

- ▶ Performance overview January - June 2018



ATLAS T2 VO REPORT

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CHIPP-CSCS face 2 face - 21 June 2018

Availability - HammerCloud AFTs and PFTs

Historic view for "panda_queues_all" from 00:00 01.01.2018 to 00:00 15.06.2018

Show 100 entries

Search:

PANDA queue	SITE Name	TIER	CLOUD	History plot time bin = 330 hours	offline		brokeroff		online		NoQueue		test	
					%	count	%	count	%	count	%	count	%	count
ANALY_CSCS	CSCS-LCG2	T2D	DE		2.59	4	0.19	2	94.64	22	0	0	2.05	10
ANALY_CSCS-HPC	CSCS-LCG2	T2D	DE		3.67	6	0.29	3	90.26	22	0	0	5.26	10
ANALY_UNIBE-LHEP	UNIBE-LHEP	T2	ND		1.27	2	0.1	1	94.94	34	0	0	3.16	23
ANALY_UNIBE-LHEP-UBELIX	UNIBE-LHEP	T2	ND		1.27	2	0.1	1	94.46	27	0	0	3.64	16
CSCS-LCG2	UNDEFINED	UNDEFINED	UNDEFINED		1.53	2	24.33	3	73.34	14	0	0	0.27	5
CSCS-LCG2-HPC	CSCS-LCG2	T2D	DE		2.42	4	24.33	3	70.03	14	0	0	2.69	5
CSCS-LCG2-HPC_MCORE	CSCS-LCG2	T2D	DE		4.26	6	0	0	92.52	18	0	0	2.69	5
CSCS-LCG2_MCORE	UNDEFINED	UNDEFINED	UNDEFINED		2.99	4	0	0	95.15	19	0	0	1.34	7
UNIBE-LHEP	UNIBE-LHEP	T2	ND		1.09	2	24.33	3	71.25	14	0	0	2.81	5
UNIBE-LHEP-UBELIX	UNIBE-LHEP	T2	ND		0.03	1	24.33	3	74.62	20	0	0	0.49	12
UNIBE-LHEP-UBELIX_MCORE	UNIBE-LHEP	T2	ND		0.03	1	0	0	98.95	22	0	0	0.49	12
UNIBE-LHEP_MCORE	UNIBE-LHEP	T2	ND		1.09	2	0	0	95.53	18	0	0	2.86	7

Showing 1 to 12 of 12 entries

First Previous 1 Next Last

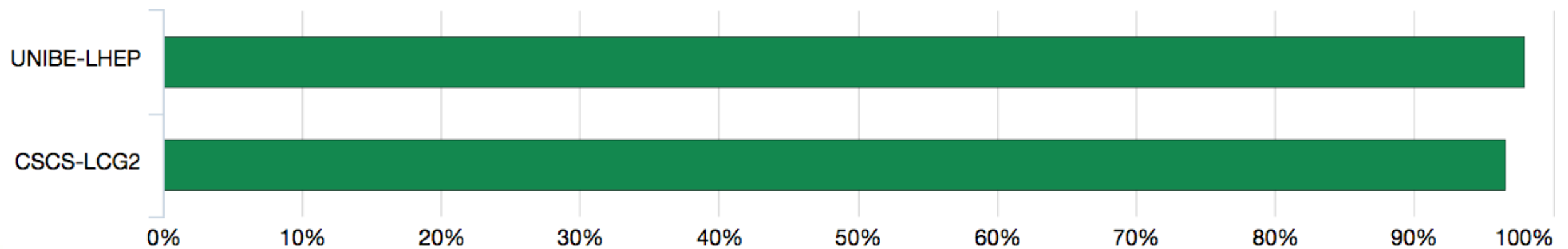
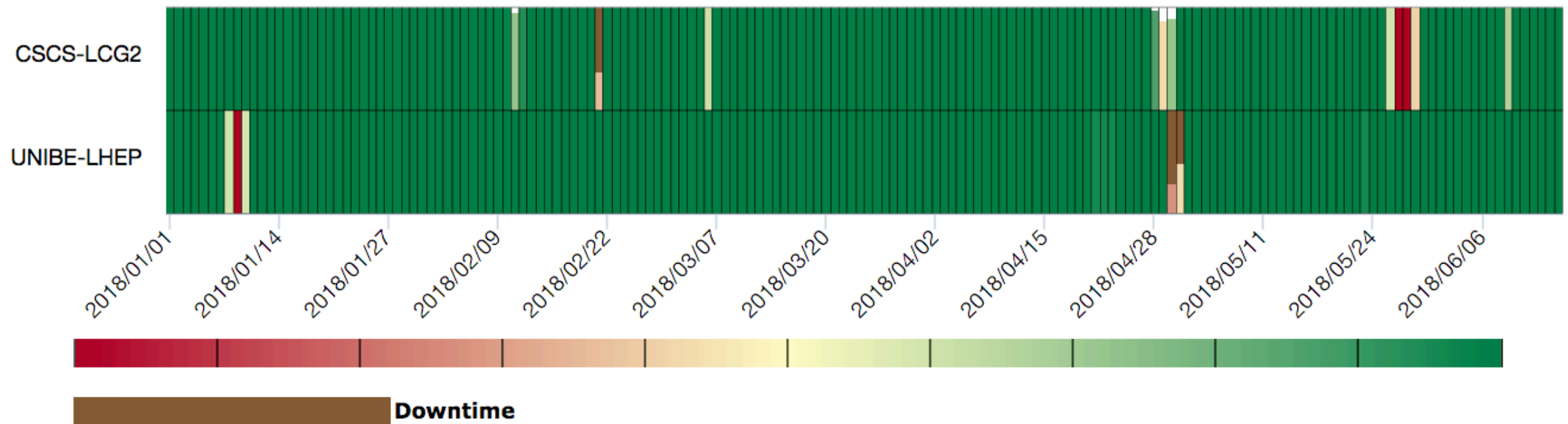
Availability

- **CSCS-LCG2:** 96.58% (rank 40 / 76 T2s - was 46)
- **UNIBE-LHEP:** 98.01% (rank 32 / 76 T2s - was 32)

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

Site Availability using ATLAS_CRITICAL

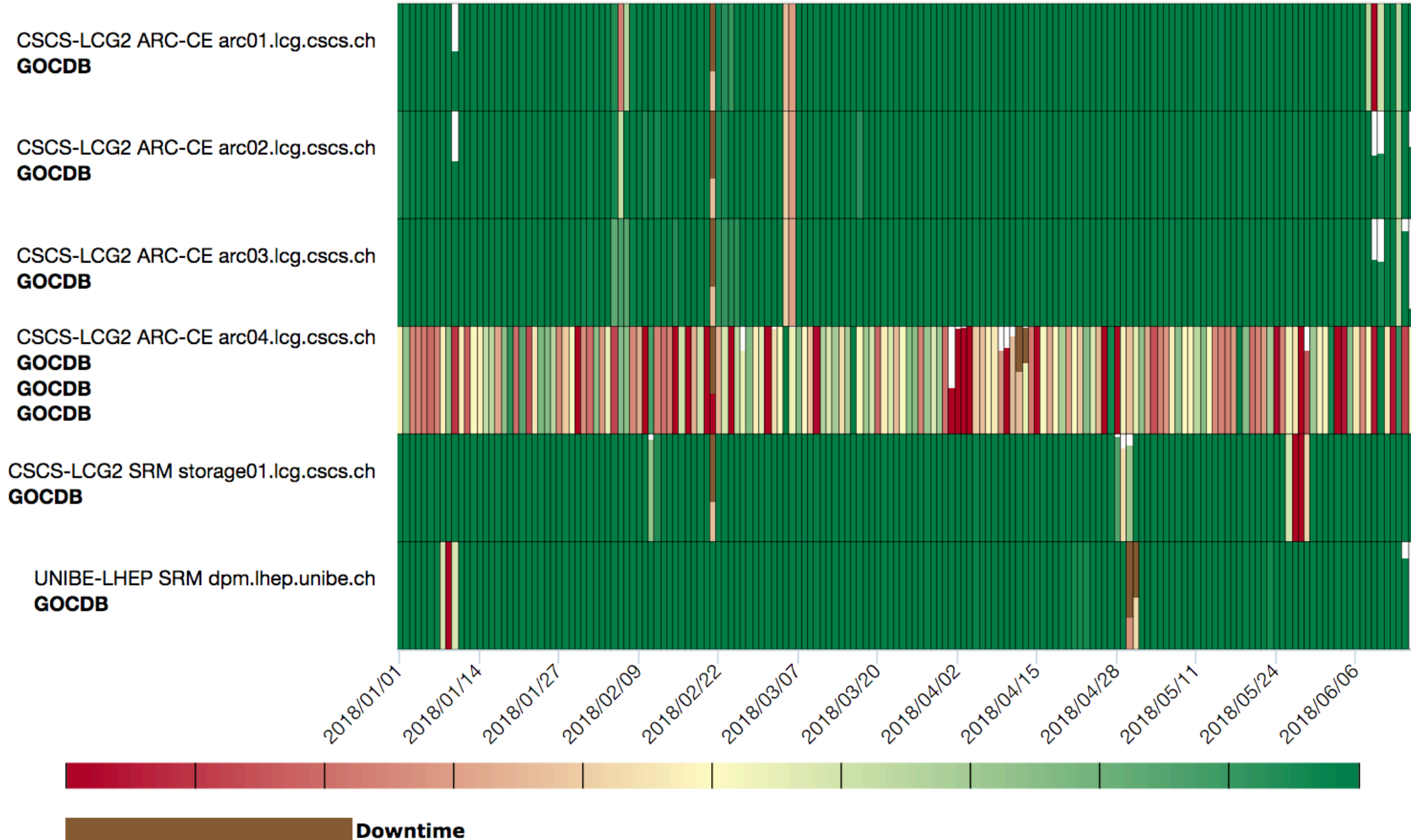
From 2018/01/01 to 2018/06/15



Service Availability

Service Availability using ATLAS_CRITICAL

From 2018/01/01 to 2018/06/15



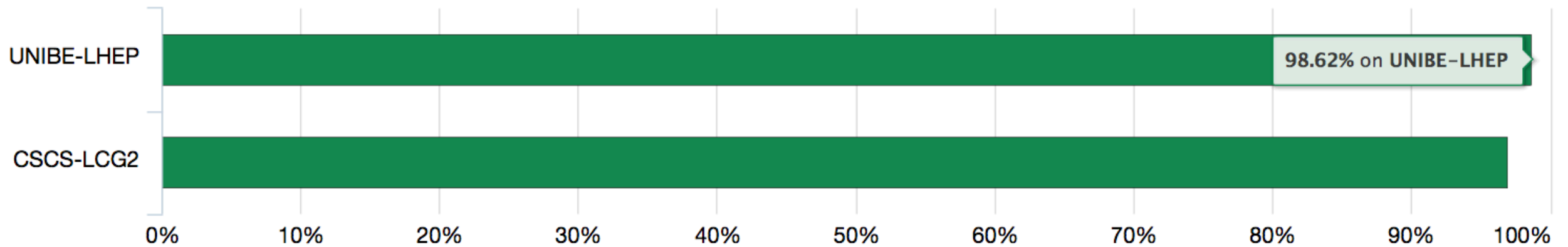
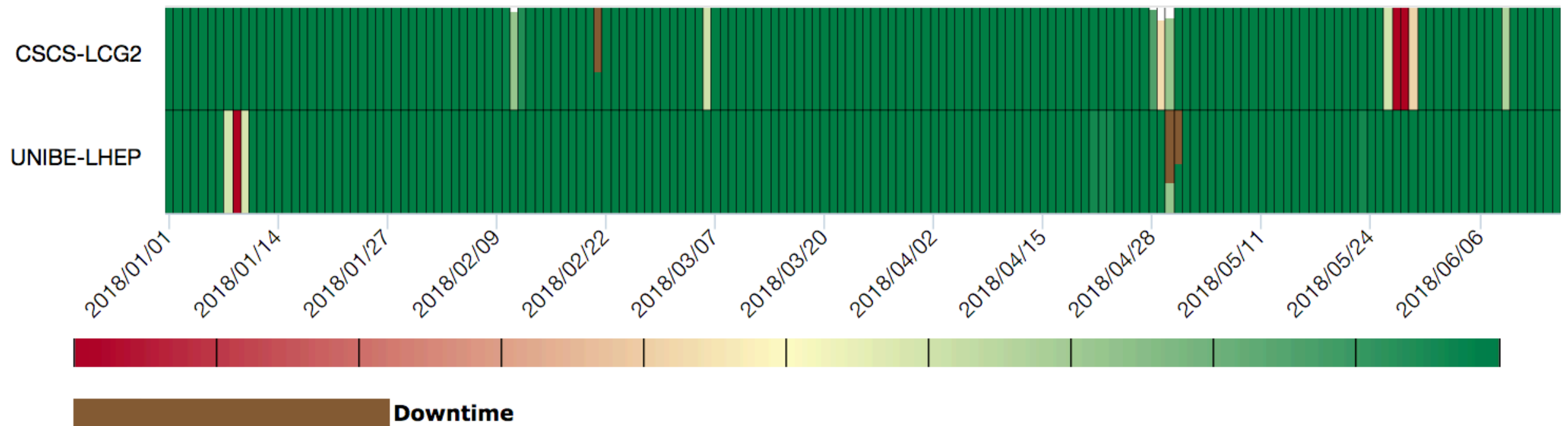
Reliability

- **CSCS-LCG2:** 96.95% (rank 43 / 76 T2s - was 36)
- **UNIBE-LHEP:** 98.62% (rank 33 / 76 T2s - was 24)

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

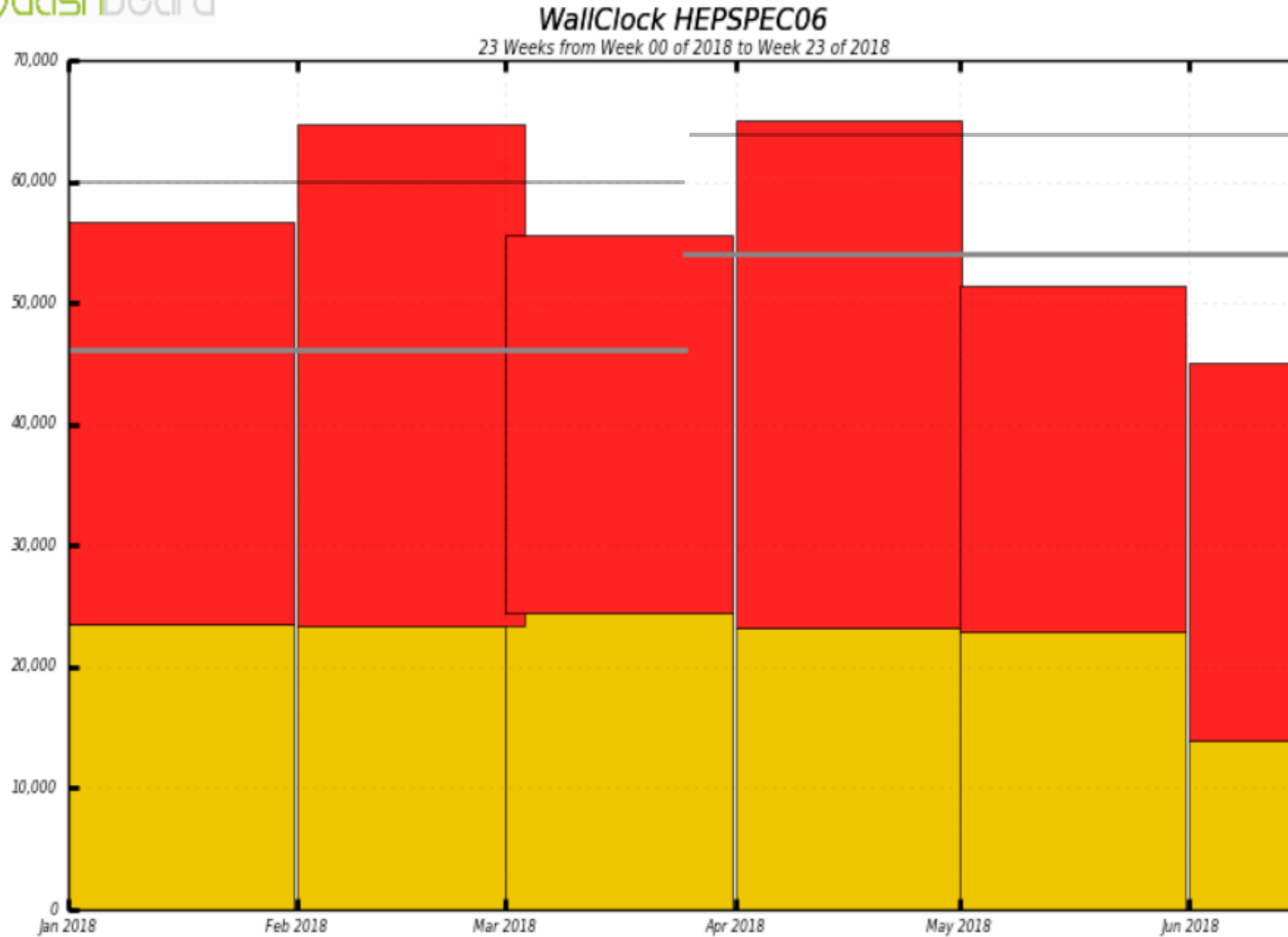
Site Reliability using ATLAS_CRITICAL

From 2018/01/01 to 2018/06/15



WallClock HS06 - CH-CHIPP-CSCS Federation

- **CSCS-LCG2 HS06 ATLAS installed (*)**: 43970 (66%) - **pledged**: 36000 (67%) (2018)
of total
- **UNIBE-LHEP HS06 ATLAS installed (**)**: 22000 (34%) - **pledged** 18000 (33%) (2018)
of total



total installed

total pledged

CSCS +15%
(why not +27% ?)

Bern +20%

■ CSCS-LCG2

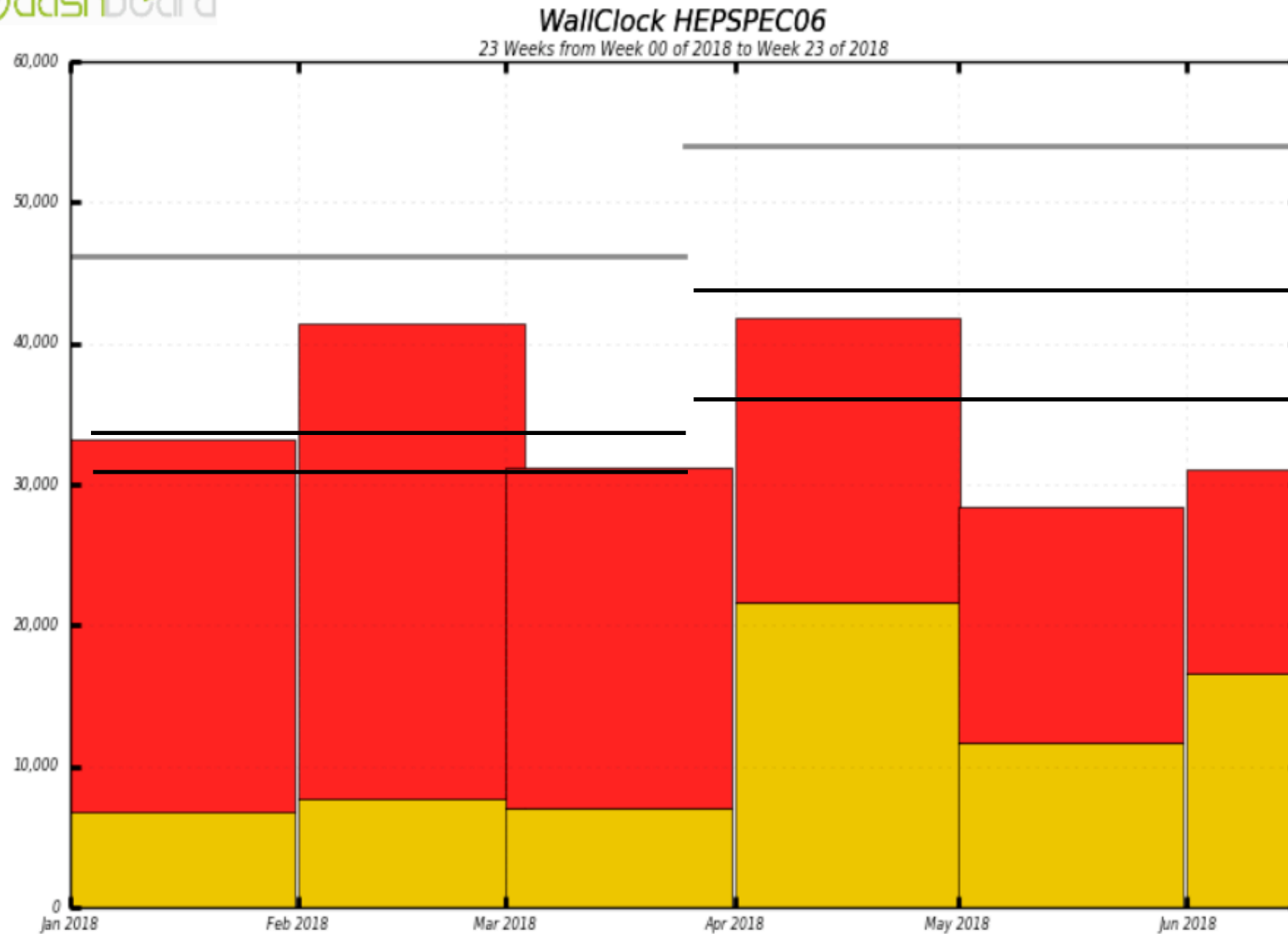
■ UNIBE-LHEP

(*) - ATLAS share

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

WallClock HS06 - CSCS-LCG2

- **CSCS-LCG2 HS06 ATLAS installed: 43970 - pledged: 36000** (2018)



installed

pledged

Phoenix 67%

Daint 33%
(incl. T0)

■ grid ■ hpc
(*) - ATLAS share

Maximum: 41,844 , Minimum: 0.00 , Average: 29,584 , Current: 31,048

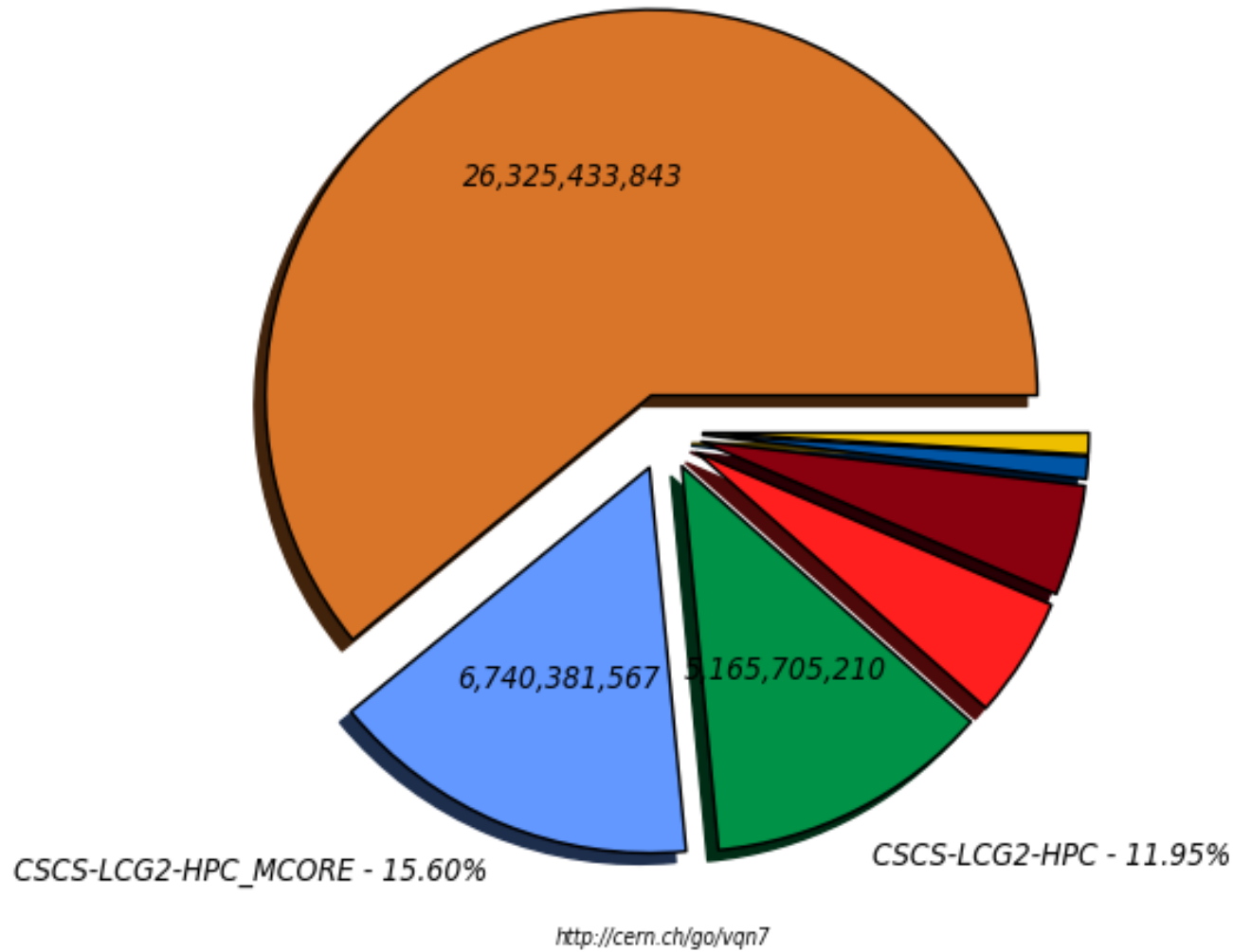
WallClock HS06 - CSCS-LCG2

- **CSCS-LCG2 HS06 ATLAS installed: 43970 - pledged: 36000** (2018). (*)



Wall Clock consumption All Jobs in seconds (Sum: 43,214,388,603)

CSCS-LCG2_MCORE - 60.92%



HPC capacity: 31% of total

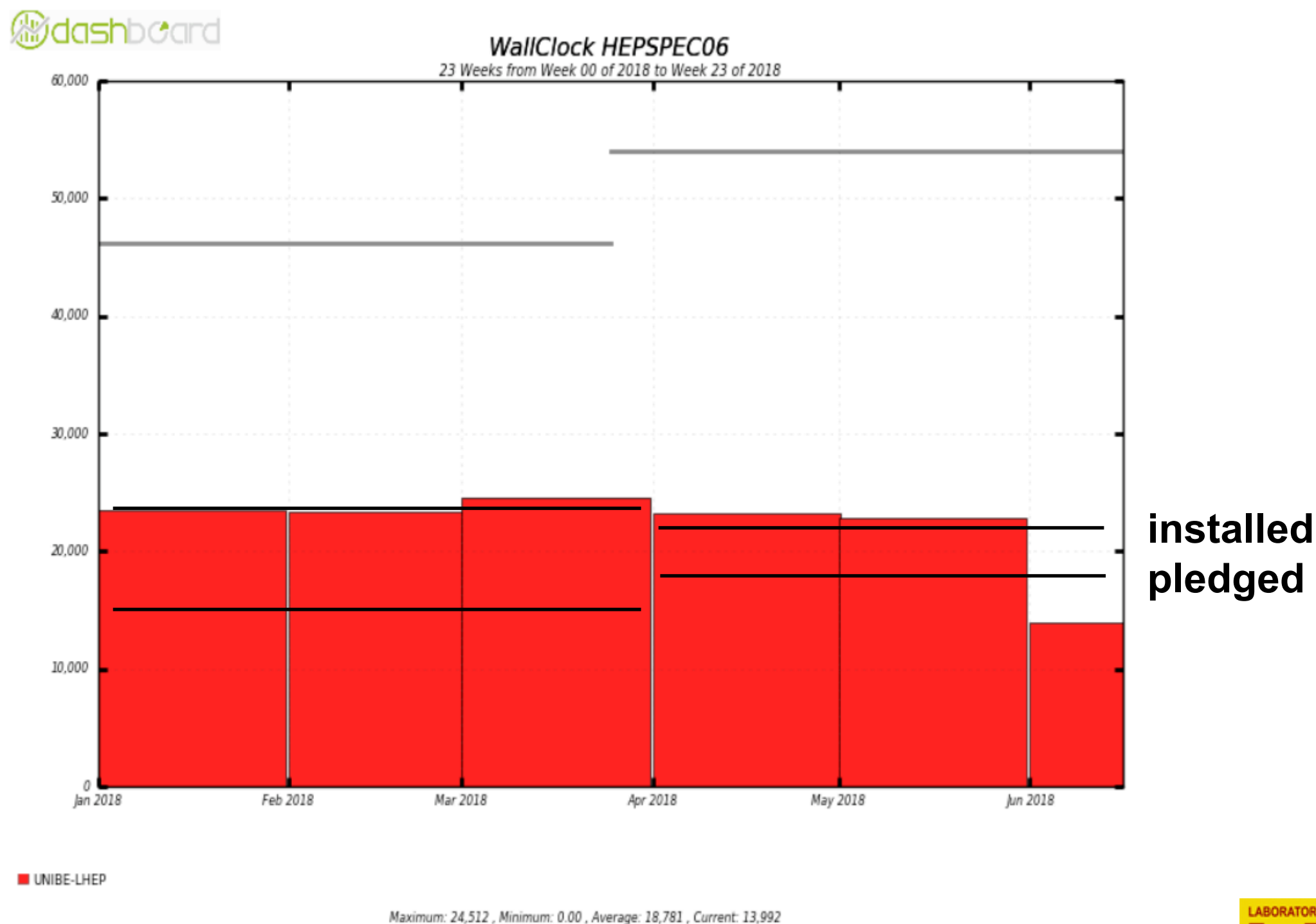
HPC delivered: 28% of total
(after subtracting the T0 activity)

- CSCS-LCG2_MCORE - 60.92% (26,325,433,843)
- CSCS-LCG2-HPC - 11.95% (5,165,705,210)
- CSCS-PIZDAINT - 4.64% (2,004,767,596)
- ANALY_CSCS-HPC - 0.90% (388,765,679)
- CSCS-LCG2-HPC_MCORE - 15.60% (6,740,381,567)
- ANALY_CSCS - 5.06% (2,188,588,429)
- CSCS-LCG2 - 0.93% (400,746,279)

(*) - ATLAS share

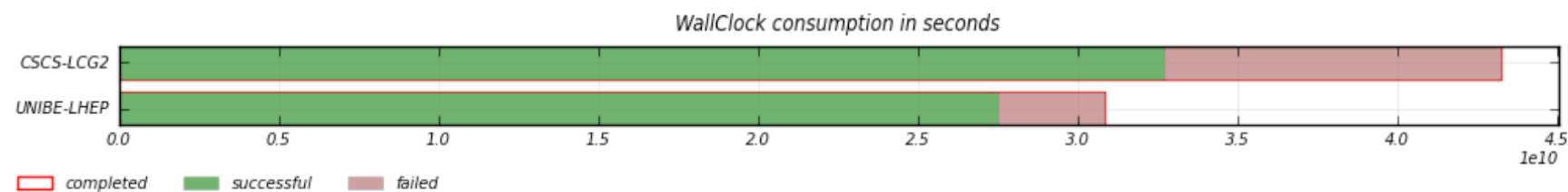
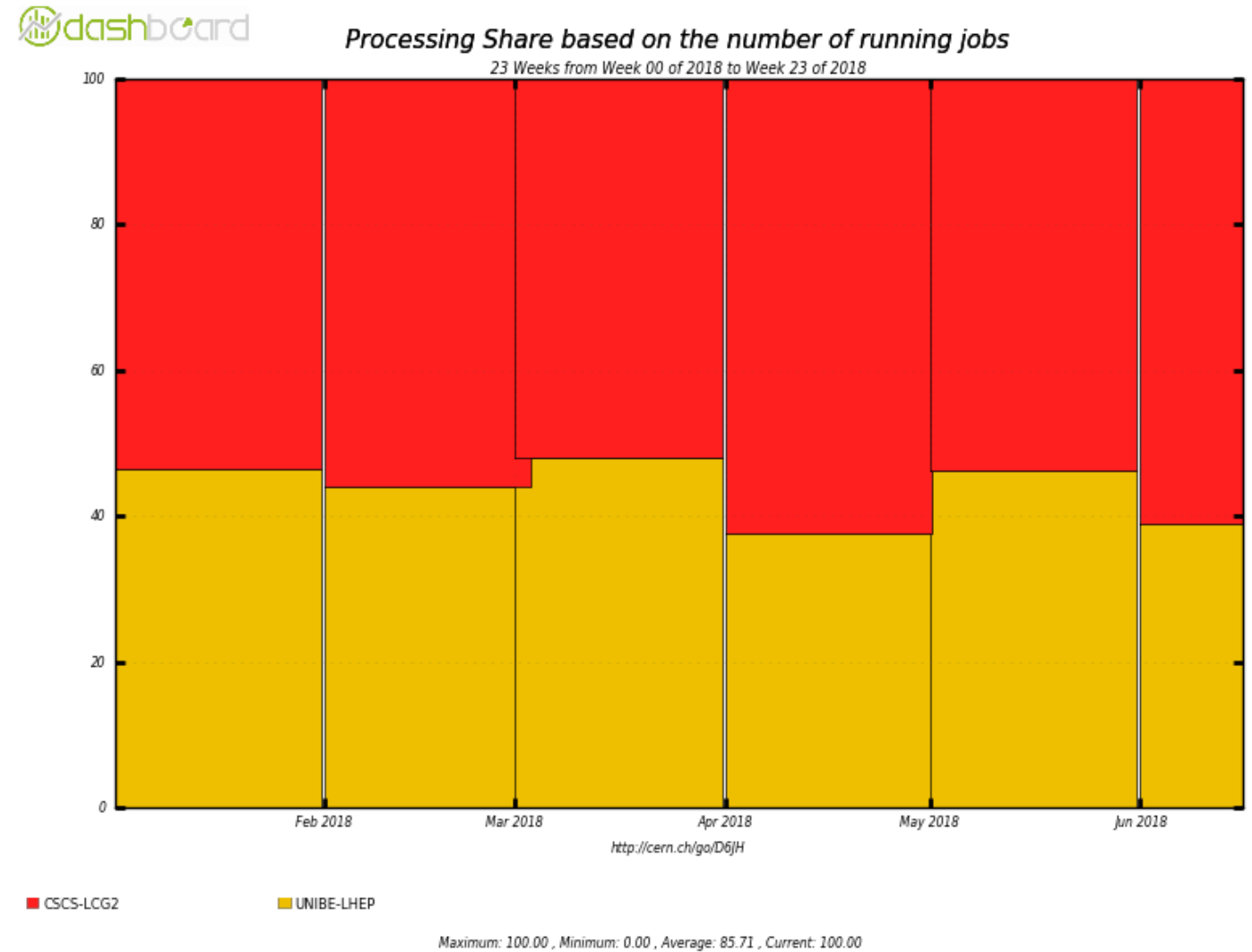
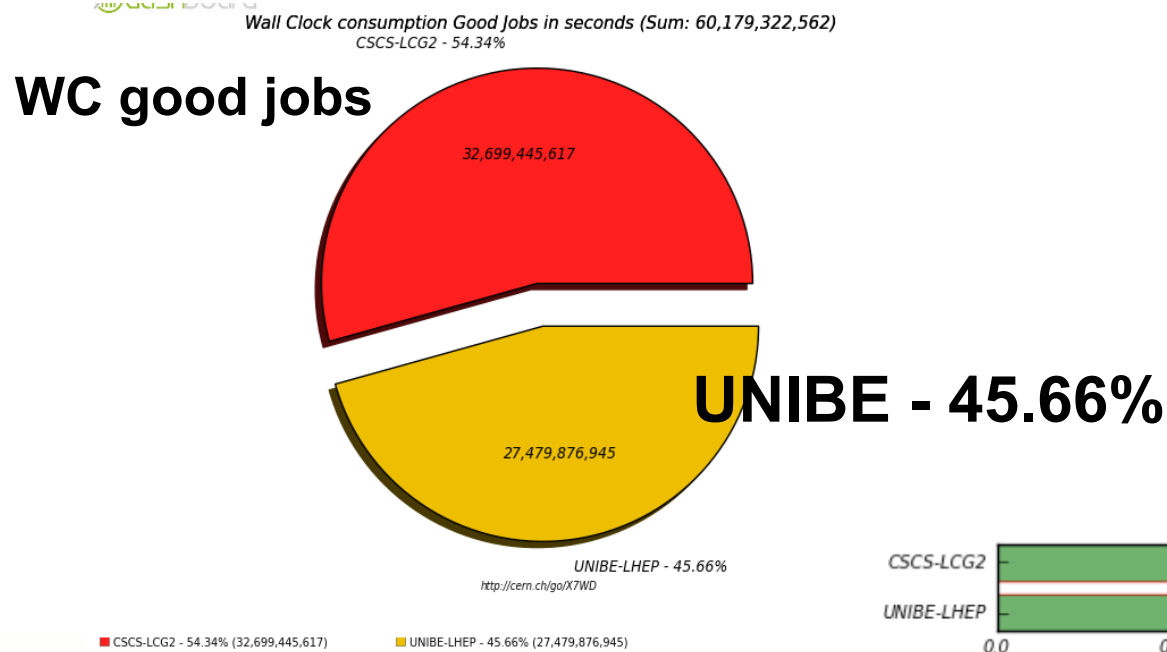
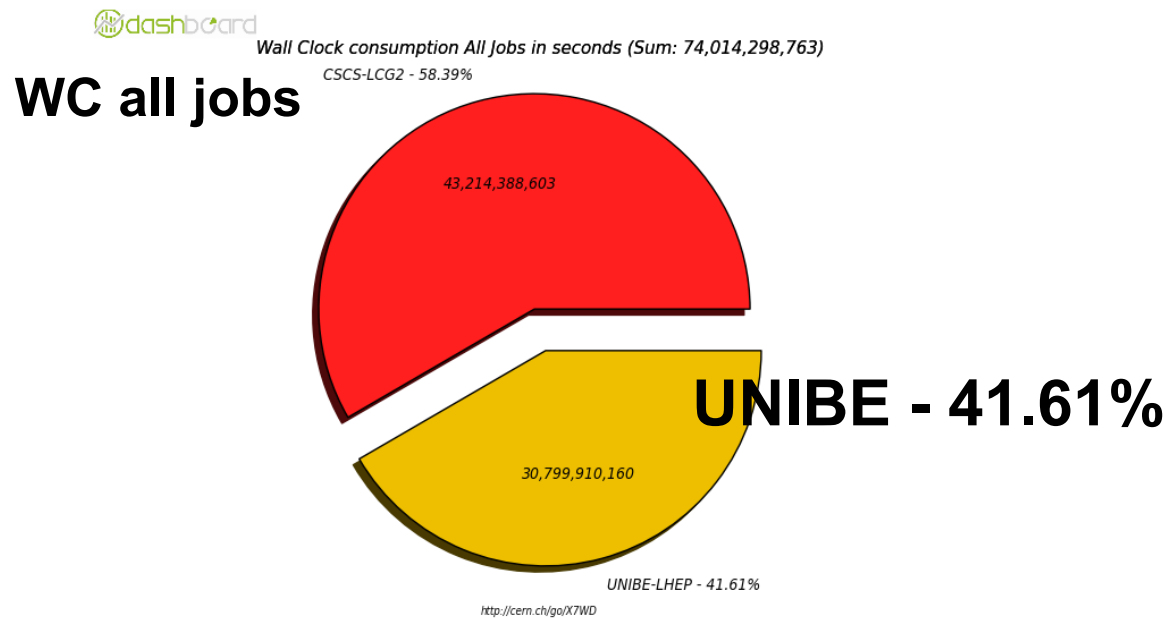
WallClock HS06 - UNIBE-LHEP

- **UNIBE-LHEP HS06 ATLAS installed (**): 22000 - pledged: 18000 (2018)**



Relative shares

- **UNIBE-LHEP installed estimated in about 37% of the total installed capacity**

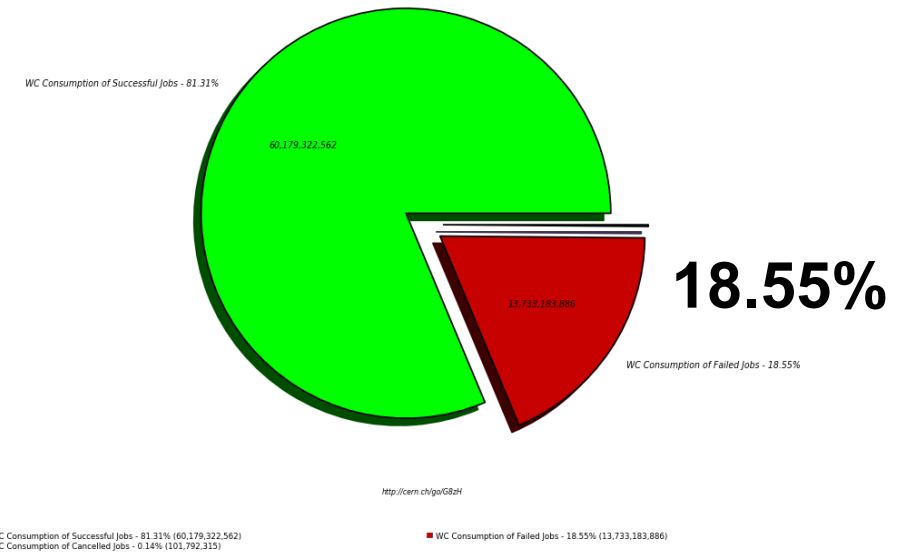


Success vs fail WallClock efficiency

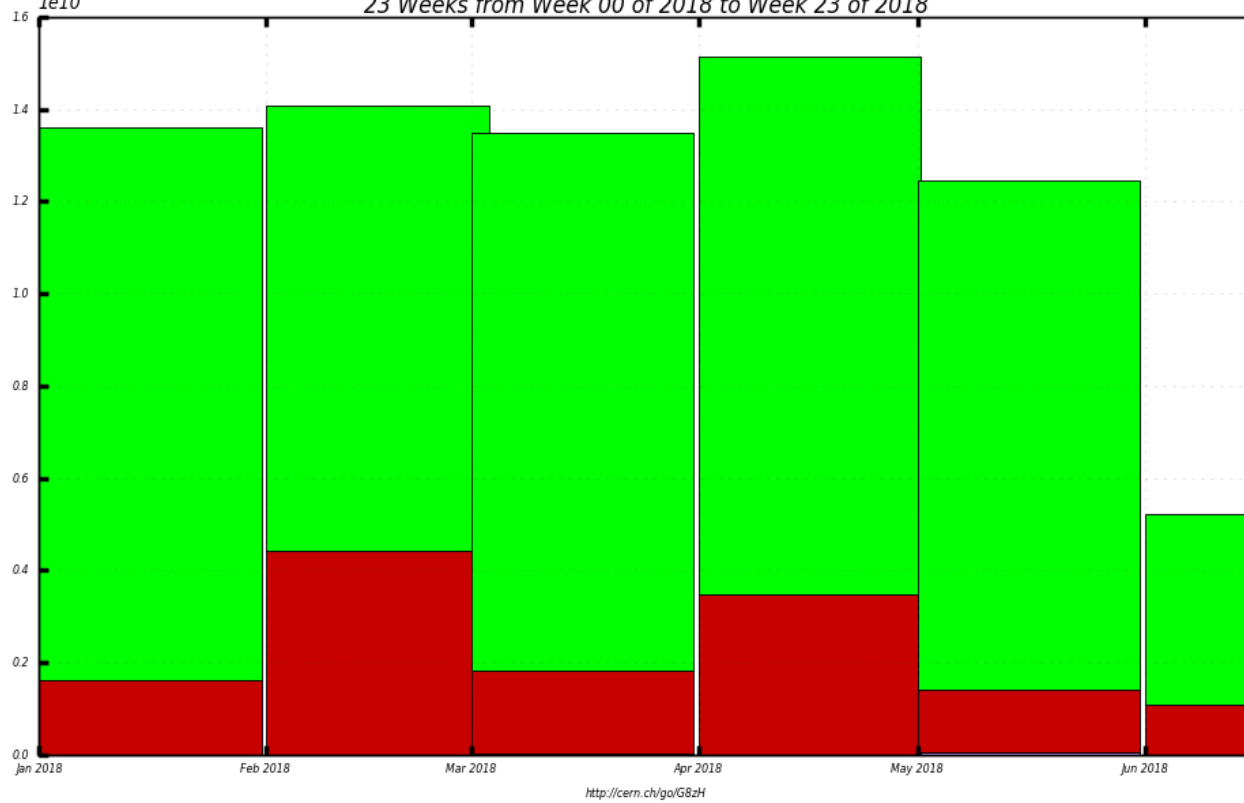
- **CSCS-LCG2: 76%**
- **UNIBE-LHEP: 90%**



WC Consumption for Successful and Failed Jobs (Sum: 74,014,298,763)



WallClock Consumption for Successful and Failed Jobs
23 Weeks from Week 00 of 2018 to Week 23 of 2018



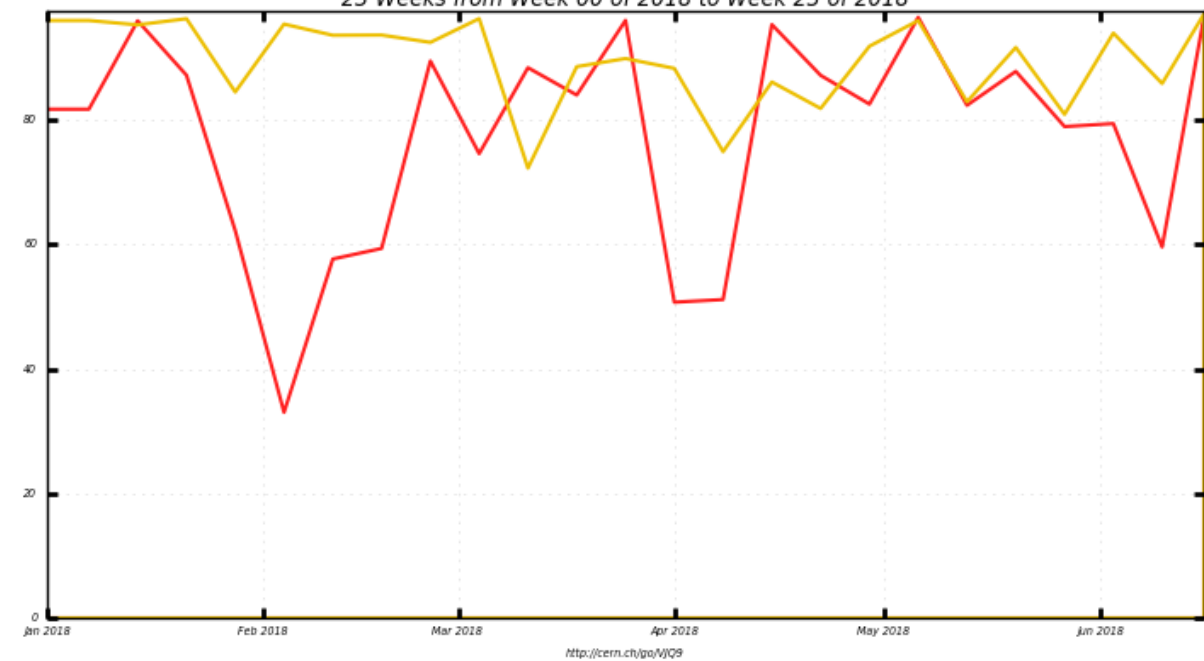
■ WallClock Consumption of Successful Jobs
■ WallClock Consumption of Cancelled Jobs

■ WallClock Consumption of Failed Jobs

Maximum: 15,143,557,217, Minimum: 0.00, Average: 10,573,471,251, Current: 5,222,572,535



WallClock Efficiency over time based on success/all accomplished jobs
23 Weeks from Week 00 of 2018 to Week 23 of 2018



■ UNIBE-LHEP (89.44)

■ CSCS-LCG2 (76.28)

Total: 145.52, Average Rate: 0.00 /s



CPU / WallClock efficiency

- **CSCS-LCG2: 80%**
- **UNIBE-LHEP: 85%**



Efficiency Good Jobs

23 Weeks from Week 00 of 2018 to Week 23 of 2018

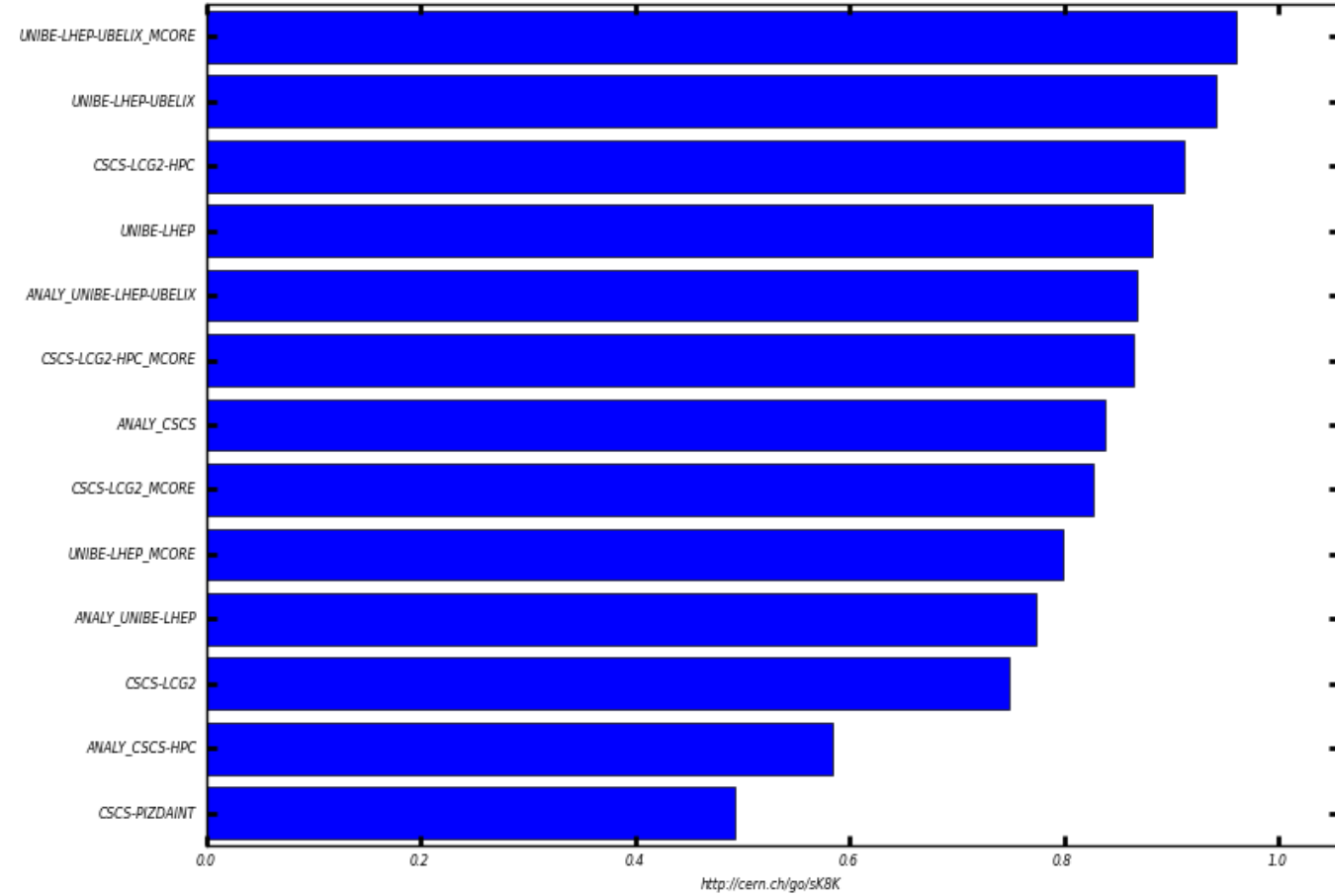


■ CSCS-LCG2 (0.80) ■ UNIBE-LHEP (0.85)

Total: 1.58 , Average Rate: 0.00/s



Average Efficiency Good Jobs

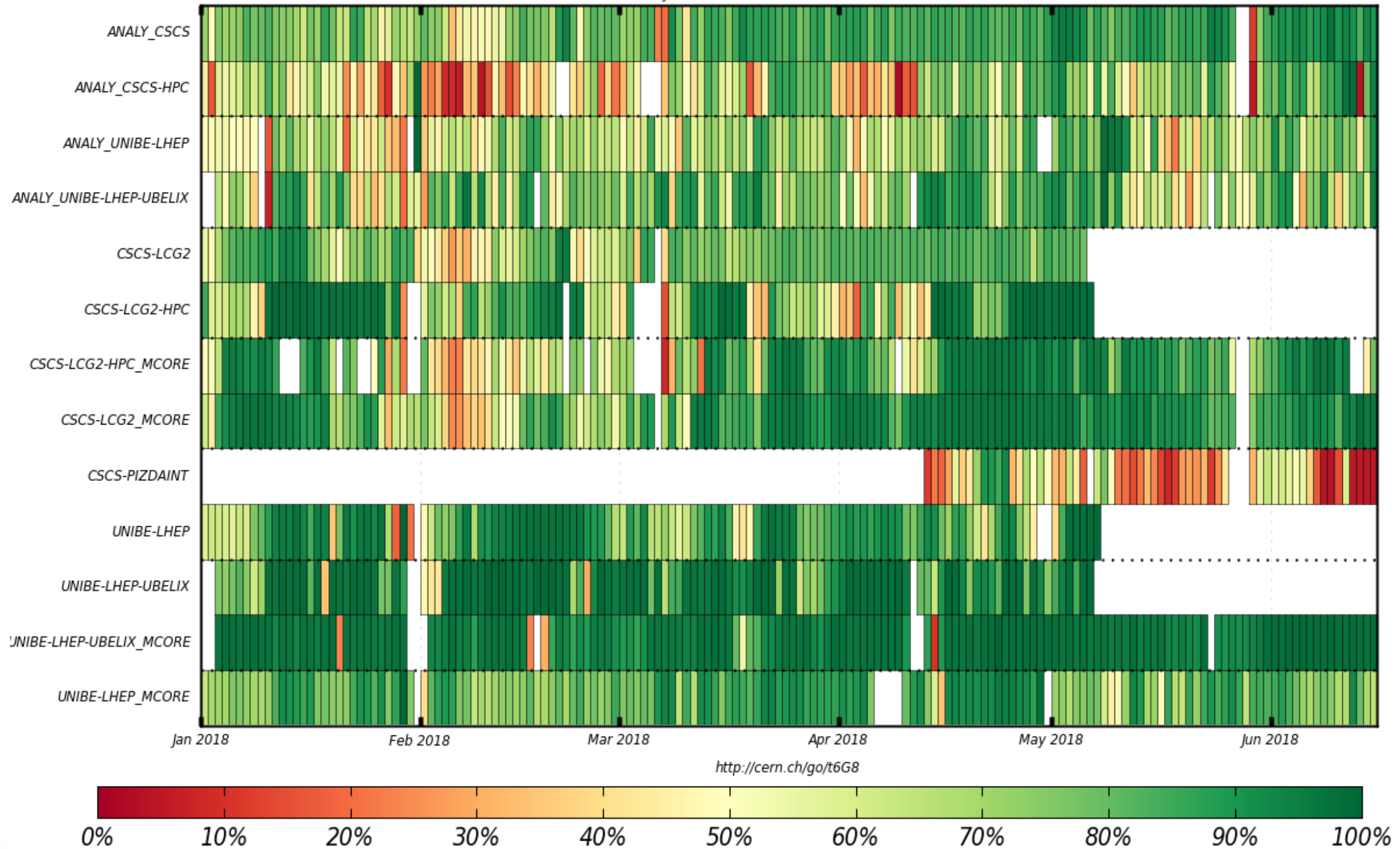


<http://cern.ch/go/sK8K>

CPU / WallClock efficiency by PanDA queue



Efficiency Good Jobs
165 Days from Week 00 of 2018 to Week 23 of 2018

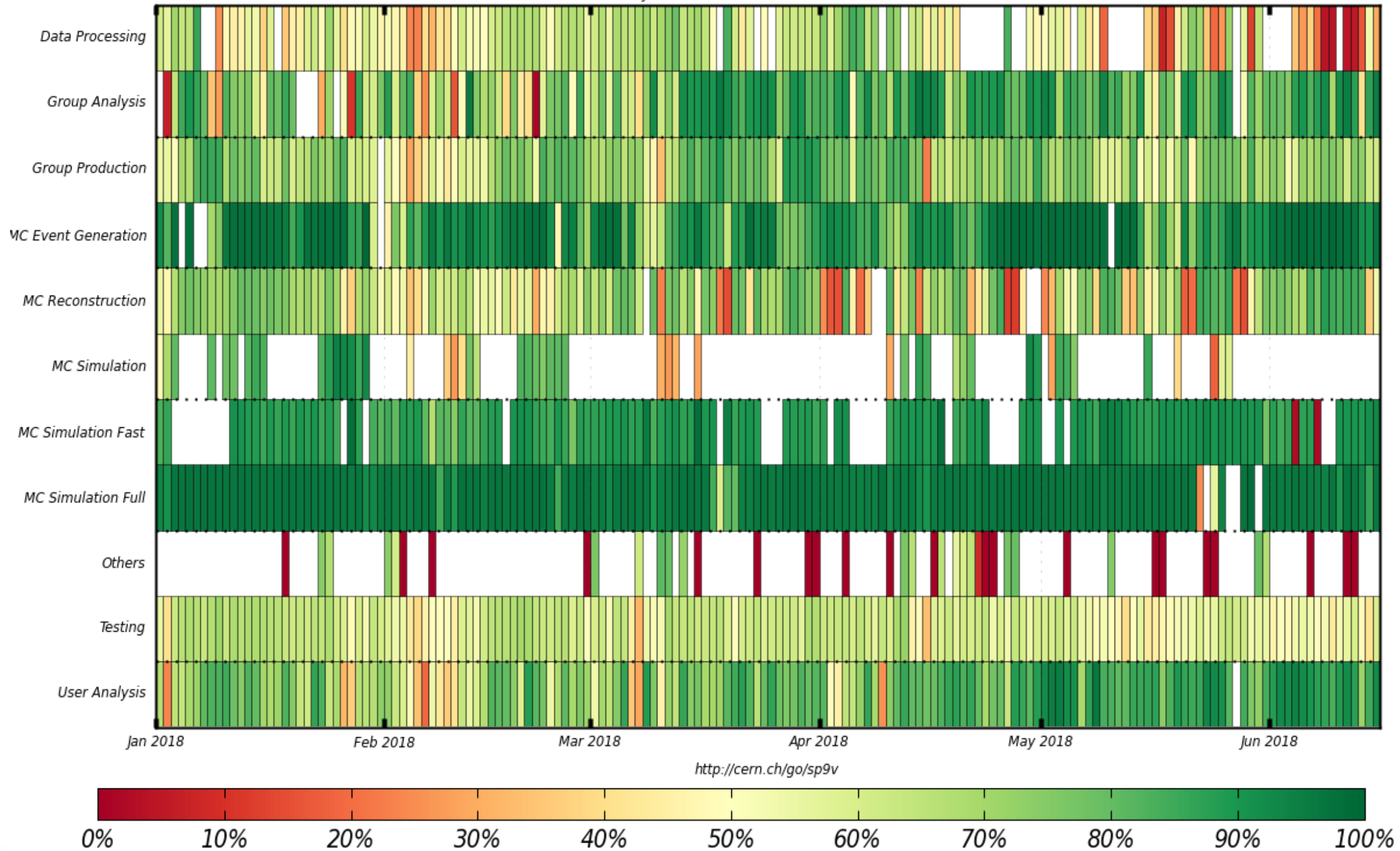


<http://cern.ch/go/t6G8>

CPU / WallClock efficiency by ADC activity



Efficiency Good Jobs
165 Days from Week 00 of 2018 to Week 23 of 2018

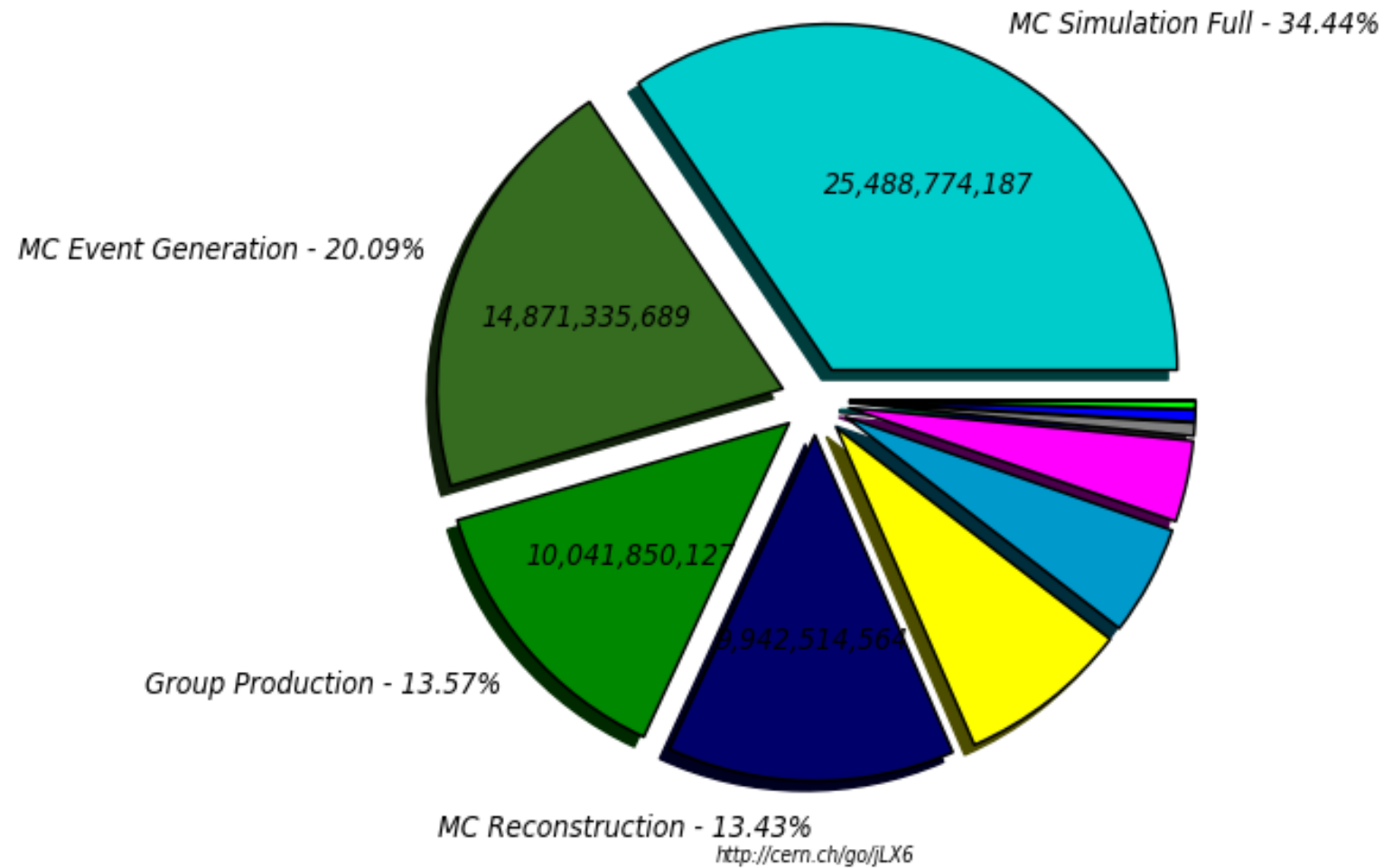


<http://cern.ch/go/sp9v>

WallClock by ADC activity



Wall Clock consumption All Jobs in seconds (Sum: 74,014,298,763)



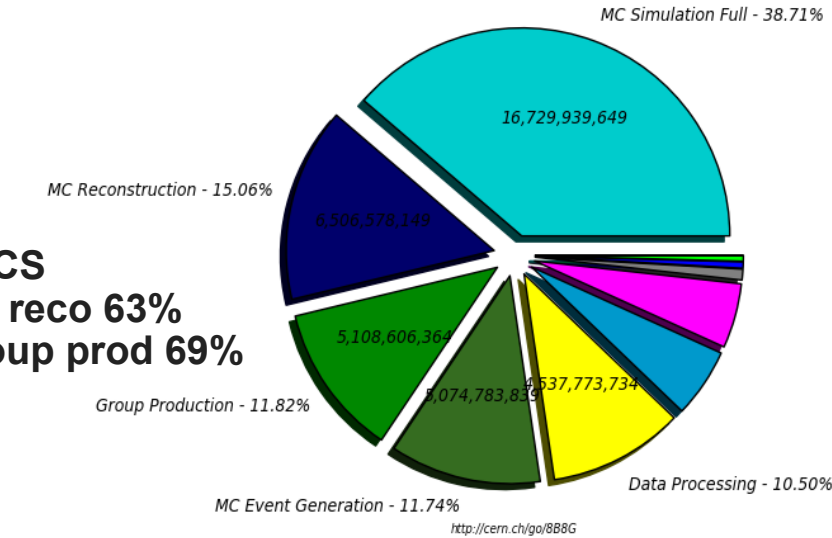
- MC Simulation Full - 34.44% (25,488,774,188)
- Group Production - 13.57% (10,041,850,127)
- Data Processing - 8.00% (5,924,672,460)
- User Analysis - 3.80% (2,812,282,029)
- MC Simulation - 0.54% (402,934,091)
- Others - 0.01% (3,899,970)
- MC Event Generation - 20.09% (14,871,335,689)
- MC Reconstruction - 13.43% (9,942,514,564)
- MC Simulation Fast - 5.15% (3,808,808,465)
- Group Analysis - 0.61% (447,969,150)
- Testing - 0.36% (269,258,030)

CPU / WallClock efficiency by type of job



Wall Clock consumption All Jobs in seconds (Sum: 43,214,388,603)

CSCS
MC reco 63%
Group prod 69%

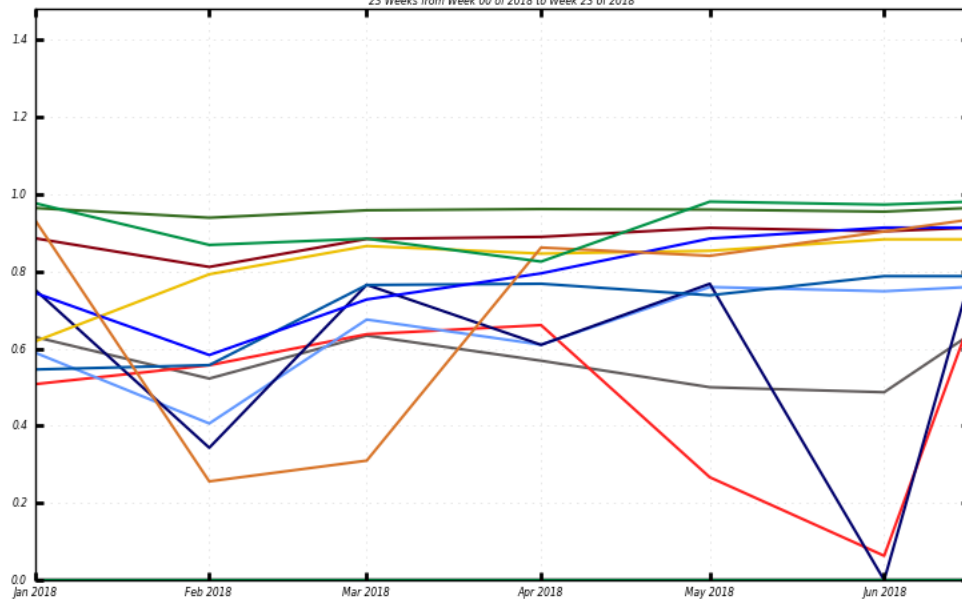


- MC Simulation Full - 38.71% (16,729,939,649)
- MC Reconstruction - 15.06% (6,506,578,149)
- Group Production - 11.82% (5,108,606,364)
- Data Processing - 10.50% (4,537,773,734)
- MC Event Generation - 11.74% (5,074,783,839)
- MC Simulation Fast - 5.38% (2,325,035,455)
- User Analysis - 5.03% (2,171,556,921)
- MC Simulation - 0.49% (212,558,975)
- Group Analysis - 0.84% (363,234,283)
- Testing - 0.42% (180,740,561)
- Others - 0.01% (3,580,672)



Efficiency Good Jobs

23 Weeks from Week 00 of 2018 to Week 23 of 2018



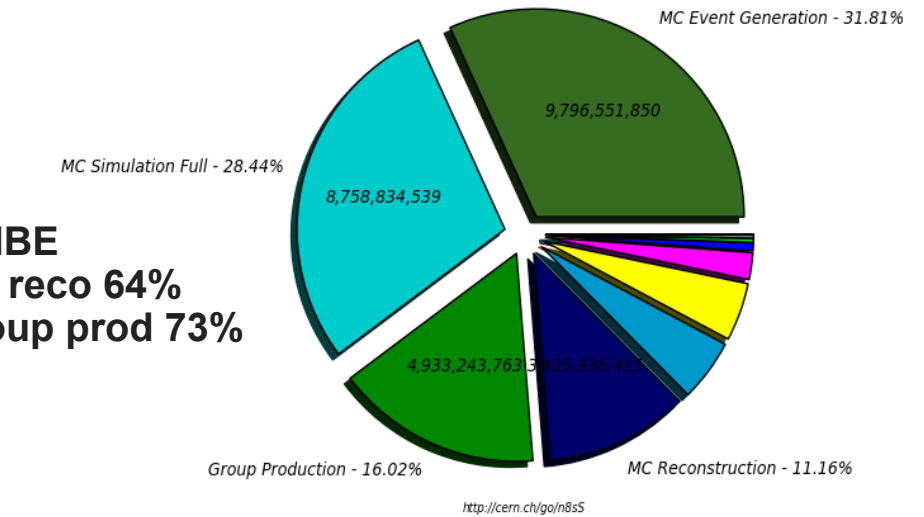
- MC Event Generation (0.92)
- MC Simulation Full (0.96)
- MC Simulation (0.64)
- User Analysis (0.77)
- MC Simulation Fast (0.88)
- Group Analysis (0.81)
- Group Production (0.69)
- Others (0.54)
- MC Reconstruction (0.63)
- Data Processing (0.45)
- Testing (0.56)

Total: 6.72, Average Rate: 0.00 /s



Wall Clock consumption All Jobs in seconds (Sum: 30,799,910,160)

UNIBE
MC reco 64%
Group prod 73%

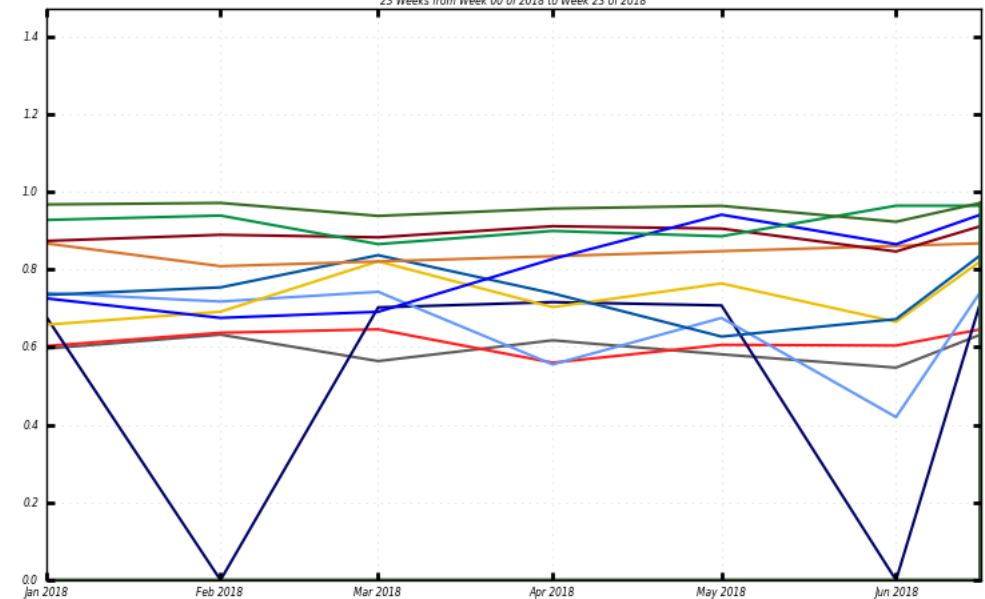


- MC Event Generation - 31.81% (9,796,551,850)
- MC Simulation Full - 28.44% (8,758,834,539)
- Group Production - 16.02% (4,933,243,763)
- MC Reconstruction - 11.16% (3,435,936,415)
- MC Simulation Fast - 4.82% (1,483,773,010)
- Data Processing - 4.50% (1,386,898,725)
- User Analysis - 2.08% (640,725,108)
- MC Simulation - 0.62% (190,375,116)
- Group Analysis - 0.28% (84,734,867)
- Testing - 0.29% (88,517,469)
- Others - 0.00% (319,298)



Efficiency Good Jobs

23 Weeks from Week 00 of 2018 to Week 23 of 2018



- MC Simulation Full (0.95)
- MC Event Generation (0.91)
- User Analysis (0.79)
- MC Simulation Fast (0.88)
- MC Simulation (0.84)
- Group Production (0.73)
- Group Analysis (0.72)
- MC Reconstruction (0.64)
- Data Processing (0.61)
- Testing (0.59)

Total: 6.51, Average Rate: 0.00 /s

Summary

- ▶ **WC HS06 delivered vs. Pledged on target**
 - ▶ 2018 pledged lower than it should have been
- ▶ **A bit short in delivered vs. Installed since April**
- ▶ **Ranking similar to last semester report, still room for improvement**
- ▶ **Improved on some recurring problems**
 - ▶ GPFS performance and stability, CPU/WC efficiency
- ▶ **Needs addressing:**
 - ▶ **Failed WC still high**
 - ▶ **Is arc04 stable? Or just a monitoring artefact?**

Outlook 1/2

- ▶ **Future** (discussions, r&d, etc):
 - ▶ **Joining the NDGF data-“fjord”?** (*nordic version of a data-lake*)
 - ▶ **Both UNIBE and CSCS**
 - ▶ **dCache based**
 - ▶ **dCache pools under the NDGF head nodes**
 - ▶ **Currently 4 Tier-1 storage sties and 1 Tier-2 storage site (Slovenia)**
 - ▶ ***dCache pools can be managed remotely by an unprivileged user***
 - ▶ **Could open ports to tape usage for CSCS**
 - ▶ *What about politics?*

Outlook 2/2

- ▶ **Future** (discussions, r&d, etc):
 - ▶ **Object stores**
 - ▶ **For pure object store, need for ATLAS development for protocols (s3, swift)**
 - ▶ **First step in that direction would be add a CEPH FS pool to dCache (LHC protocols)**
 - ▶ **Better QoS for data loss, but it has to be tested vs. offering less disk space**
 - ▶ **Tape @ CSCS**
 - ▶ **There could be a concrete use case for a new storage model for data lakes**
 - ▶ **More storage tiers with different QoS**
 - ▶ **Again, this is new r&d for ATLAS, discussions ongoing**
 - ▶ **The tape@CSCS case will be brought up next week at the ATLAS s&c week**
 - ▶ *Currently tape needs dCache, unless we can provide another interface based on https, root, s3 that is usable by FTS*
 - ▶ **Event service with arc05?**