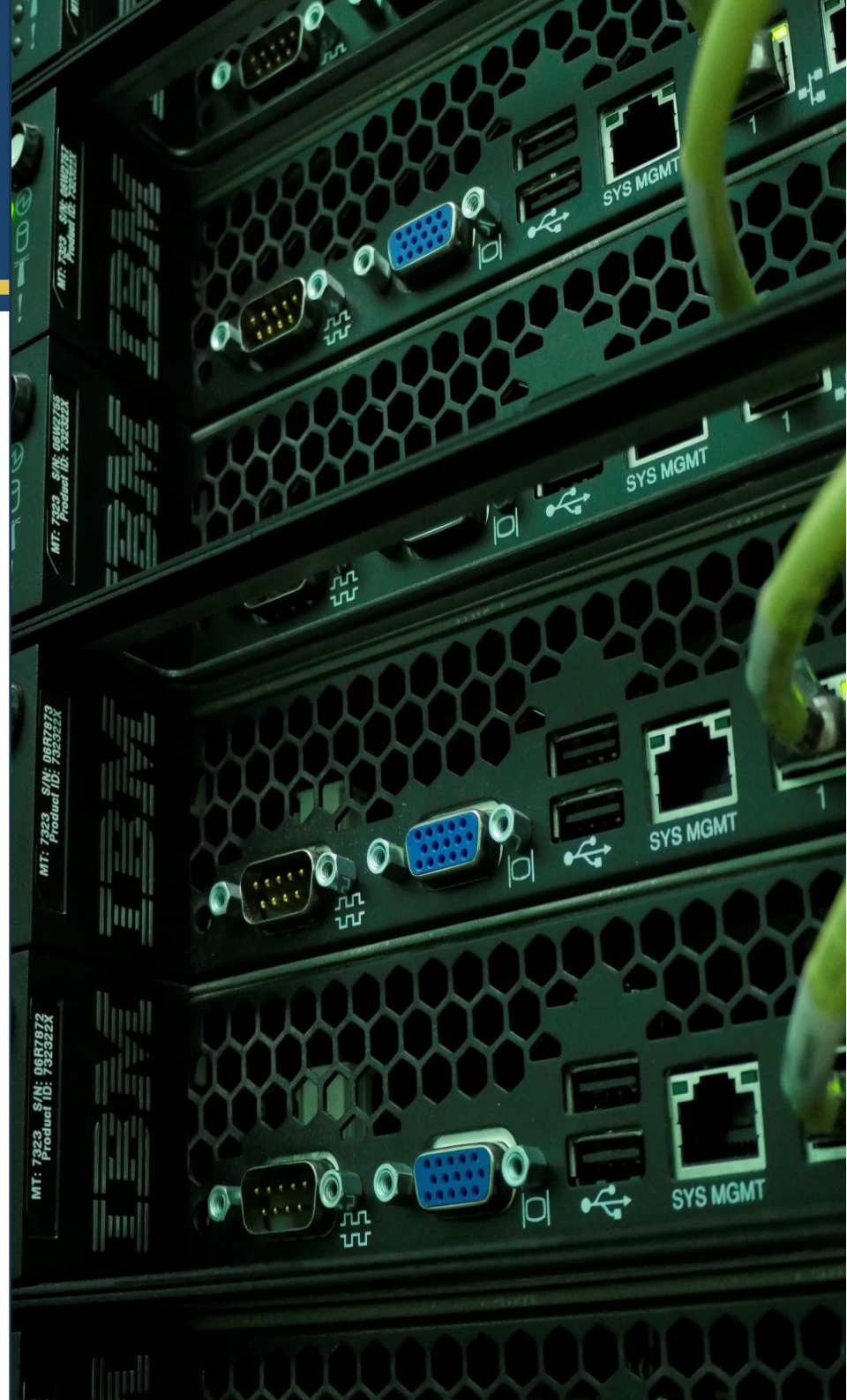
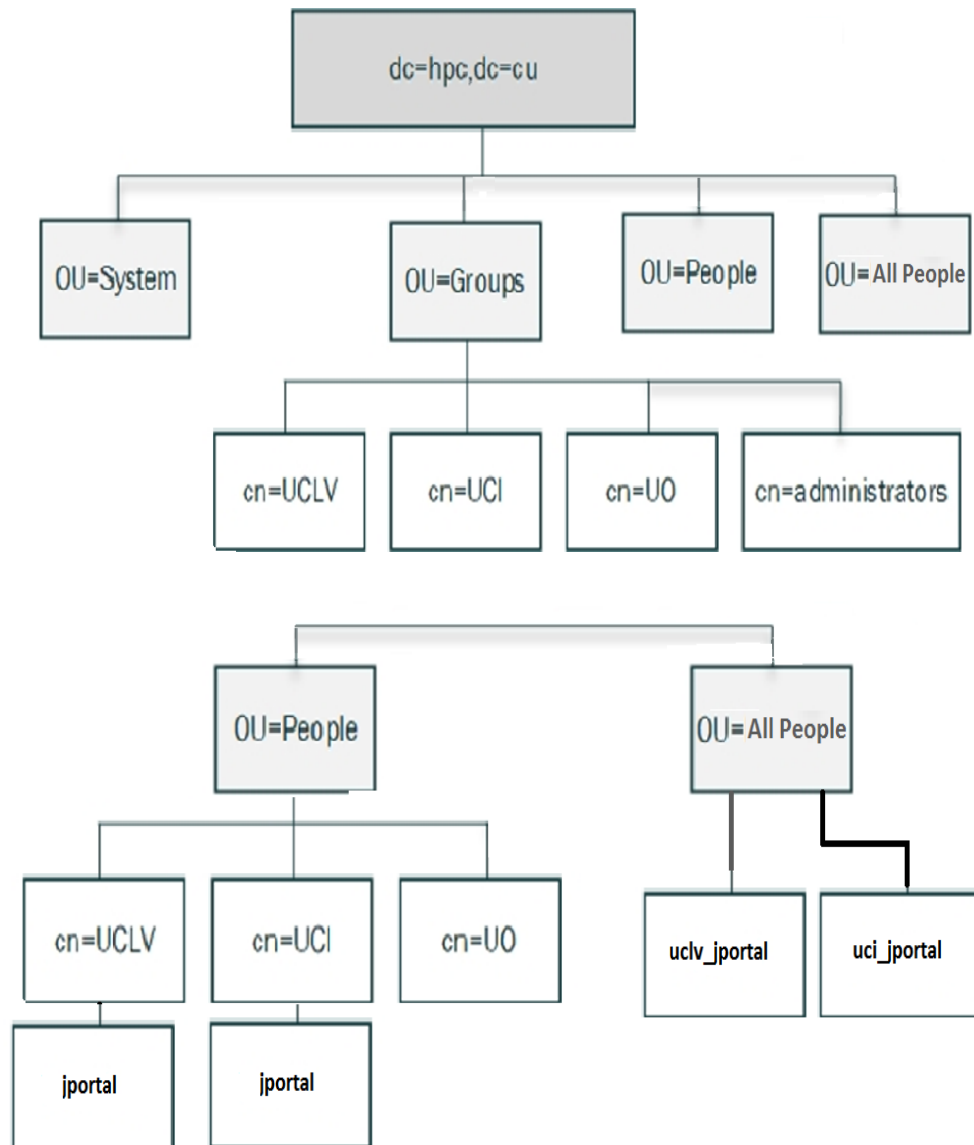
- 16 nodes
- 512 cores
- AMD Opteron 2.4Ghz
- 64GB RAM/node
- Infiniband 2xQDR

BigData UCLV (GPU)

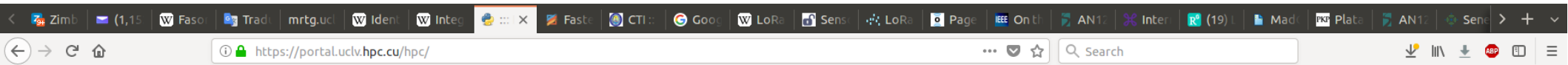
- 2 NVIDIA Tesla K80 CUDA
- 20 nodes (80 Cores)
- 320 GB RAM
- 1.52 TB HDD + 3 TB NAS



National Synced LDAP Directory (OpenLDAP)



National User Portal



Welcome, Hector Cruz

- Active Jobs
- Scripts Generator
- Nodes
- Files System

Active Jobs

pdf print csv

Show 10 entries

Search:

Job Id	State	Name	User	Partition	Time	Time limit	Nodes	Nodelist
150	RUNNING	erick	uclv_kronos	public	24:41	5-00:03:00	1	nodo043
151	RUNNING	erick	uclv_kronos	public	12:22	5-00:03:00	1	nodo042
152	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Resources)
153	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Priority)
154	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Priority)
155	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Priority)
156	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Priority)
157	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Priority)
158	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Priority)
159	PENDING	erick	uclv_kronos	public	0:00	5-00:03:00	1	(Priority)

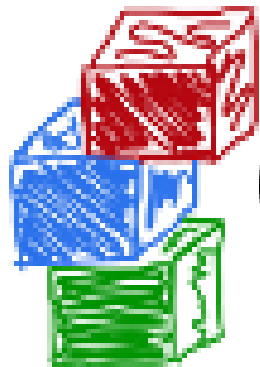
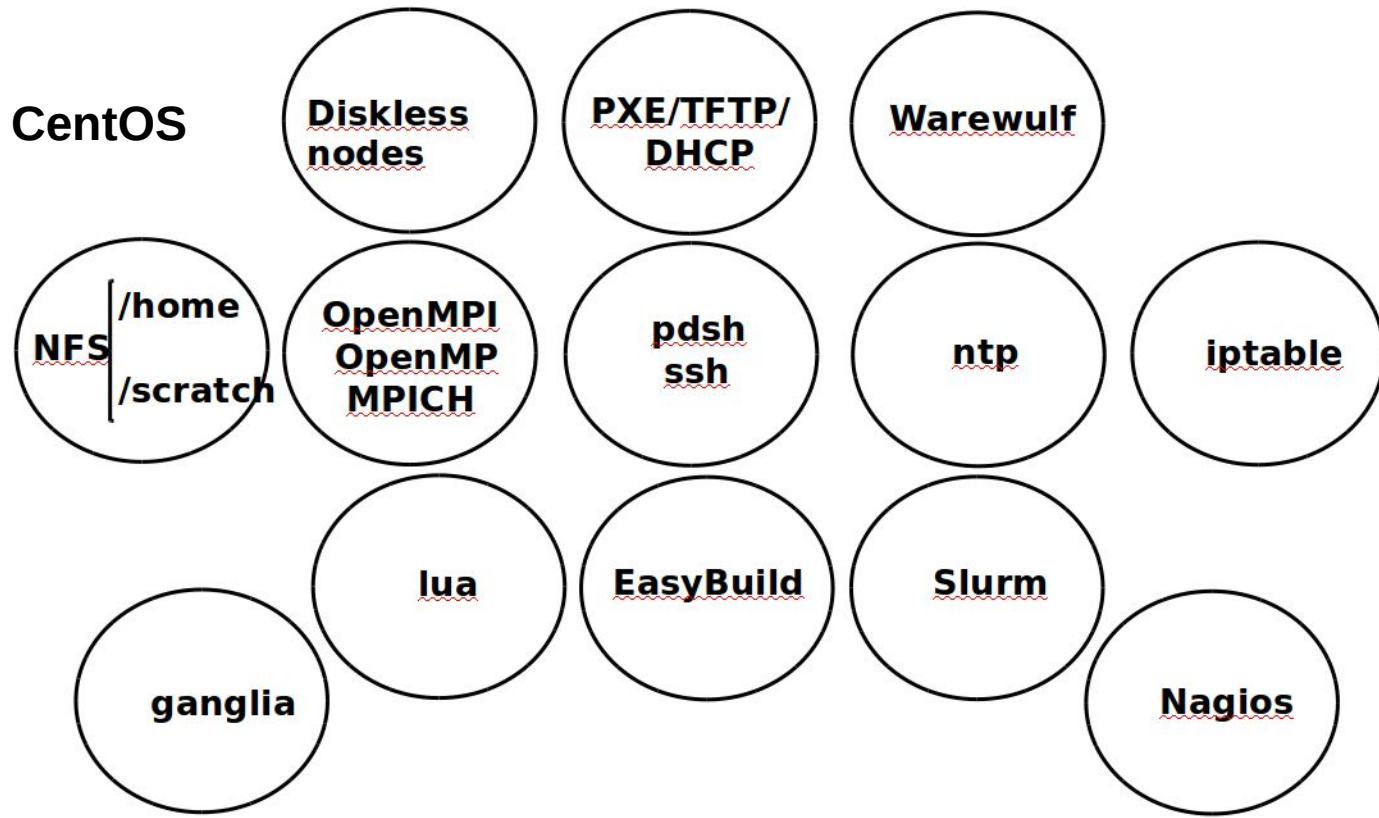
Showing 41 to 50 of 130 entries

1 ... 4 5 6 ... 13

Job state codes

Jobs typically pass through several states in the course of their execution. An explanation of each state follows.

- CA** CANCELLED Job was explicitly cancelled by the user or system administrator. The job may or may not have been initiated.
- CD** COMPLETED Job has terminated all processes on all nodes.
- CG** COMPLETING Job is in the process of completing. Some processes on some nodes may still be active.
- F** FAILED Job terminated with non-zero exit code or other failure condition.
- NF** NODE_FAIL Job terminated due to failure of one or more allocated nodes.



easybuild

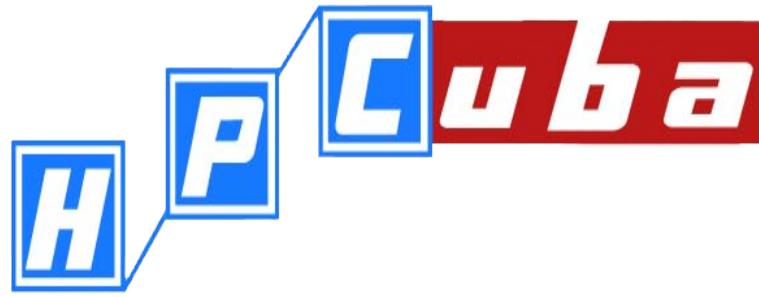
- Set up Master Thesis programme
- Cuban Contributions (eg. Yade)
- More Cuban developers are joining!



Human Capacity Building

- Training of Cuban HPC experts in Belgium
 - Training of Cuban HPC experts **in Cuba**
 - **Training of Cuban HPC Users in Cuba:**
 - **Best practices, experience sharing**
 - **Code optimization**
 - **Parallelism**
 - ...
-
- VLIR Funding 2019-2021
 - Volunteer work, ticket, accommodation, per diem
 - Combine work with pleasure

We need HPC experts & users like you!



Vision of HPC Cuba

To Make Supercomputing services available to all Cuban scientists

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