



Status since last f2f meeting - Operations

➔ Systems re-deployed (ce01, ce02)

- Transition to ROCKS 6.2 => deployment of new hardware
- New Lustre servers (for ce01) => decommissioning of ailing Thumpers
- Transition from GridEngine to SLURM => remarkable system stability (memory management)
- Re-gained stability, deployed new HW and restored some of the old HW as well

➔ New ARC CE for a Cloud resource (ce04)

- Targeting the SWITCHengines cloud infrastructure
- ARC+ssh modification used to target Todi at CSCS in early 2015
- Leveraging knowledge of the ATLAS DC frameworks to exploit “non WLCG standard” resources

➔ ARC bugfixes (finally stable!)

- 5.0.3-1.e16.x86_64 on ce01
- 5.0.4-1.e16.x86_64 on ce02
- 5.0.5-1.e16.x86_64 on ce04 => works with latest version of openldap for EL6

➔ Storage operation stable

- 550 TB (350 pledged)

➔ Integrated uboone VO

- US glideins factories integrated seamlessly with the ARC CEs



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HammerCloud Gangarobot

History Legend

■ offline
 ■ brokeroff
 ■ online
 ■ NoQueue
 ■ test

**Historic view for "panda_queues_all"
from 00:00 01.09.2015 to 00:00 09.03.2016**

Show entries Search:

| PANDA queue | SITE Name | TIER | CLOUD | History plot time bin = 380 hours | offline | | brokeroff | | online | | NoQueue | | test | |
|-------------------------|------------|------|-------|--------------------------------------|---------|-------|-----------|-------|--------|-------|---------|-------|-------|-------|
| | | | | | % | count | % | count | % | count | % | count | % | count |
| ANALY_UNIBE-LHEP | UNIBE-LHEP | T2 | ND | | 0 | 0 | 0 | 0 | 35.32 | 38 | 0 | 0 | 58.88 | 47 |
| ANALY_UNIBE-LHEP-UBELIX | UNIBE-LHEP | T2 | ND | | 0 | 0 | 0 | 0 | 92.79 | 31 | 0 | 0 | 1.41 | 11 |
| UNIBE-LHEP | UNIBE-LHEP | T2 | ND | | 0.42 | 1 | 0 | 0 | 86.42 | 53 | 0 | 0 | 7.37 | 32 |
| UNIBE-LHEP-UBELIX | UNIBE-LHEP | T2 | ND | | 0.42 | 1 | 0 | 0 | 92.17 | 29 | 0 | 0 | 1.62 | 8 |
| UNIBE-LHEP-UBELIX_MCORE | UNIBE-LHEP | T2 | ND | | 0.42 | 1 | 0 | 0 | 93.22 | 24 | 0 | 0 | 0.57 | 3 |
| UNIBE-LHEP_MCORE | UNIBE-LHEP | T2 | ND | | 0.42 | 1 | 0 | 0 | 91.24 | 25 | 0 | 0 | 2.54 | 5 |

Showing 1 to 6 of 6 entries First Previous 1 Next Last



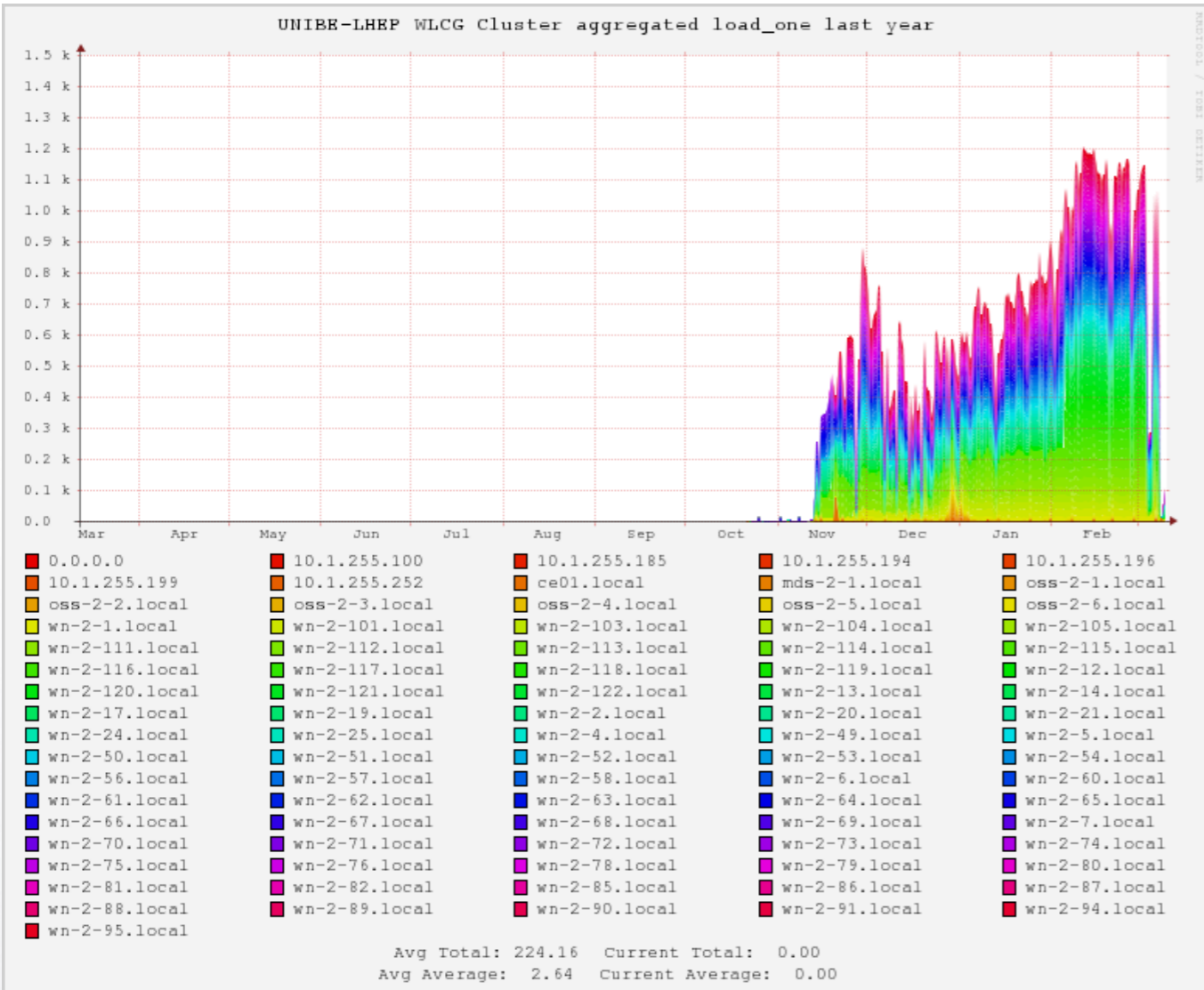
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Add HS06 capacity here

ce01 11.85-HEP-SPEC06

ce02 8.52-HEP-SPEC06



Nodes: 67
Cores: 1100
Installed Capacity: 13038 HS06

Nodes: 82
Cores: 816
Installed Capacity: 6956





Issues and mitigations (0/0)



Outstanding work (urgent)

➔ Upgrade DPM head node to SLC6

- > Only SLC5 machine at UNIBE-LHEP
- > Upgrade complicated by migration to puppet as configuration tool (yaim no longer supported)
- > Further complication is the site-bdii service on the same machine
- > Started development on a VM
- > In principle all ingredients are there, but....

➔ Provide the monthly storage dumps to ATLAS

- > Requested for performing consistency checks and automated cleanup of “Dark data”

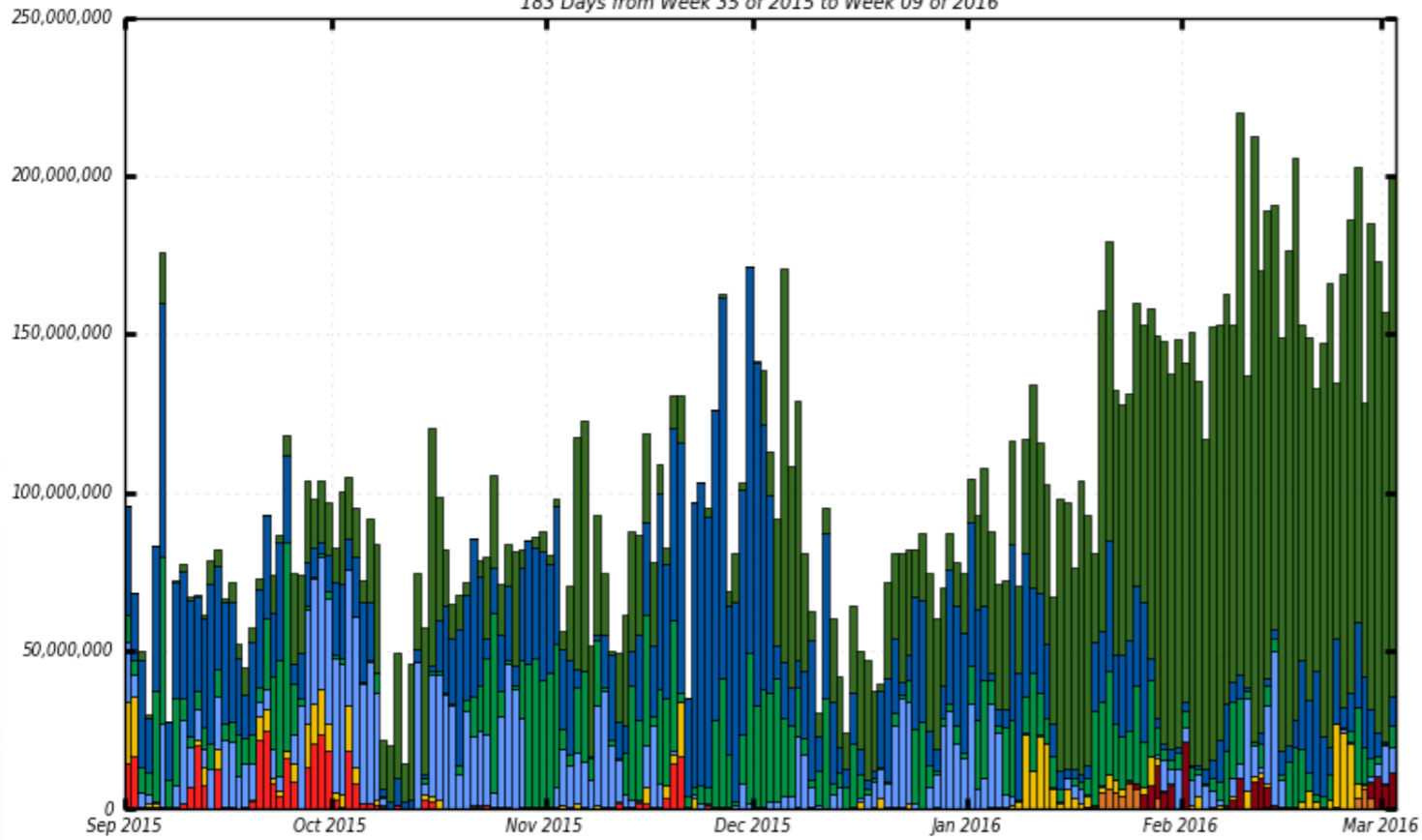


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Wall Clock consumption All Jobs in seconds

183 Days from Week 35 of 2015 to Week 09 of 2016

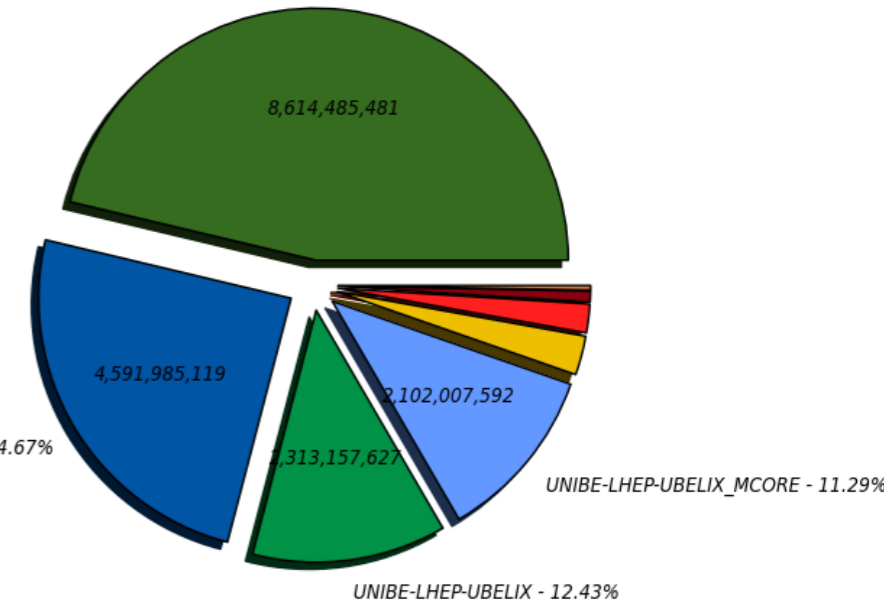


■ UNIBE-LHEP_MCORE
 ■ UNIBE-LHEP
 ■ UNIBE-LHEP-UBELIX
 ■ UNIBE-LHEP-UBELIX_MCORE
 ■ ANALY_UNIBE-LHEP-UBELIX
■ ANALY_UNIBE-LHEP
 ■ UNIBE-LHEP_CLOUD_MCORE
 ■ UNIBE-LHEP_CLOUD

Maximum: 220,081,025 , Minimum: 14,156,818 , Average: 101,169,491 , Current: 200,178,334

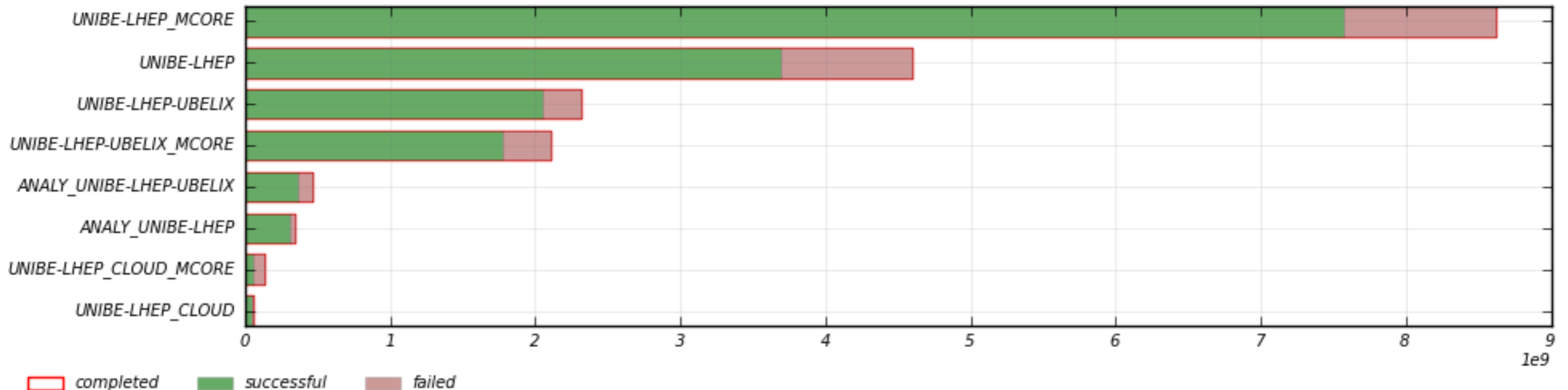


Wall Clock consumption All Jobs in seconds (Sum: 18,615,186,422)



■ UNIBE-LHEP_MCORE - 46.28% (8,614,485,481)
 ■ UNIBE-LHEP - 24.67% (4,591,985,119)
■ UNIBE-LHEP-UBELIX - 12.43% (2,313,157,627)
 ■ UNIBE-LHEP-UBELIX_MCORE - 11.29% (2,102,007,592)
■ ANALY_UNIBE-LHEP-UBELIX - 2.50% (465,909,594)
 ■ ANALY_UNIBE-LHEP - 1.84% (342,028,927)
■ UNIBE-LHEP_CLOUD_MCORE - 0.70% (129,961,328)
 ■ UNIBE-LHEP_CLOUD - 0.30% (55,650,754)

WallClock consumption in seconds



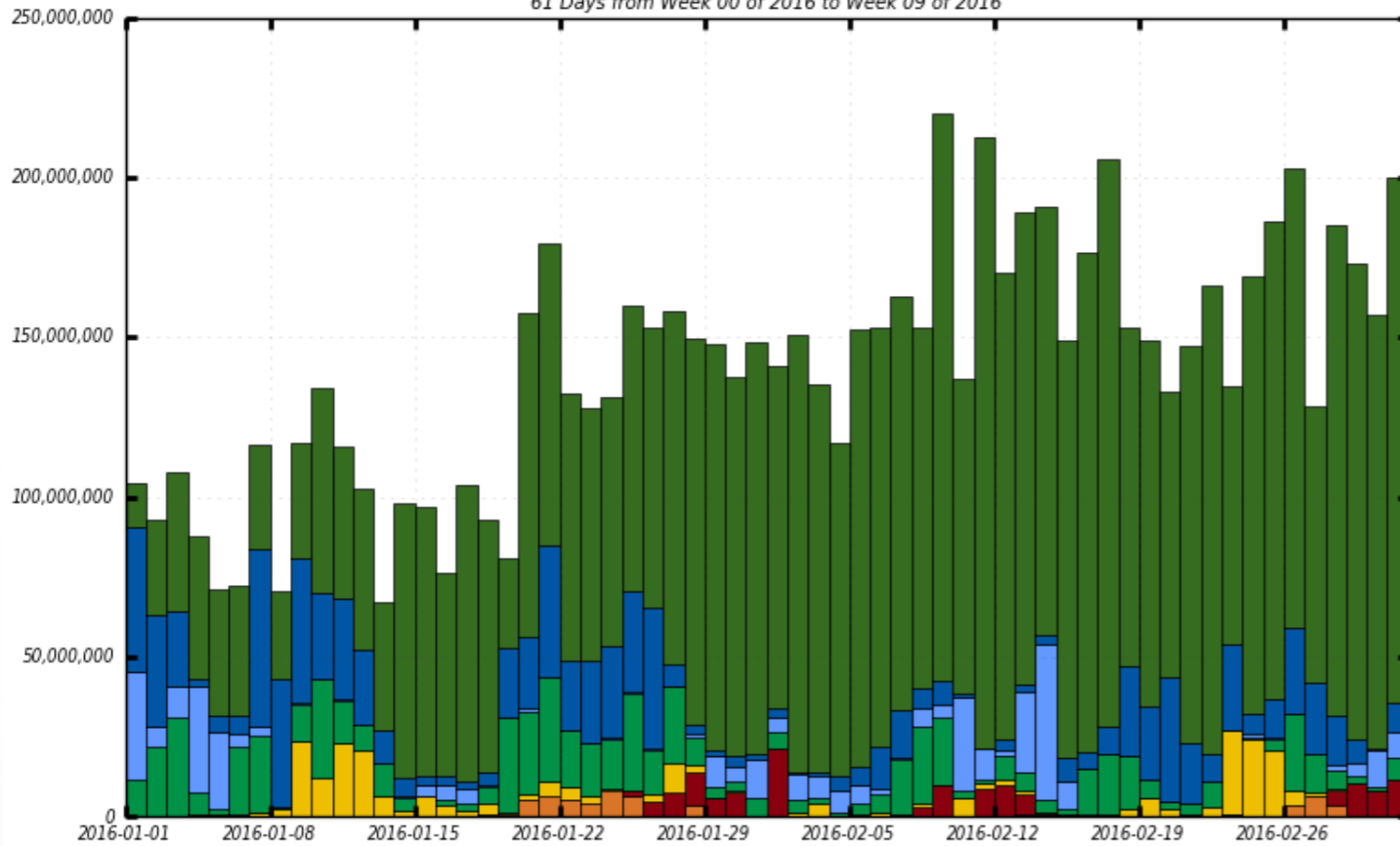


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Wall Clock consumption All Jobs in seconds

61 Days from Week 00 of 2016 to Week 09 of 2016

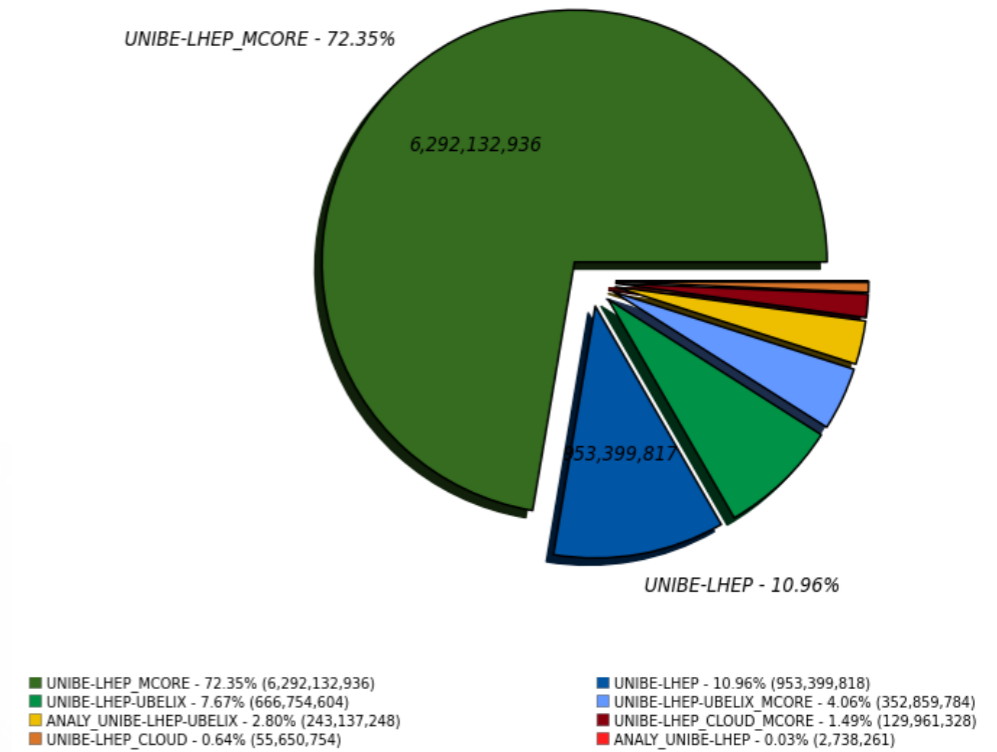


■ UNIBE-LHEP_MCORE
 ■ UNIBE-LHEP
 ■ UNIBE-LHEP-UBELIX_MCORE
 ■ UNIBE-LHEP-UBELIX
 ■ ANALY_UNIBE-LHEP-UBELIX
■ UNIBE-LHEP_CLOUD_MCORE
■ UNIBE-LHEP_CLOUD
■ ANALY_UNIBE-LHEP

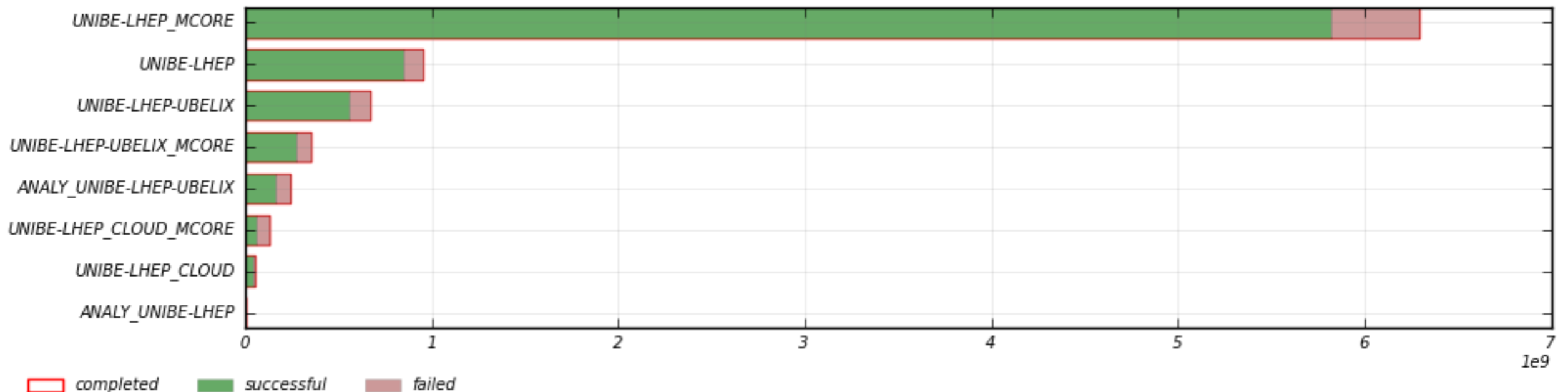
Maximum: 220,081,025 , Minimum: 67,037,360 , Average: 140,268,302 , Current: 200,178,334



Wall Clock consumption All Jobs in seconds (Sum: 8,696,634,733)



WallClock consumption in seconds

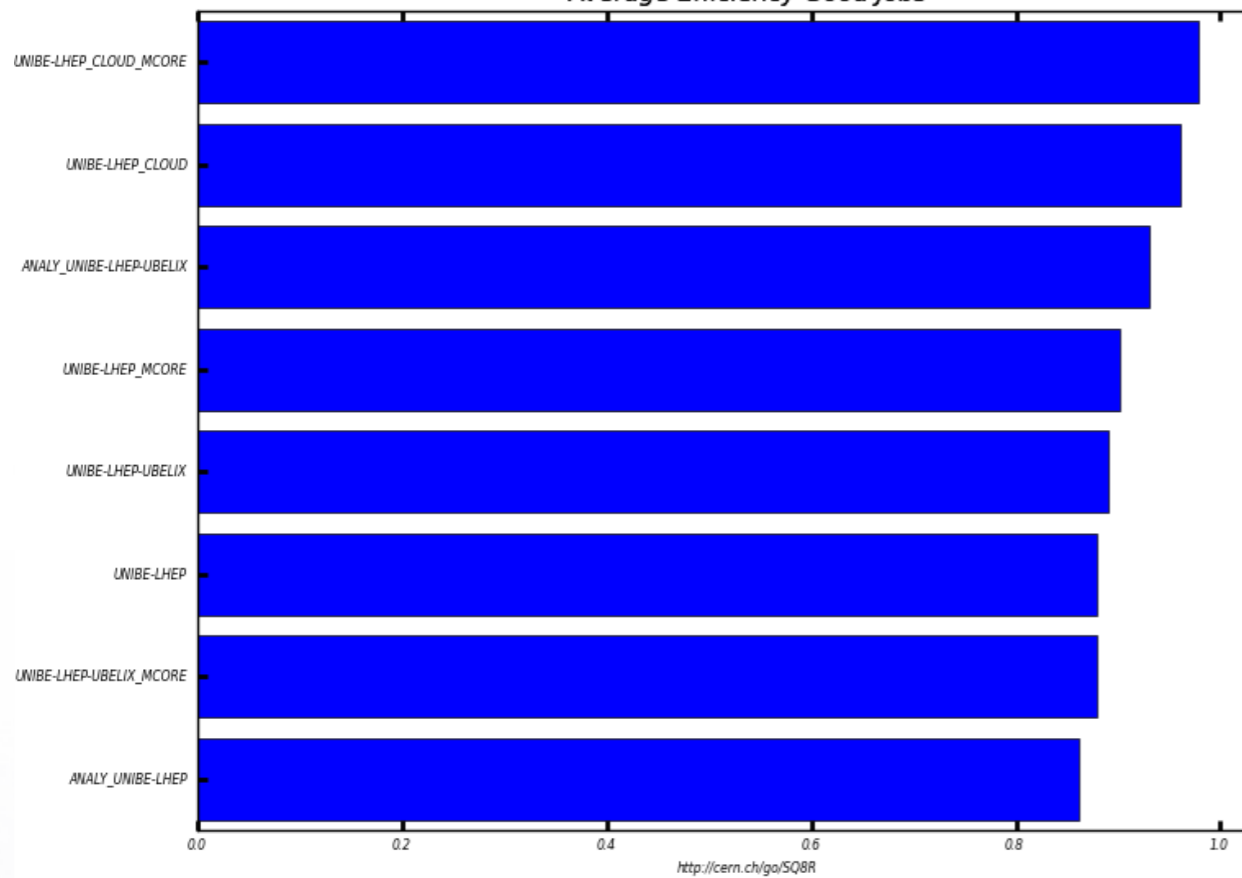




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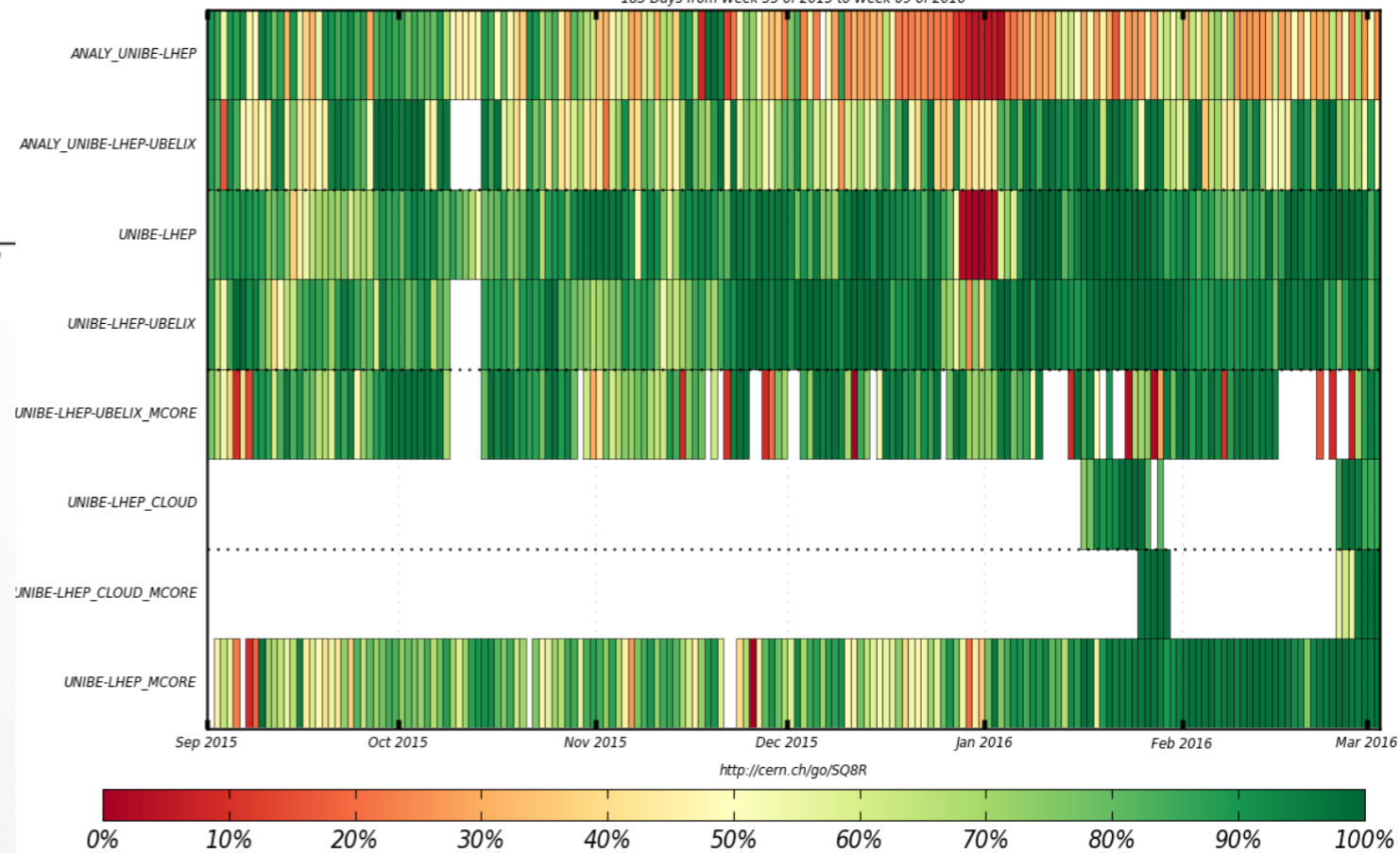


Average Efficiency Good Jobs



Efficiency Good Jobs

183 Days from Week 35 of 2015 to Week 09 of 2016



- CSCS-TOD1
- CSCS-LCG2
- UNIBE-LHEP-UBELIX
- UNIBE-LHEP
- UNIBE-LHEP-UBELIX_MCORE
- CSCS-LCG2_MCORE
- ARC_MCORE

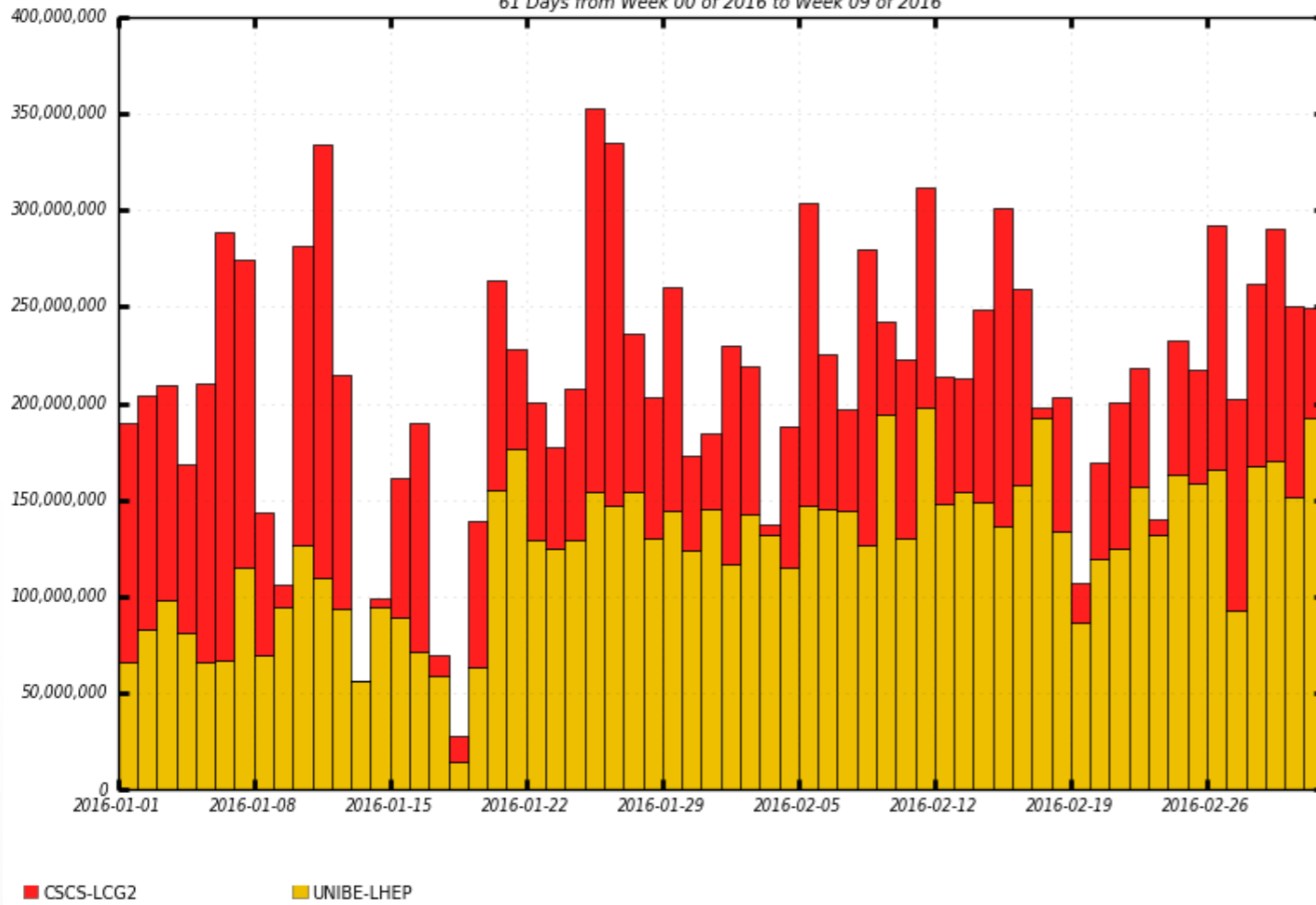


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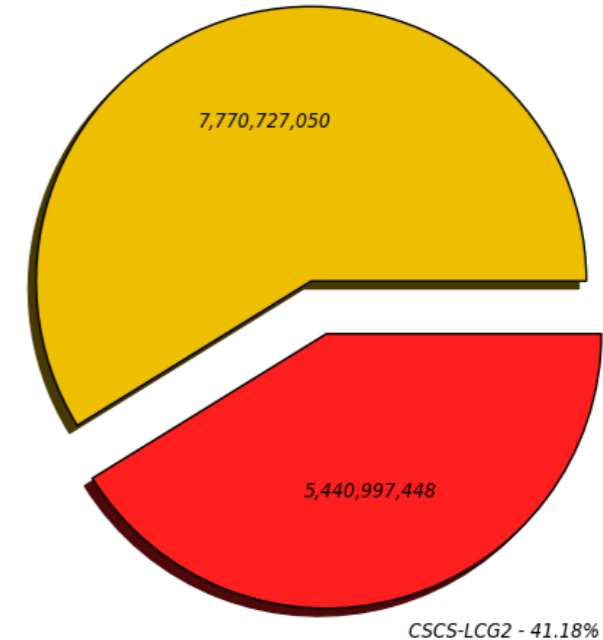
Wall Clock consumption Good Jobs in seconds

61 Days from Week 00 of 2016 to Week 09 of 2016



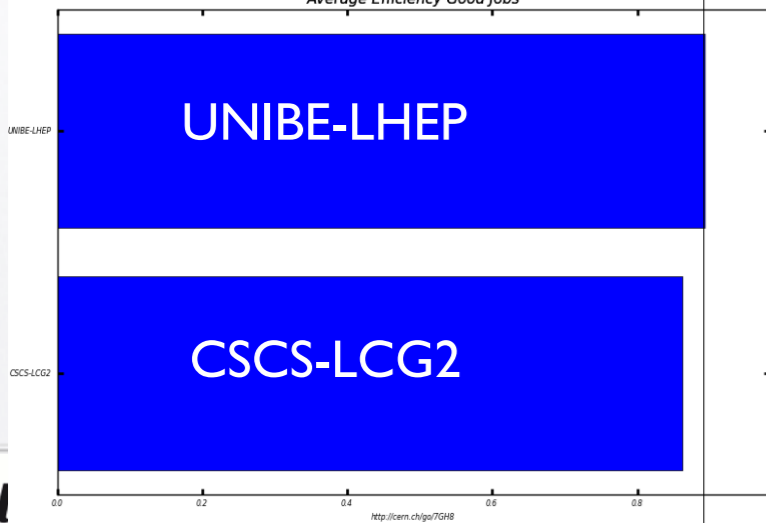
Wall Clock consumption Good Jobs in seconds (Sum: 13,211,724,498)

UNIBE-LHEP - 58.82%



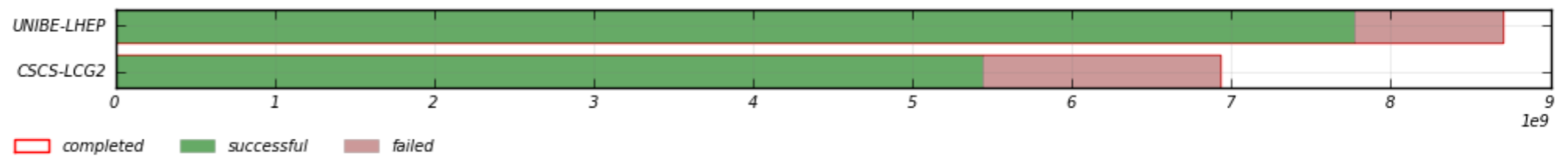
UNIBE-LHEP - 58.82% (7,770,727,050) CSCS-LCG2 - 41.18% (5,440,997,448)

Average Efficiency Good Jobs



0.9

WallClock consumption in seconds

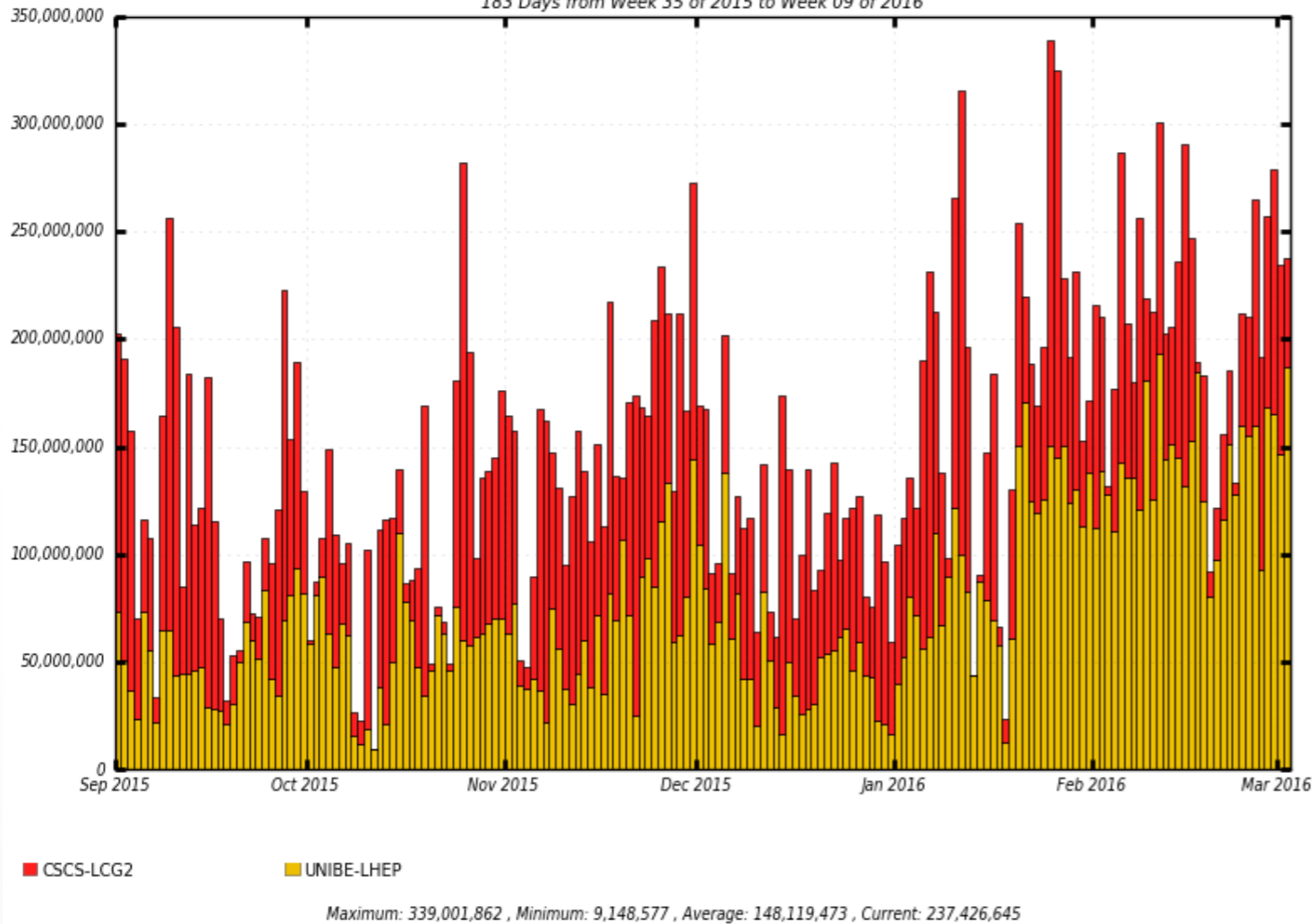




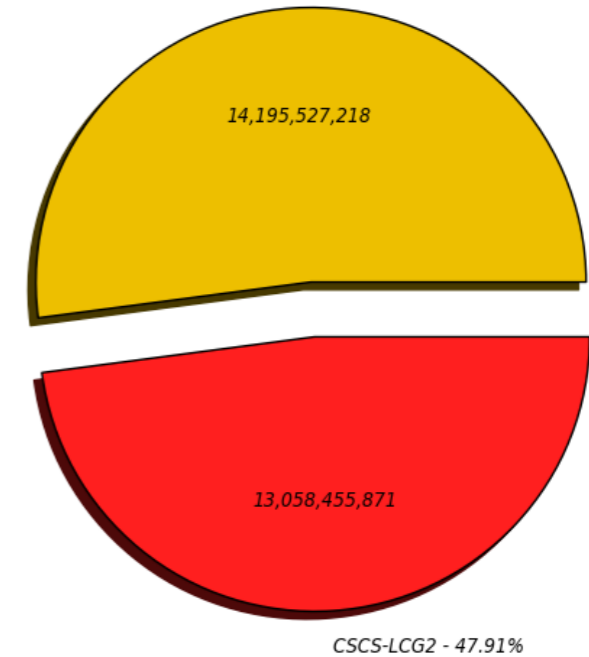
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CPU consumption Good Jobs in seconds
183 Days from Week 35 of 2015 to Week 09 of 2016



CPU consumption Good Jobs in seconds (Sum: 27,253,983,089)
UNIBE-LHEP - 52.09%



UNIBE-LHEP - 52.09% (14,195,527,218) CSCS-LCG2 - 47.91% (13,058,455,871)

TIER2 by SITE and VO.

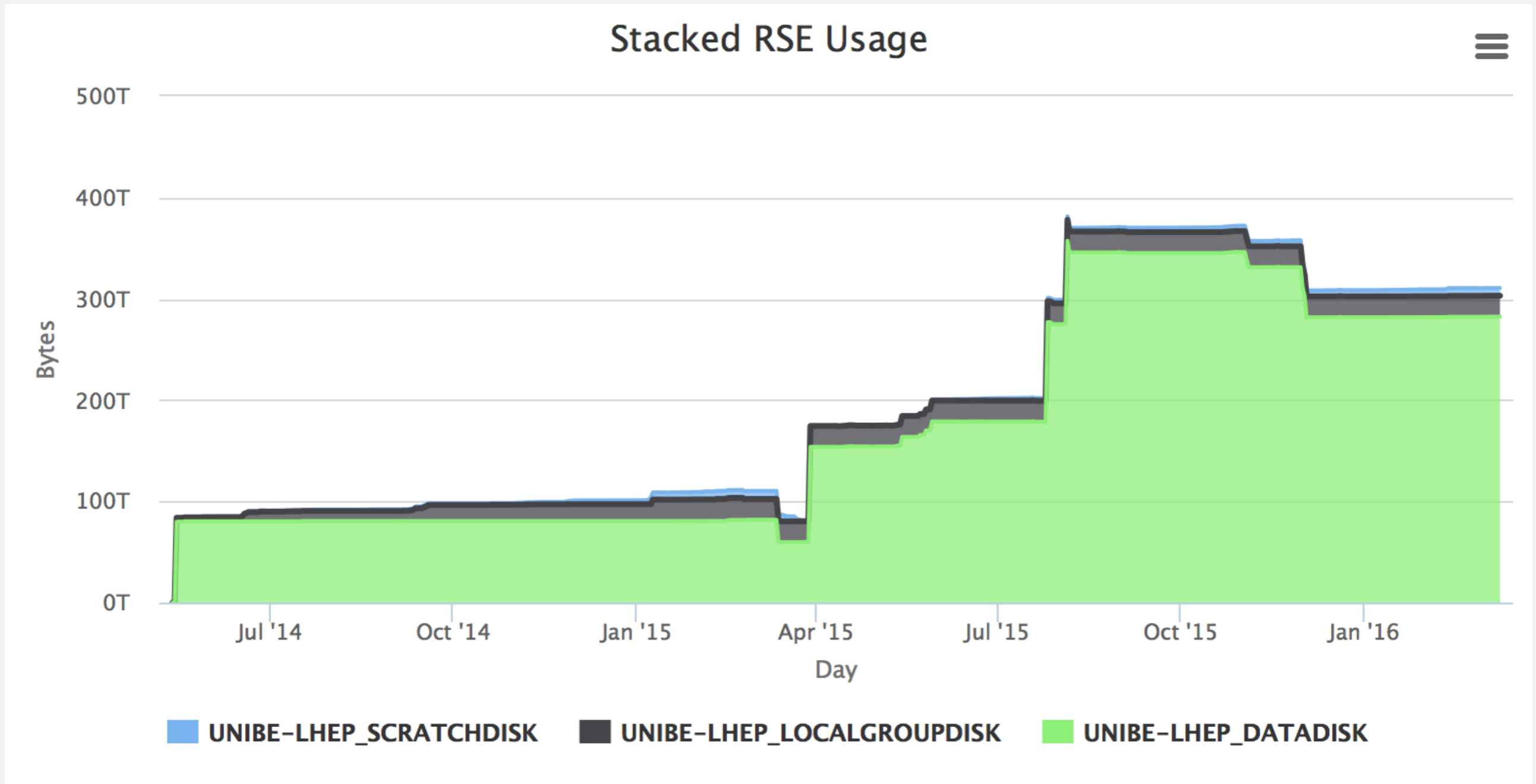
LHC VOs. September 2015 - February 2016.

The following table shows the distribution of grouped by SITE and VO (only information about LHC VOs is returned).

| by SITE and VO | | | | | |
|-------------------|-------------------|------------------|----------------|-------------------|--------|
| SITE | atlas | cms | lhcb | Total | % |
| CSCS-LCG2 | 35,976,172 | 9,329,928 | 392,425 | 45,698,524 | 53.70% |
| UNIBE-LHEP | 39,406,075 | 0 | 0 | 39,406,075 | 46.30% |
| Total | 75,382,247 | 9,329,928 | 392,425 | 85,104,599 | |
| Percentage | 88.58% | 10.96% | 0.46% | | |



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Plans for the future

→ Increase CPU capacity (subject to funding)

→ Old nodes won't die, we'll let them run until possible

- > Quite useful to absorb non ATLAS requests (t2k.org, uboone)
- > e.g. can offer 8GB/core slots to e.g. uboone "efficiently"

→ Refine SLURM configuration?

- Keep it simple:
 - > one partition
 - > no memory limit enforcement (so far)
 - > this works very well so far (also thanks to the evolution of the ATLAS framework)

→ Continue opportunistic resource exploitation

- Cloud:
 - > Consolidate experience in exploiting opportunistic resources
 - > Learn how to be as efficient as possible with manpower investment cut to the bone
 - > Current price model is not favourable, but who knows what future holds

• BOINC (in the spare time)

- > Launch a campaign to exploit departmental machines
- > "Plug&Play", could use the existing ARC CE's for BOINC at CERN