

- ▶ Performance overview January-September 2017



ATLAS T2 VO REPORT

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Availability - HammerCloud AFTs and PFTs

Historic view for "panda_queues_all"
from 00:00 01.01.2017 to 00:00 30.09.2017

Show 100 entries

Search:

PANDA queue	SITE Name	TIER	CLOUD	History plot time bin = 544 hours	offline		brokeroff		online		NoQueue		test	
					%	count	%	count	%	count	%	count	%	count
ANALY_CSCS	CSCS-LCG2	T2D	DE		3.35	5	0.25	4	94.26	27	0	0	1.47	9
ANALY_CSCS-HPC	CSCS-LCG2	T2D	DE		52.79	14	0.24	4	41.75	19	0	0	4.55	11
ANALY_UNIBE-LHEP	UNIBE-LHEP	T2	ND		1.26	1	0	0	96.9	46	0	0	1.17	31
ANALY_UNIBE-LHEP-UBELIX	UNIBE-LHEP	T2	ND		1.26	1	0	0	97.43	19	0	0	0.64	4
CSCS-LCG2	UNDEFINED	UNDEFINED	UNDEFINED		3.84	6	0	0	94.28	26	0	0	1.21	9
CSCS-LCG2-HPC	CSCS-LCG2	T2D	DE		38.41	17	0	0	51.94	16	0	0	8.98	2
CSCS-LCG2-HPC_MCORE	CSCS-LCG2	T2D	DE		38.71	17	0	0	51.72	15	0	0	8.9	2
CSCS-LCG2_MCORE	UNDEFINED	UNDEFINED	UNDEFINED		4.2	7	0	0	93.92	27	0	0	1.21	9
UNIBE-LHEP	UNIBE-LHEP	T2	ND		0	0	0.08	1	98.22	32	0	0	1.02	16
UNIBE-LHEP-UBELIX	UNIBE-LHEP	T2	ND		0	0	0	0	98.65	19	0	0	0.67	4
UNIBE-LHEP-UBELIX_MCORE	UNIBE-LHEP	T2	ND		0	0	0	0	94.69	22	0	0	4.64	7
UNIBE-LHEP_MCORE	UNIBE-LHEP	T2	ND		0	0	0	0	98.12	56	0	0	1.21	41

Showing 1 to 12 of 12 entries

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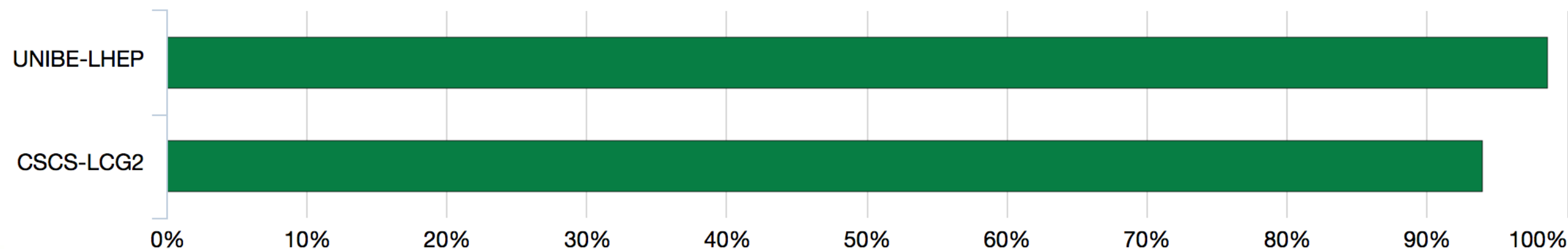
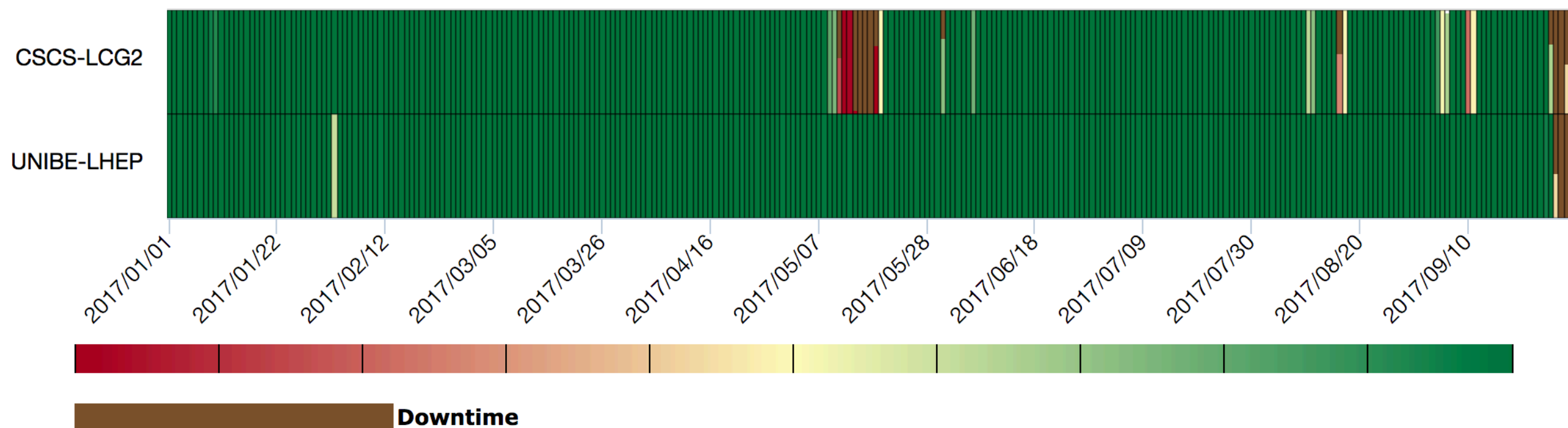
Availability

- **CSCS-LCG2**: 93.98% (*rank 65 / 76 T2s*)
- **UNIBE-LHEP**: 98.62% (*rank 20 / 76 T2s*)

Algorithm:
(CREAM-CE + ARC-CE +
HTCONDOR-CE +
GLOBUS) * (all SRMv2 +
all SRM + all GRIDFTP)

Site Availability using ATLAS_CRITICAL

From 2017/01/01 to 2017/09/30



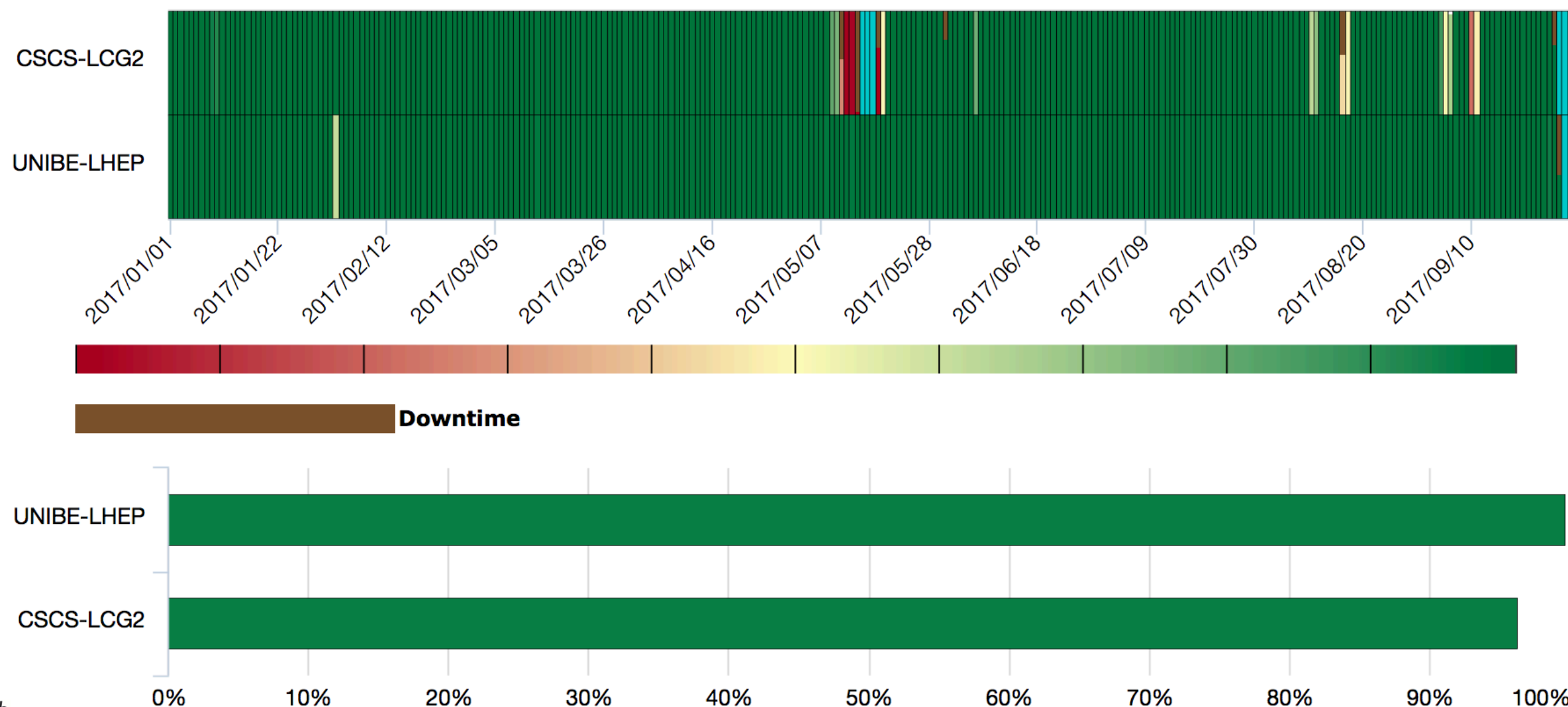
Reliability

- **CSCS-LCG2**: 96.27% (rank 54 / 76 T2s)
- **UNIBE-LHEP**: 99.69% (rank 8 / 76 T2s)

Algorithm:
(CREAM-CE + ARC-CE +
HTCONDOR-CE +
GLOBUS) * (all SRMv2 +
all SRM + all GRIDFTP)

Site Reliability using ATLAS_CRITICAL

From 2017/01/01 to 2017/09/30



Availability + Reliability last 6 months

This is the period over which performance is evaluated for Nucleus status

Availability

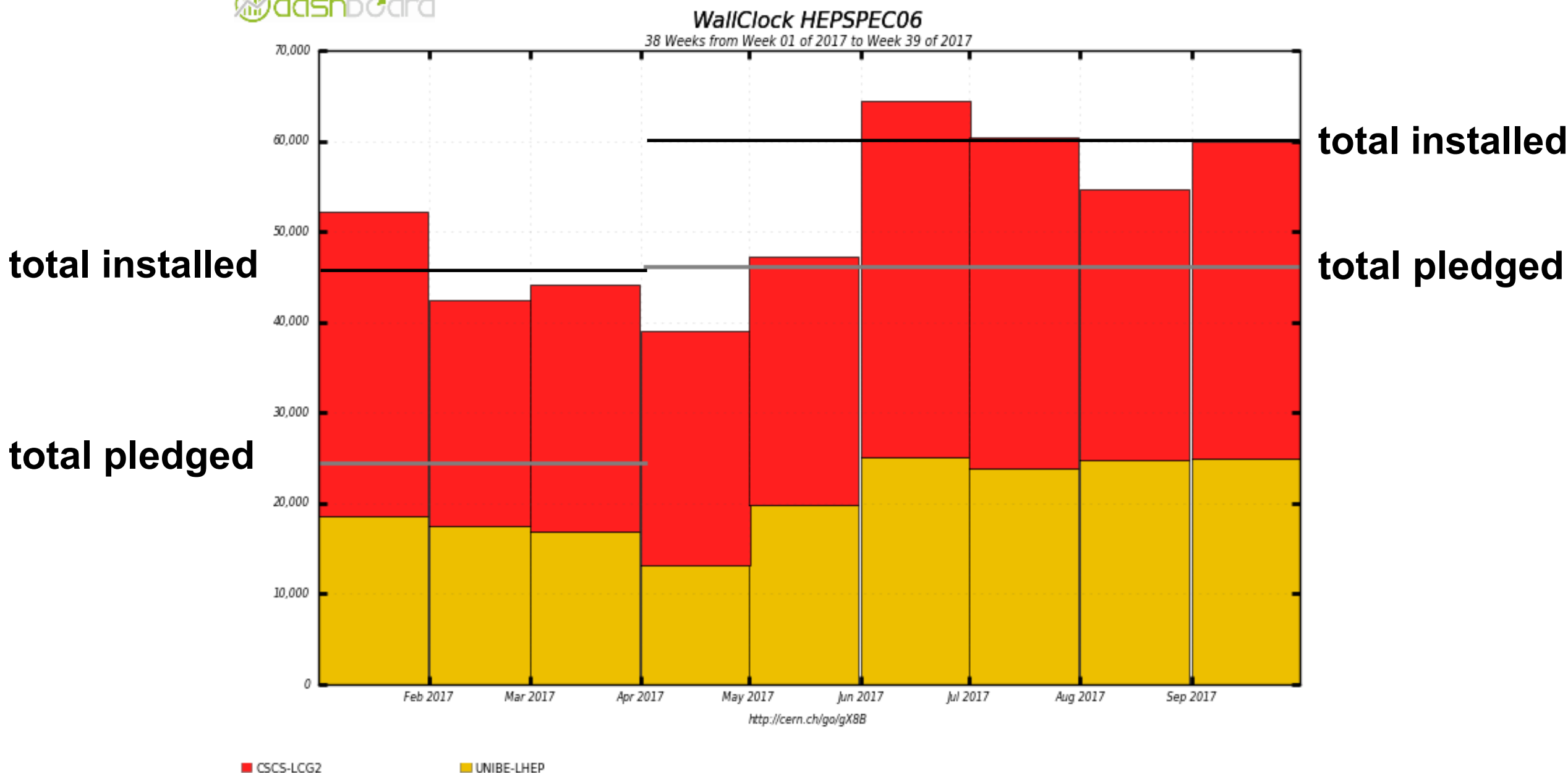
- **CSCS-LCG2:** 94.46% (rank 67 / 76 T2s)
- **UNIBE-LHEP:** 99.82% (rank 27 / 76 T2s)

Reliability

- **CSCS-LCG2:** 94.46% (rank 60 / 76 T2s)
- **UNIBE-LHEP:** 99.82% (rank 5 / 76 T2s)

WallClock HS06 - CH-CHIPP-CSCS Federation

- **CSCS-LCG2 HS06 ATLAS *installed* (*): 35491 (59%) - *pledged*: 31200 (68%) (2017)**
- **UNIBE-LHEP HS06 ATLAS *installed* (**): 24601 (41%) - *pledged* 15000 (32%) (2017)**

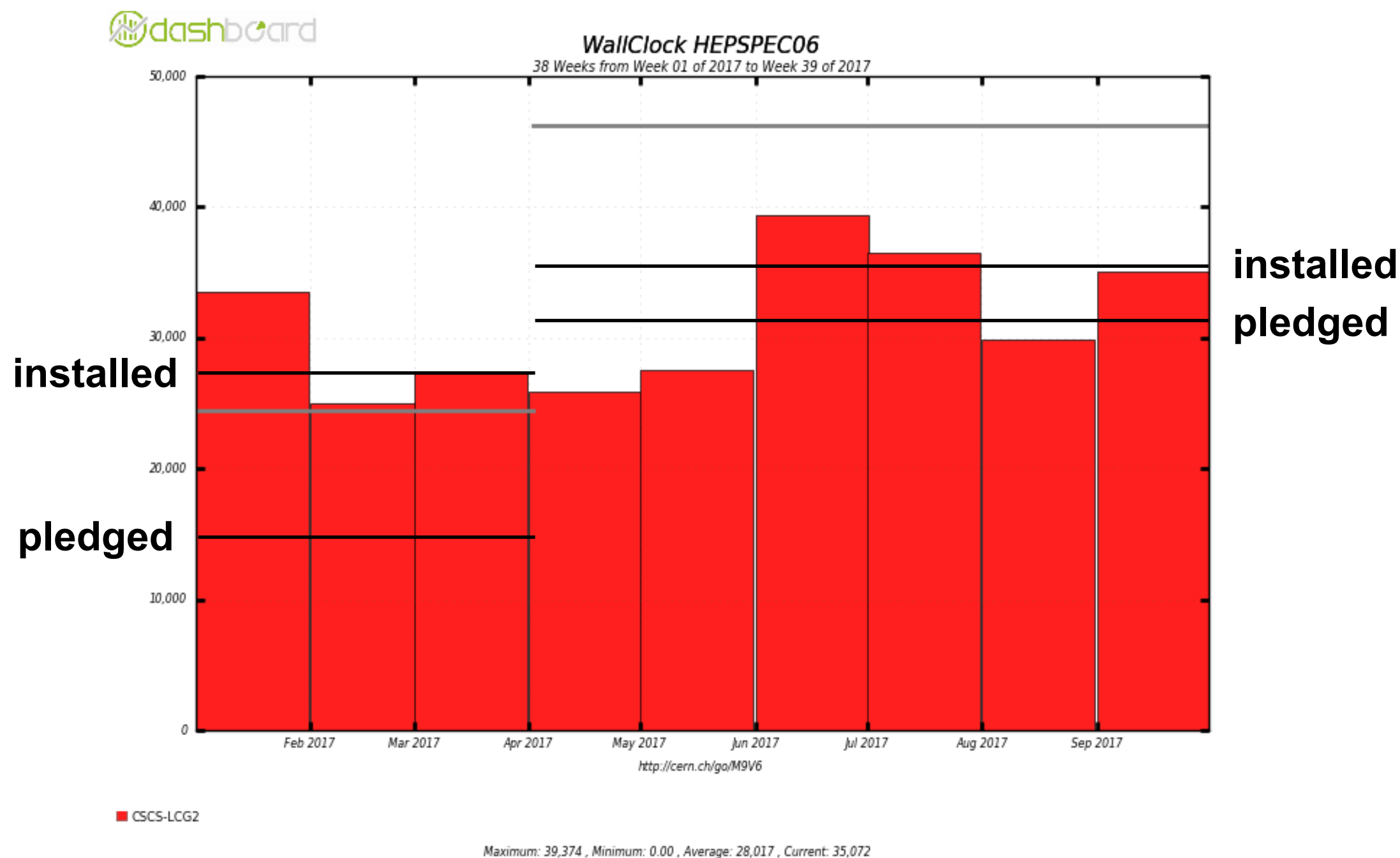


(*) - ATLAS share

(**) - also serving t2k.org and fermilab/uboone
- some opportunistic usage on Ubelix

WallClock HS06 - CSCS-LCG2

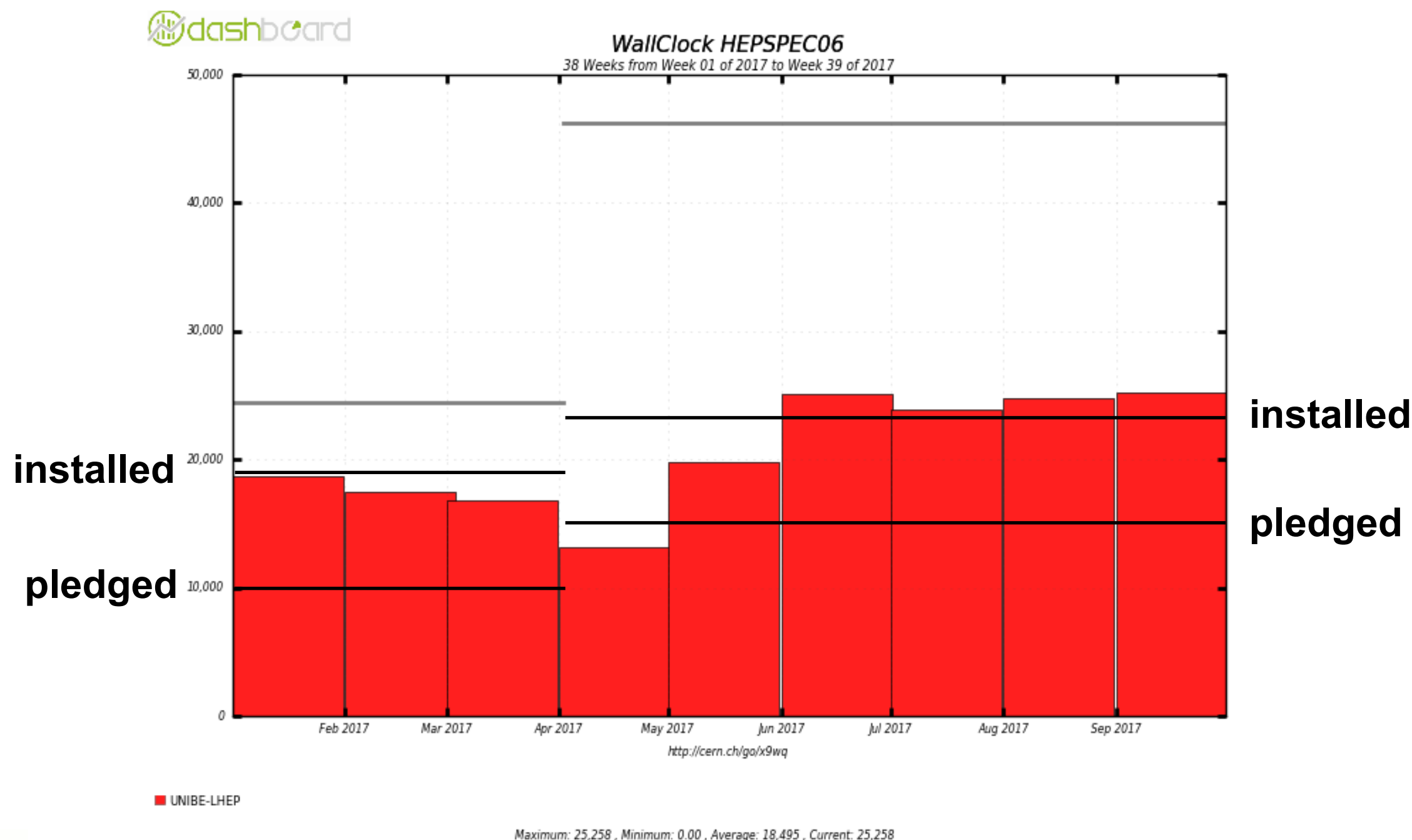
- **CSCS-LCG2 HS06 ATLAS installed: 35491 - pledged: 31200** (2017)
- **CSCS-LCG2 HS06 ATLAS installed: 27291 - pledged: 14500** (2016)



(*) - ATLAS share

WallClock HS06 - UNIBE-LHEP

- **UNIBE-LHEP HS06 ATLAS *installed* (**): 24601 - pledged: 15000 (2017)**
- **UNIBE-LHEP HS06 ATLAS *installed* (**): 18642 - pledged: 10000 (2016)**



(**) - also serving *t2k.org* and *fermilab/uboone*
- some opportunistic usage on *Ubelix*

Relative shares

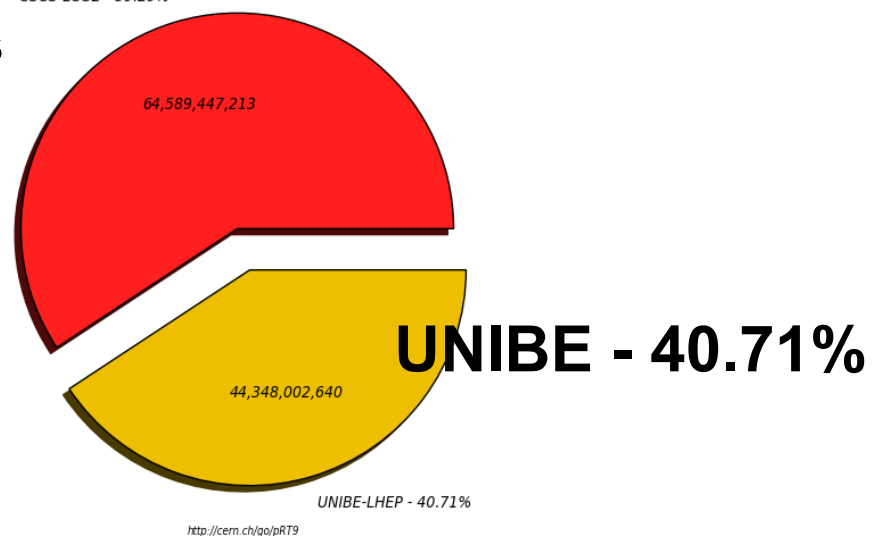
- **UNIBE-LHEP installed** estimated in about **41% of the total installed capacity**



Wall Clock consumption All Jobs in seconds (Sum: 108,937,449,854)

CSCS-LCG2 - 59.29%

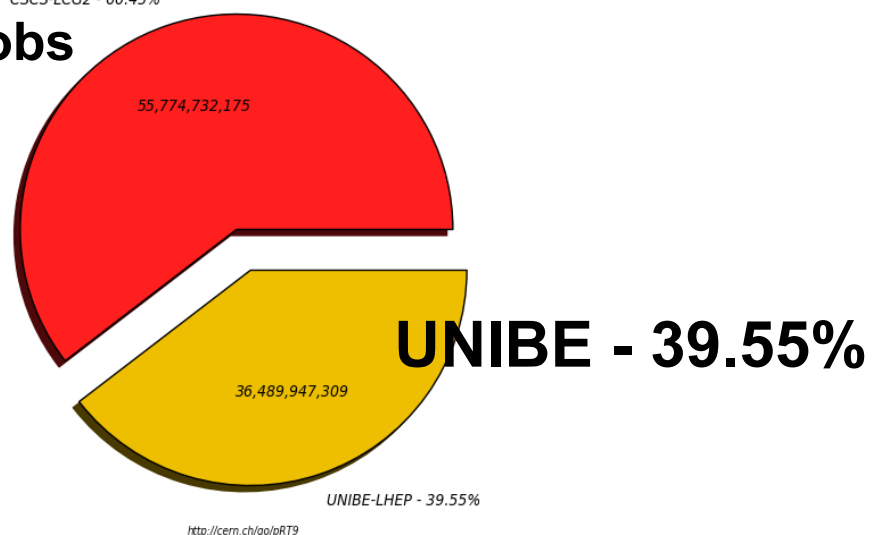
WC all jobs



Wall Clock consumption Good Jobs in seconds (Sum: 92,264,679,484)

CSCS-LCG2 - 60.45%

WC good jobs



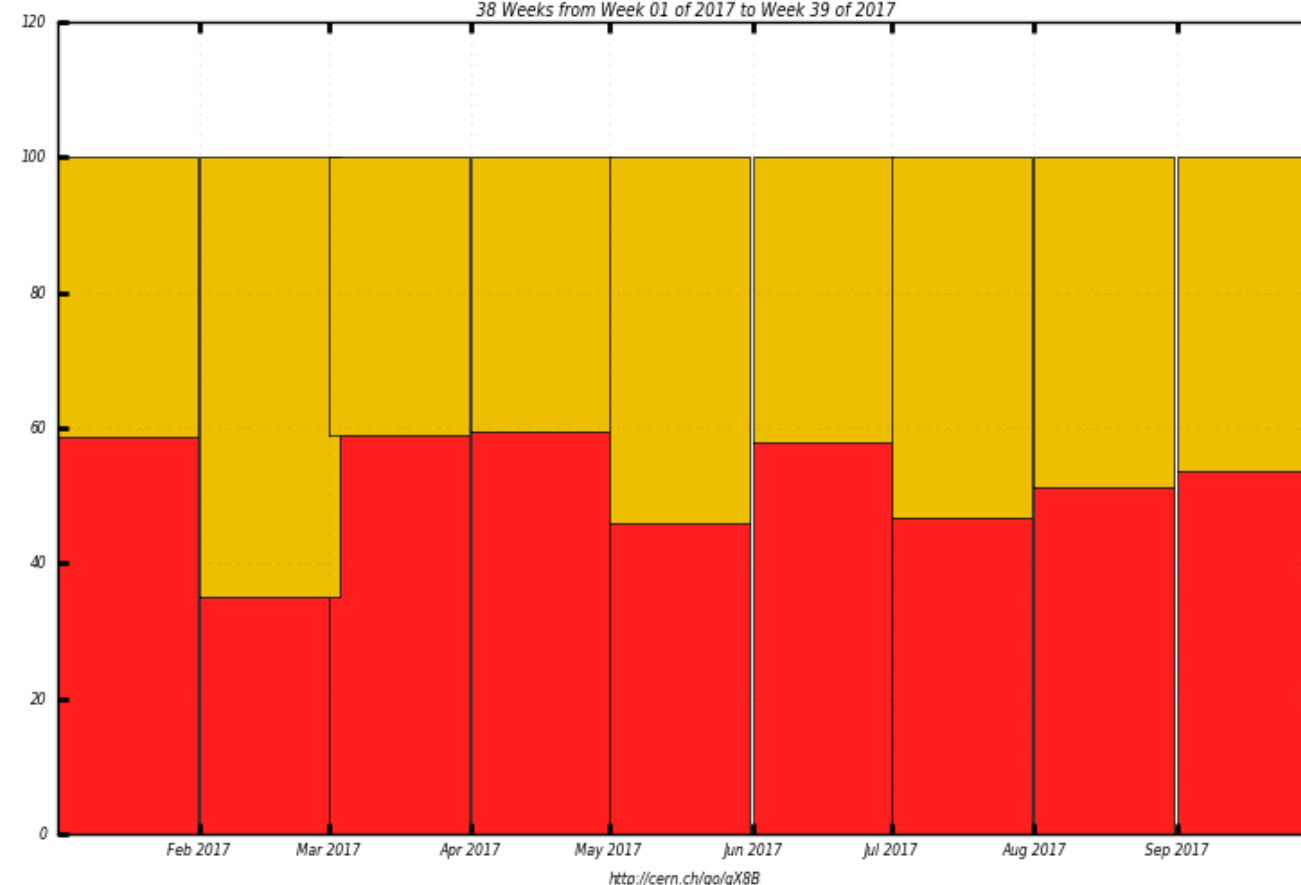
CSCS-LCG2 - 60.45% (55,774,732,175)

UNIBE-LHEP - 39.55% (36,489,947,309)



Processing Share based on the number of running jobs

38 Weeks from Week 01 of 2017 to Week 39 of 2017



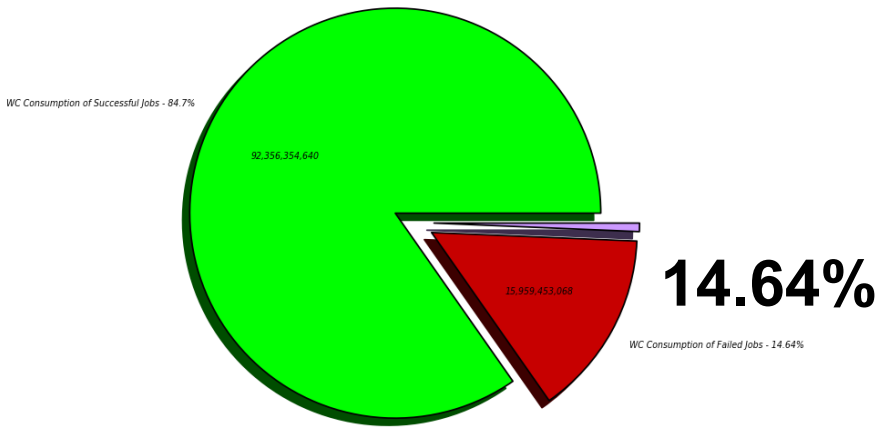
Maximum: 100.00 , Minimum: 0.00 , Average: 90.00 , Current: 100.00

Success vs fail WallClock efficiency

- **CSCS-LCG2: 87%**
- **UNIBE-LHEP: 85%**

dashboard

WC Consumption for Successful and Failed Jobs (Sum: 109,042,024,760)



<http://cern.ch/go/7C9q>

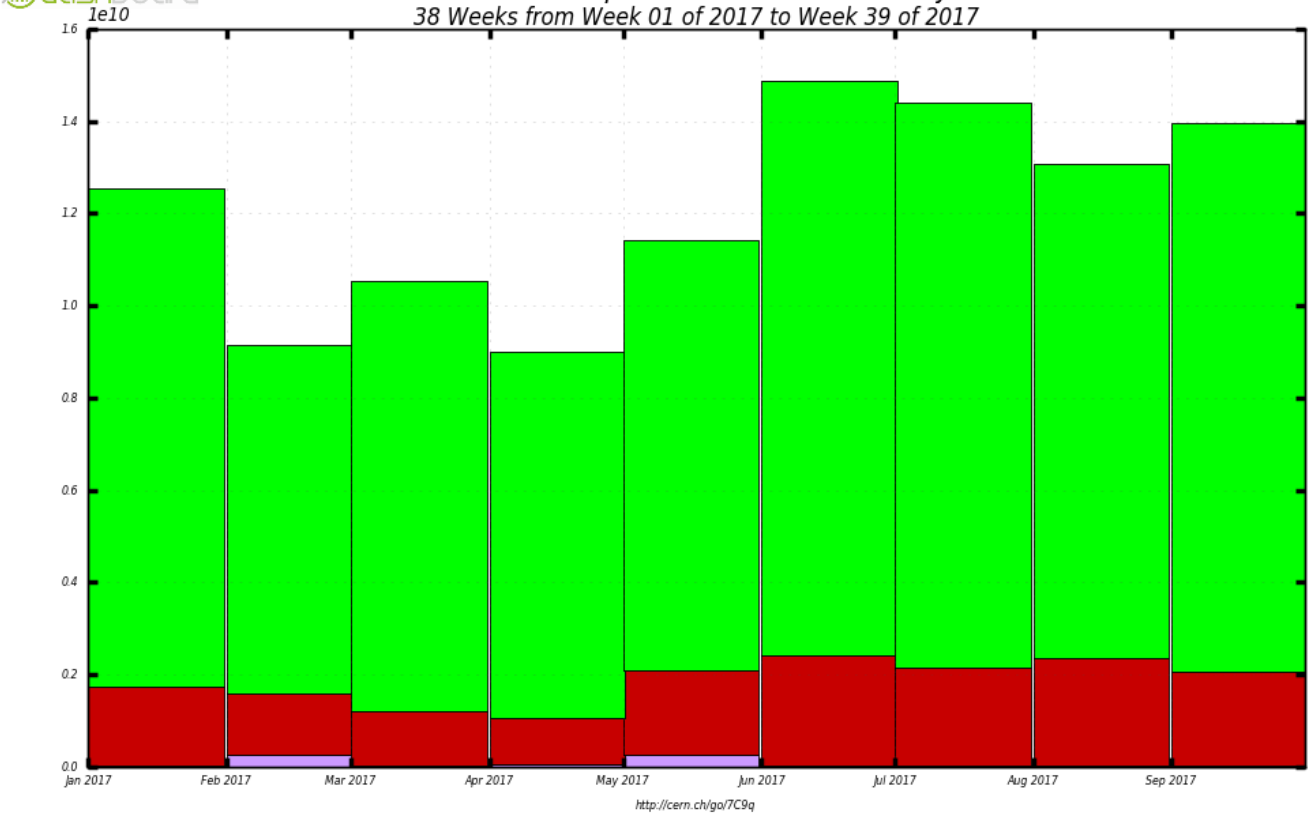
■ WC Consumption of Successful Jobs - 84.7% (92,356,354,640)

■ WC Consumption of Cancelled Jobs - 0.67% (726,217,051)

■ WC Consumption of Failed Jobs - 14.64% (15,959,453,069)

dashboard

WallClock Consumption for Successful and Failed Jobs
38 Weeks from Week 01 of 2017 to Week 39 of 2017



■ WallClock Consumption of Successful Jobs

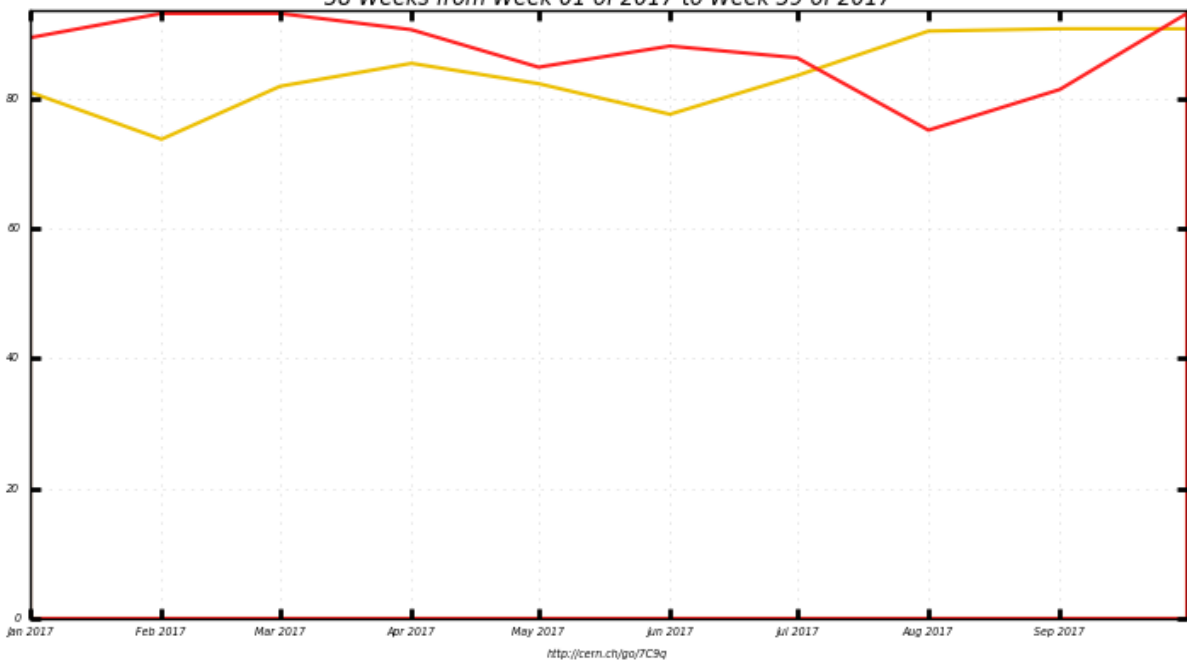
■ WallClock Consumption of Cancelled Jobs

■ WallClock Consumption of Failed Jobs

Maximum: 14,889,623,798 , Minimum: 0.00 , Average: 10,904,202,476 , Current: 13,959,500,853

dashboard

WallClock Efficiency over time based on success/all accomplished jobs
38 Weeks from Week 01 of 2017 to Week 39 of 2017



■ CSCS-LCG2 (86.85)

■ UNIBE-LHEP (82.92)

Total: 172.08 , Average Rate: 0.00 /s

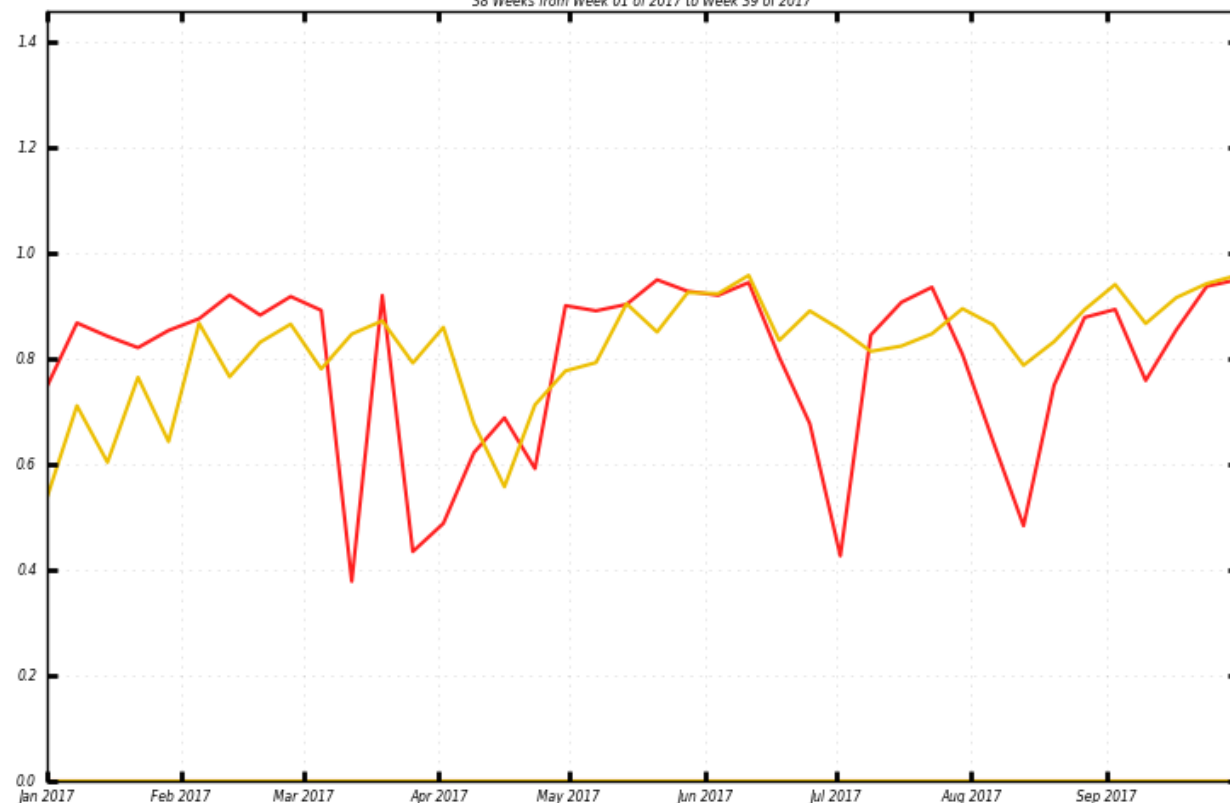
CPU / WallClock efficiency

- **CSCS-LCG2: 79%**
- **UNIBE-LHEP: 82%**

dashboard

Efficiency Good Jobs

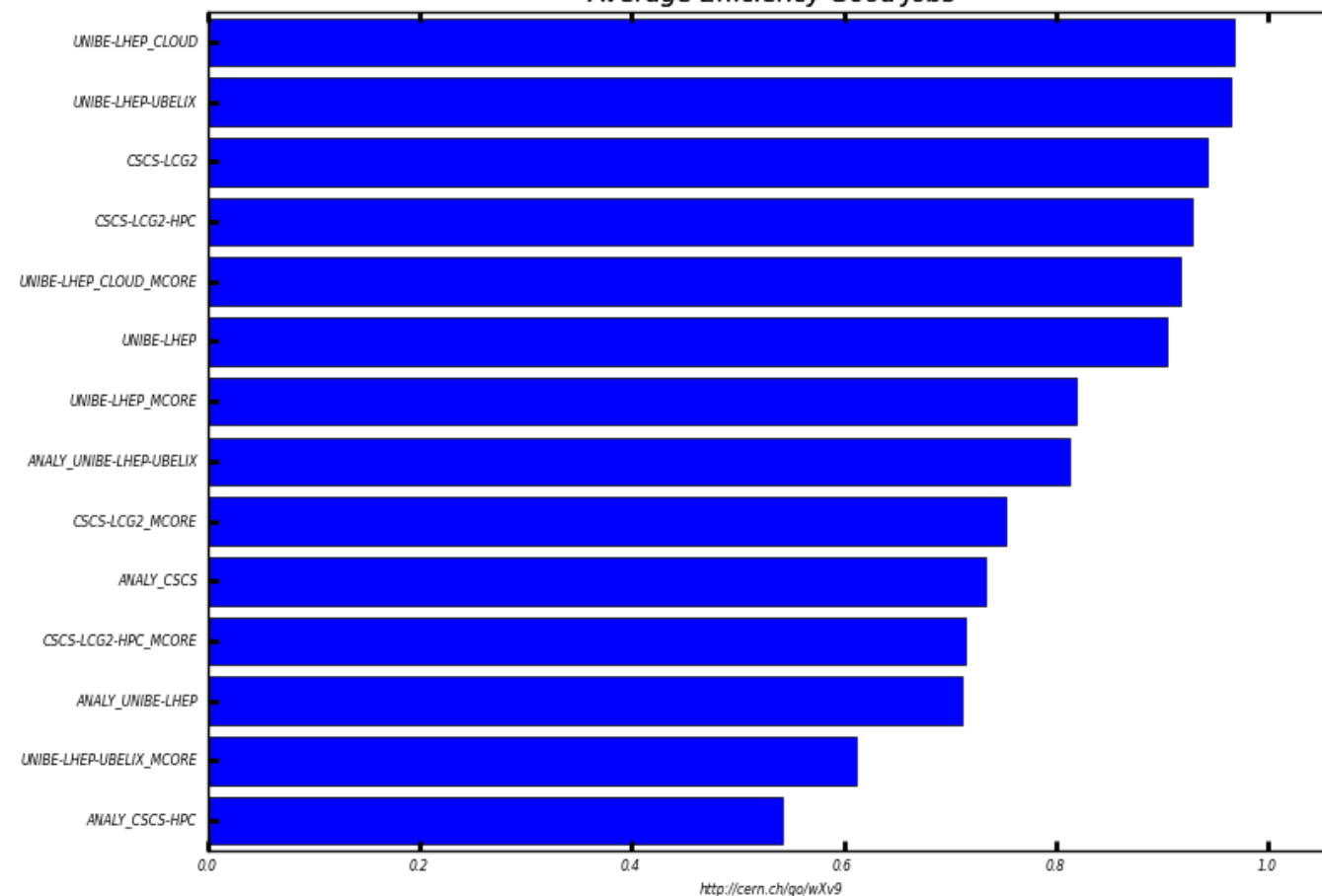
38 Weeks from Week 01 of 2017 to Week 39 of 2017



Total: 1.88 , Average Rate: 0.00 /s

dashboard

Average Efficiency Good Jobs

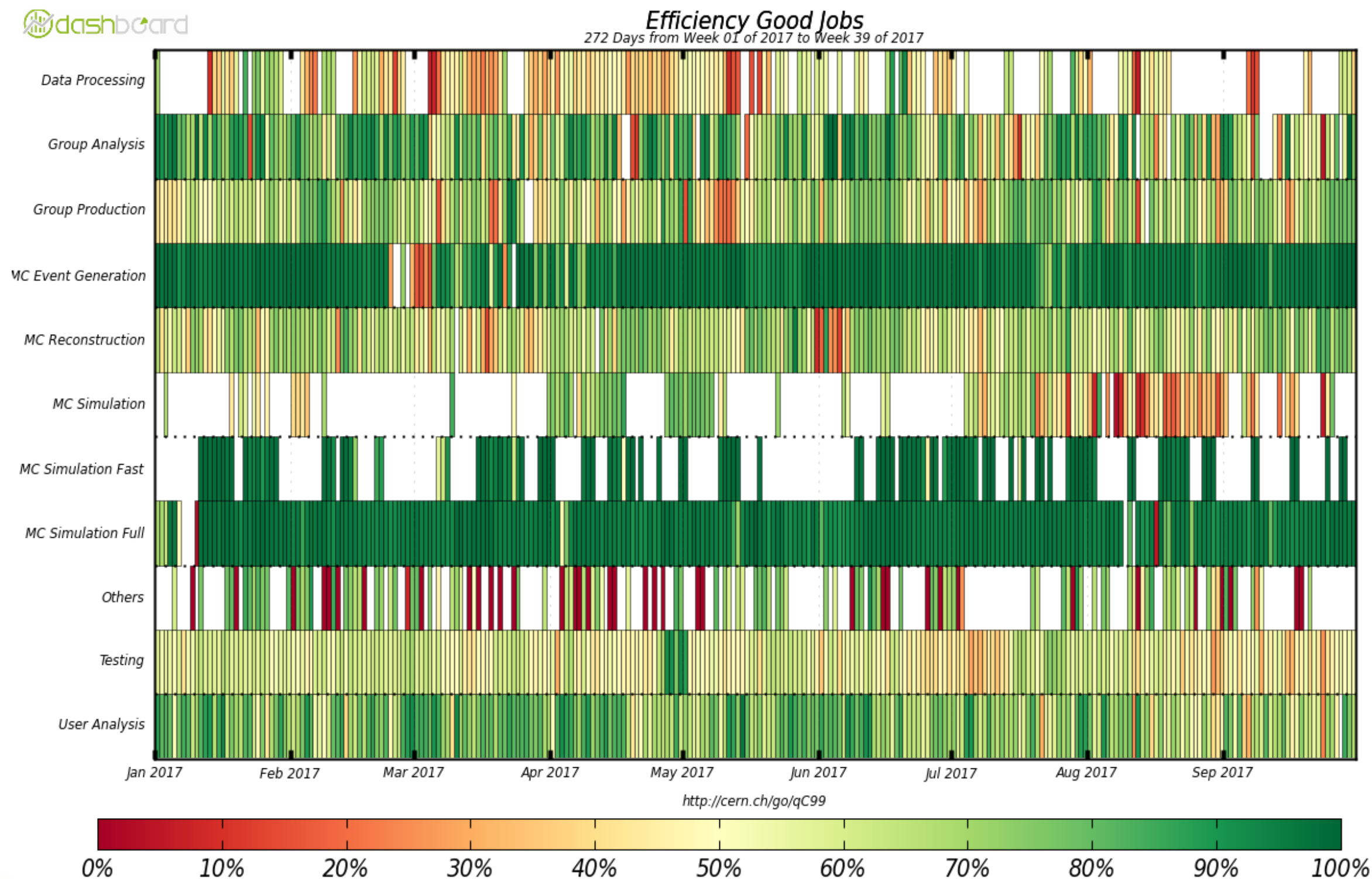


<http://cern.ch/go/wXv9>

CPU / WallClock efficiency by PanDA queue



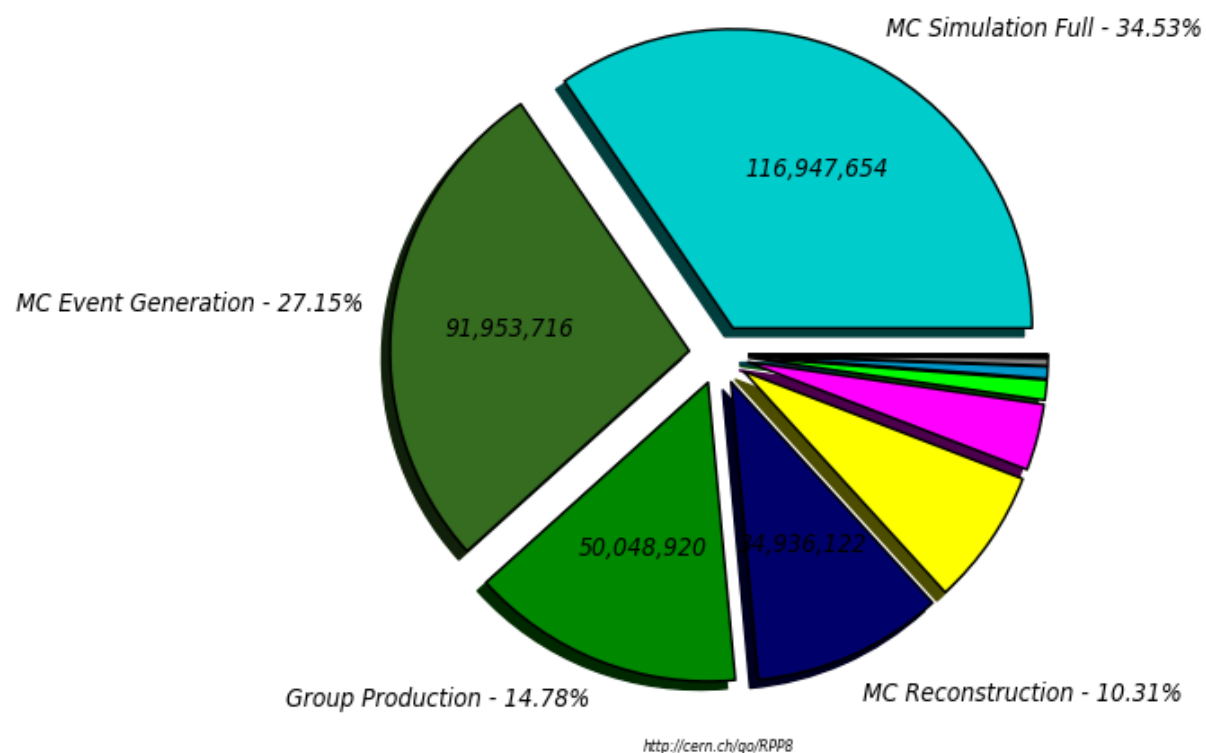
CPU / WallClock efficiency by ADC activity



WallClock by ADC activity and by PanDA queue



WallClock HEPSPEC06 (Sum: 338,703,341)

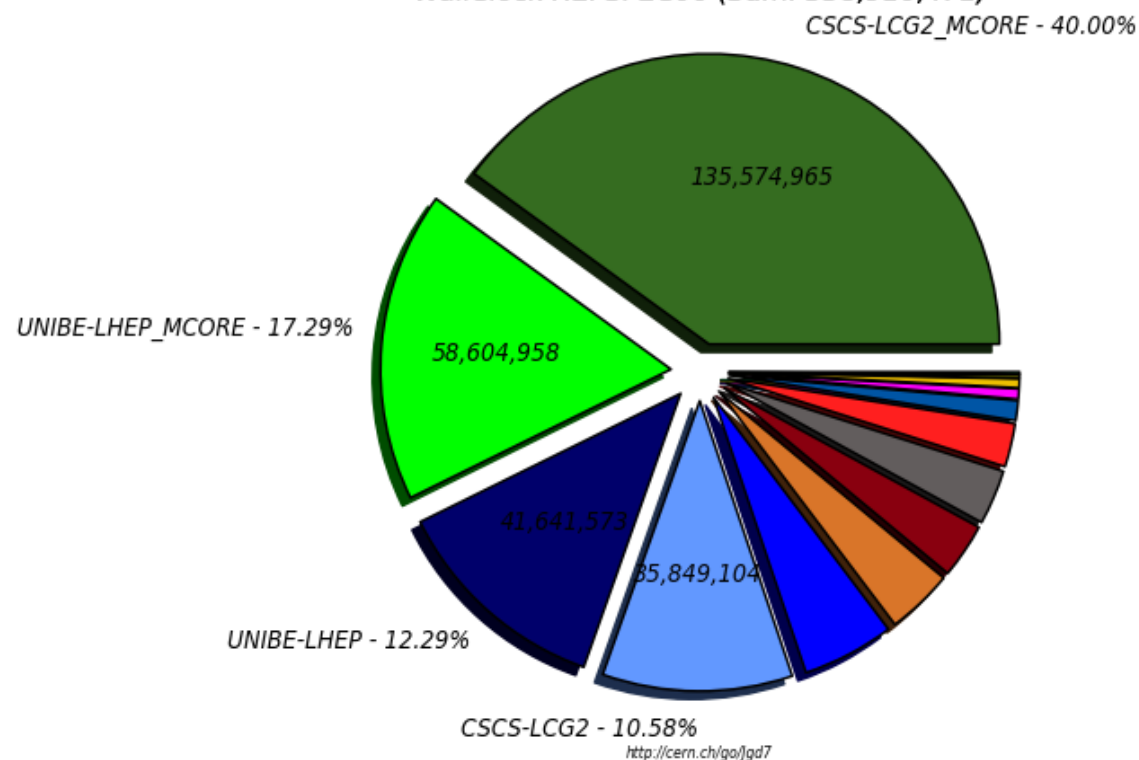


MC Simulation Full - 34.53% (116,947,655)
 Group Production - 14.78% (50,048,920)
 Data Processing - 7.38% (24,983,503)
 Testing - 1.07% (3,633,836)
 Group Analysis - 0.41% (1,386,693)
 Others - 0.02% (55,948)

MC Event Generation - 27.15% (91,953,717)
 MC Reconstruction - 10.31% (34,936,123)
 User Analysis - 3.59% (12,153,207)
 MC Simulation Fast - 0.64% (2,154,154)
 MC Simulation - 0.13% (449,586)



WallClock HEPSPEC06 (Sum: 338,910,471)



CSCS-LCG2_MCORE - 40.00% (135,574,966)
 UNIBE-LHEP - 12.29% (41,641,574)
 UNIBE-LHEP-UBELIX_MCORE - 5.13% (17,369,471)
 CSCS-LCG2-HPC_MCORE - 3.05% (10,343,513)
 ANALY_CSCS - 2.42% (8,194,570)
 UNIBE-LHEP_CLOUD_MCORE - 0.57% (1,921,374)
 UNIBE-LHEP_CLOUD - 0.18% (595,639)

UNIBE-LHEP_MCORE - 17.29% (58,604,959)
 CSCS-LCG2 - 10.58% (35,849,104)
 CSCS-LCG2-HPC - 3.70% (12,545,119)
 UNIBE-LHEP-UBELIX - 3.05% (10,336,310)
 ANALY_UNIBE-LHEP - 1.10% (3,726,016)
 ANALY_CSCS-HPC - 0.50% (1,697,690)
 ANALY_UNIBE-LHEP-UBELIX - 0.15% (510,167)

CSCS-LCG2 as a Nucleus

- ▶ **Negotiated for quite a long time with the ATLAS management**
 - ▶ Initially agreed (April-May), as the 6-month retrospective history looked good
 - ▶ Some reservations due to the limited capacity of the site (both storage and CPU)
 - ▶ However the first high-profile dCache incident put that on hold
 - ▶ A long downtime for the SE is not suited to a centre meant to store data to serve to other sites
 - ▶ In the current configuration, also the compute part is taken down when the SE is down
 - ▶ More negotiation followed, but the site has since had more instabilities and a second dCache incident just at the time I brought this up again for consideration

- ▶ **Current status**
 - ▶ *unclear*
 - ▶ in principle I got this agreed a couple of weeks ago, after some additional negotiation and pressure, *but with several reservations* (see next slide)
 - ▶ however, I have not seen yet any task submitted with CSCS as a Nucleus, and the site is not on the list

CSCS-LCG2 as a Nucleus

▶ **Summary of objections from the ADC management**

- ▶ Size capacity limited (both in storage and CPU)
- ▶ Site instabilities and lengthy downtimes
- ▶ The feature of Nucleus is an *operational* choice by ATLAS in order to streamline workloads in the most efficient way. The ADC management strongly discourage the use of this status as an argument of pressure on funding agencies
- ▶ Reminder: Nucleus is not a *permanent* status

▶ **My take on this**

- ▶ we should improve performance and stability of the site
- ▶ reducing both the number of incidents and their duration

Summary

- ▶ **We have come a long way since our f2f in CERN 1 year ago**
- ▶ **CSCS-LCG2 delivers with better efficiency**
- ▶ **However, we are not quite there yet: we need that extra leap to take us up in the ranks**
- ▶ **Set permanent remedies to recurring problems**
 - ▶ GPFS instabilities and performance
 - ▶ SE availability
 - ▶ improve reaction time to problems (monitoring, etc)
- ▶ **All of this maintaining the improvements since a year ago**
 - ▶ e.g. delivery vs. installed, etc.