

Analysis job distribution and queue capacity

Rob Gardner

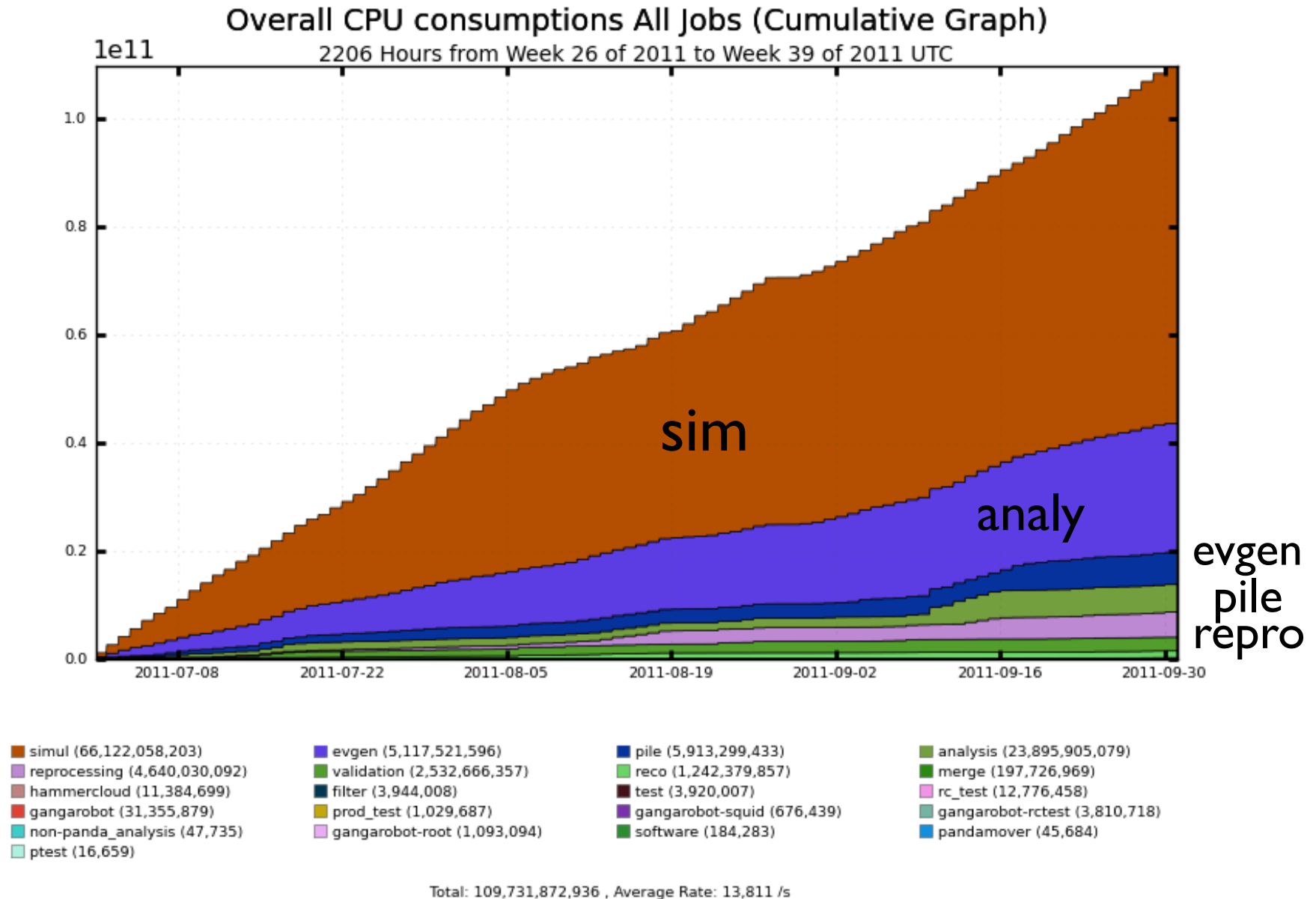
US ATLAS Facilities Workshop at SMU

October 11-12, 2011

Outline

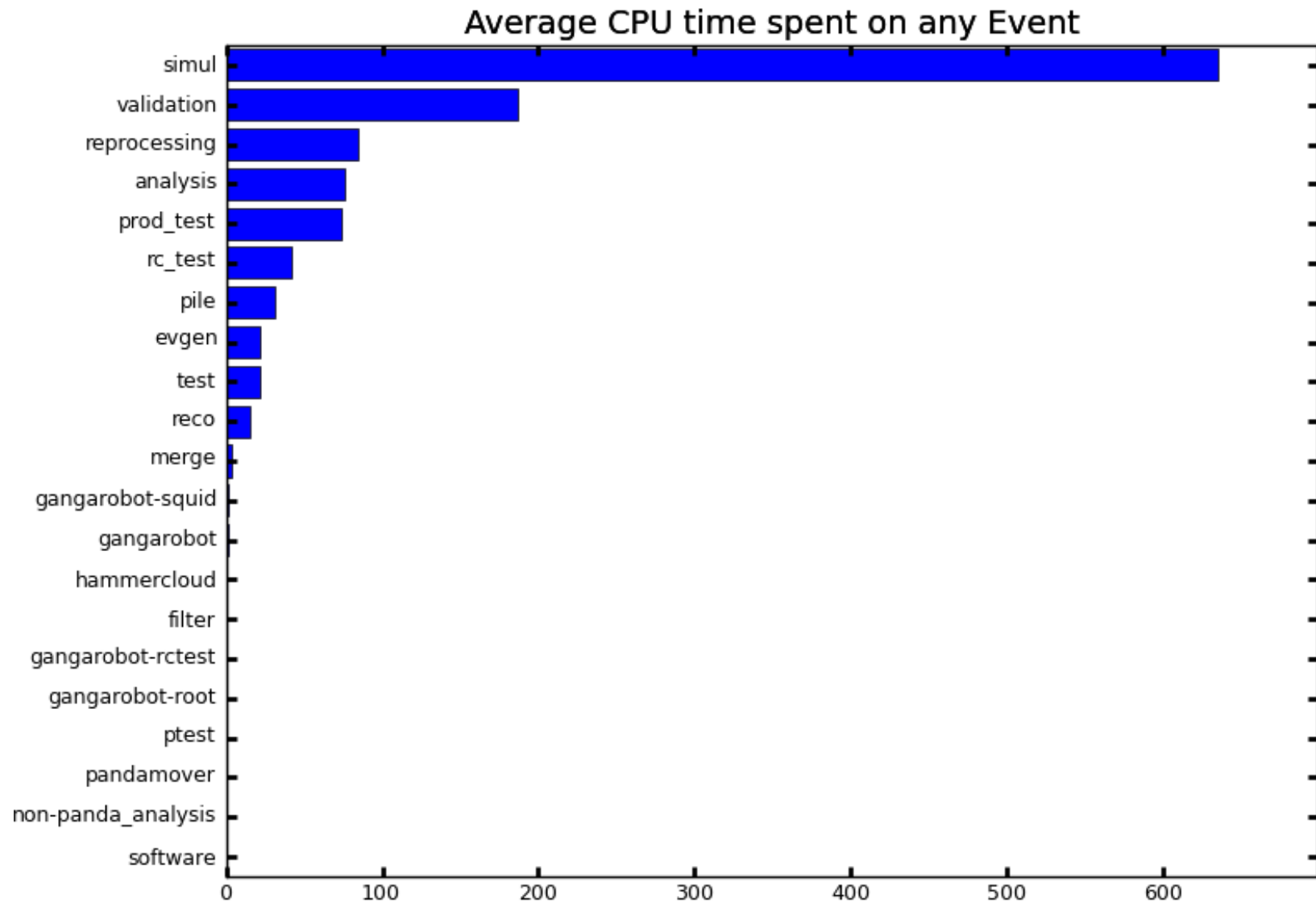
- Yesterday we heard about DA performance
- Follow up here with a few more points looking at statistics in the historical dashboard: <http://dashb-atlas-job-prototype.cern.ch/dashboard/request.py/dailysummary>

US ATLAS - last quarter



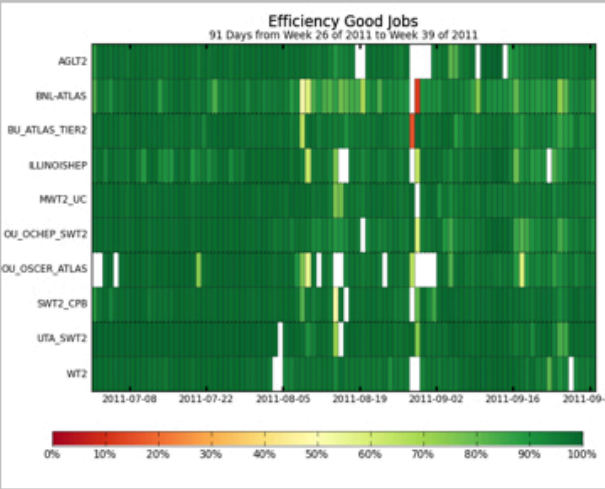
nb: some legend codes are wrong - check numbers <http://savannah.cern.ch/bugs/?87572>

US ATLAS - last quarter

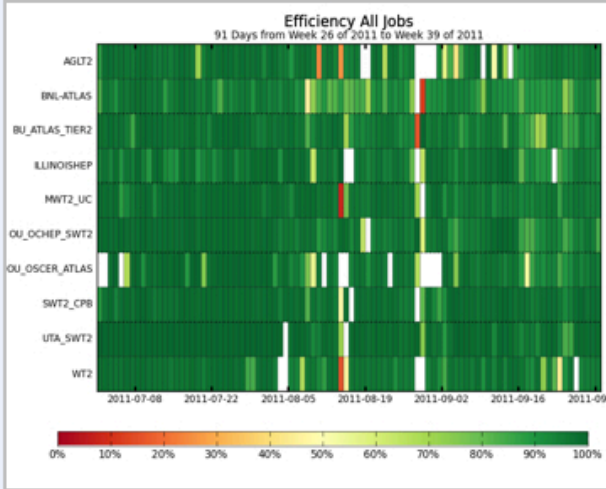


production efficiency remains high

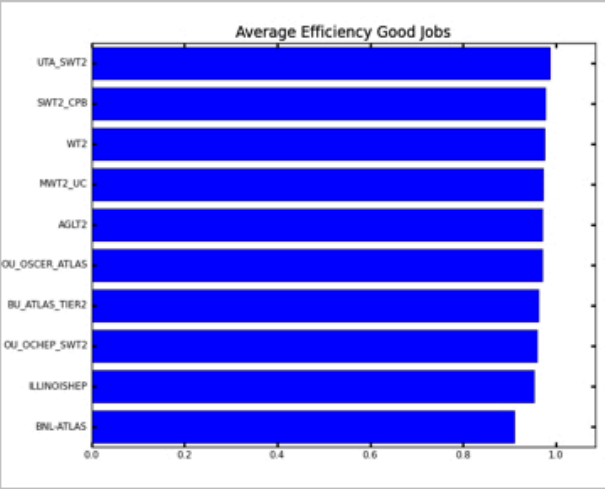
Efficiency Good Jobs (links to data in different formats)



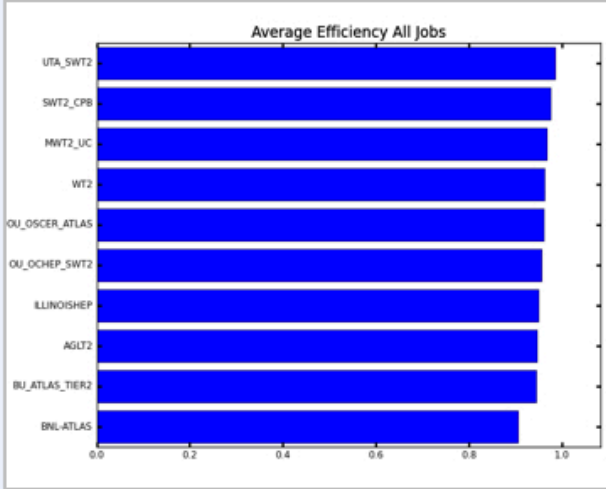
Efficiency All Jobs (links to data in different formats)



Average Efficiency Good Jobs (links to data in different formats)



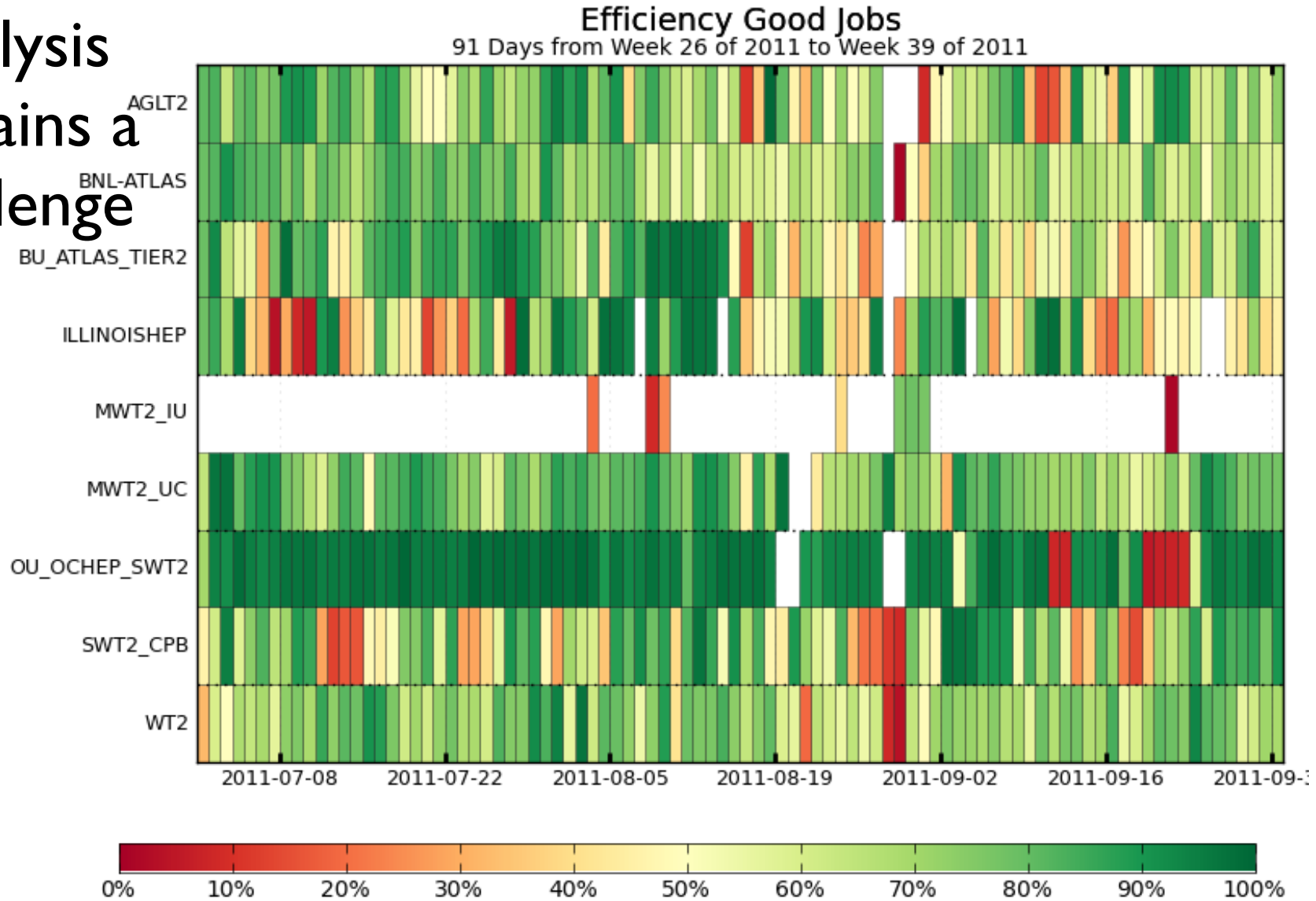
Average Efficiency All Jobs (links to data in different formats)



efficiencies are 95-98%

US ATLAS - last quarter

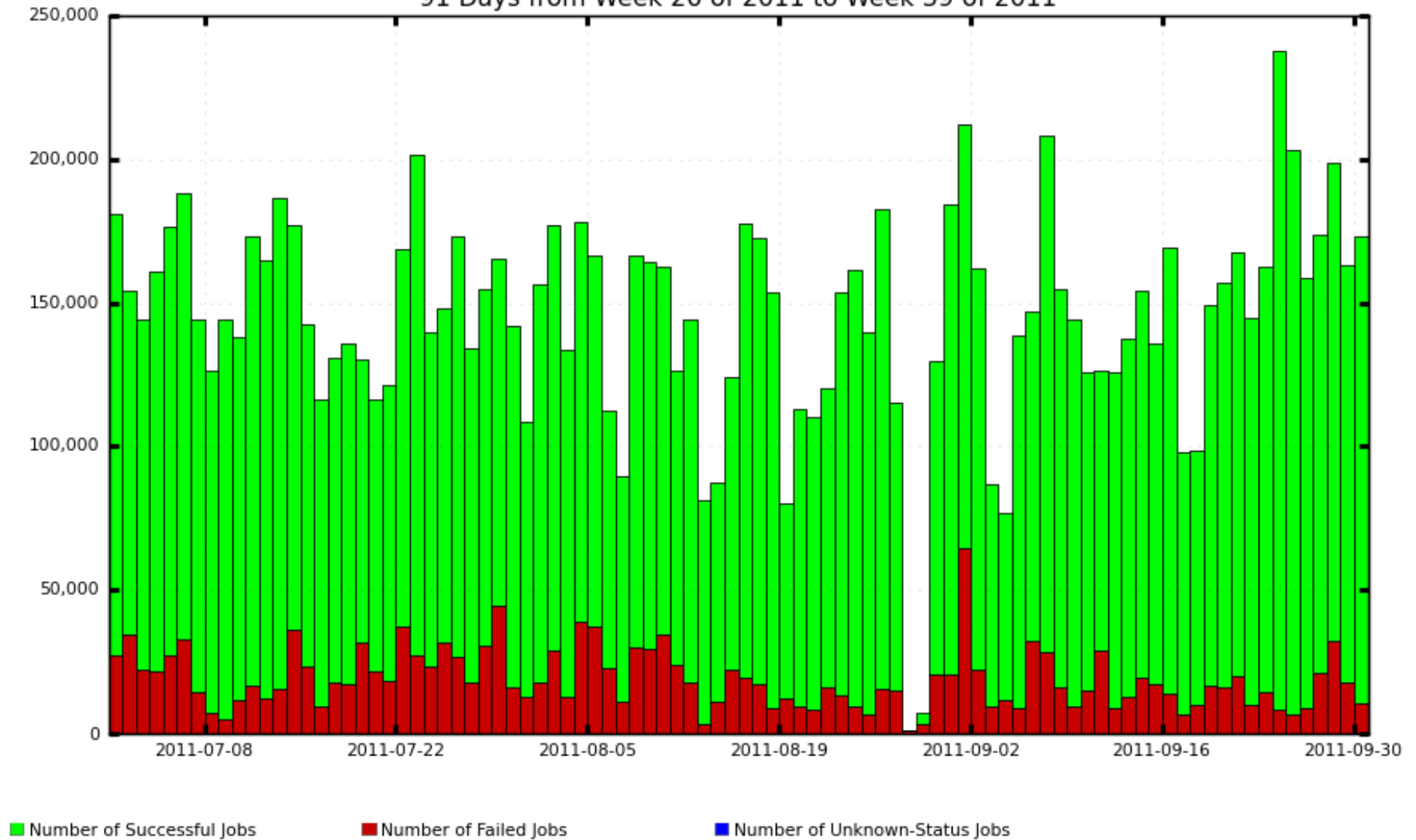
analysis
remains a
challenge



avg site eff is ~ 85% for analysis jobs

US ATLAS - last quarter

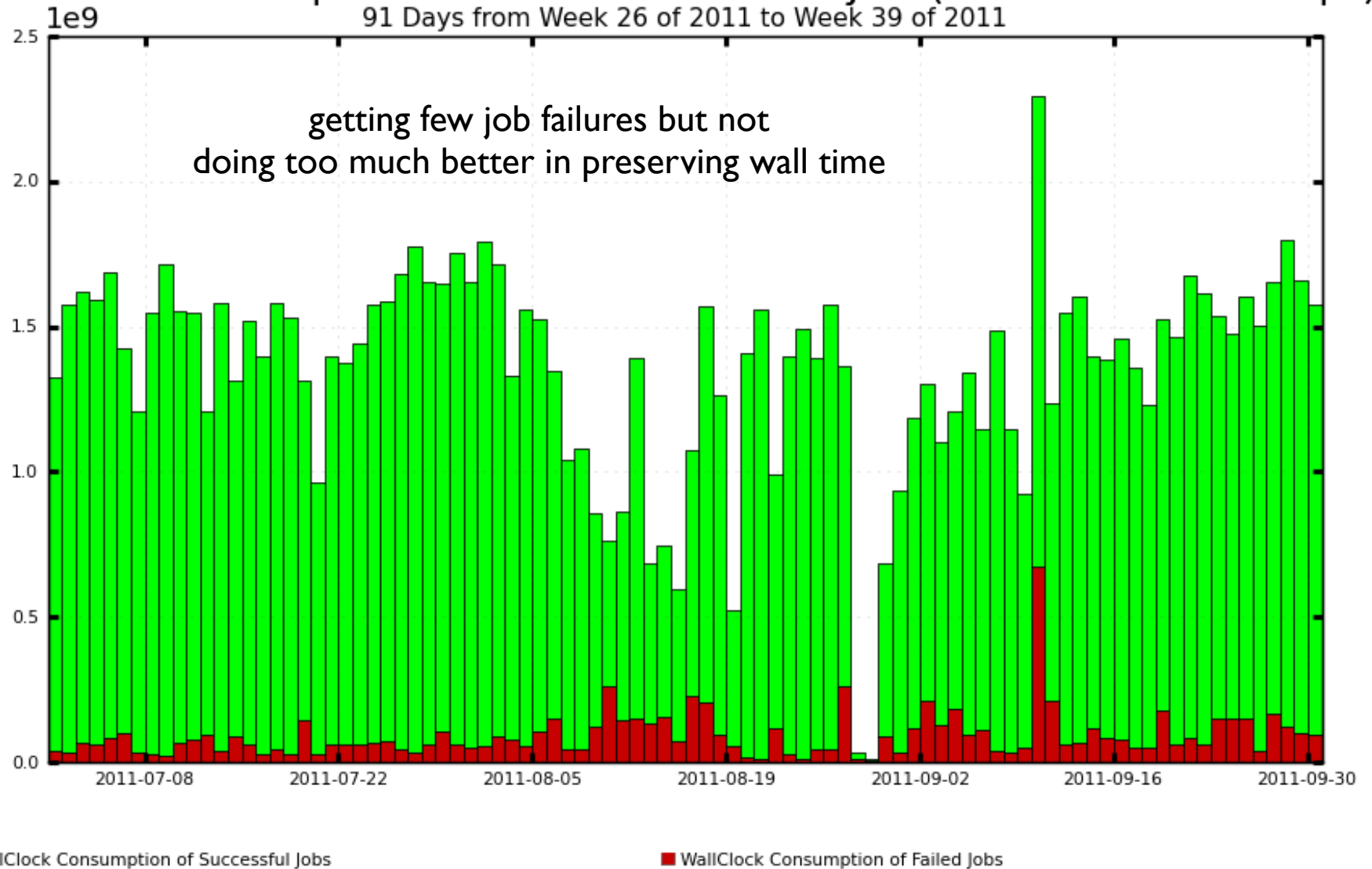
Number of Successful and Failed Jobs (Time Stacked Bar Graph)
91 Days from Week 26 of 2011 to Week 39 of 2011



Maximum: 238,002 , Minimum: 1,159 , Average: 145,157 , Current: 173,309

US ATLAS - last quarter

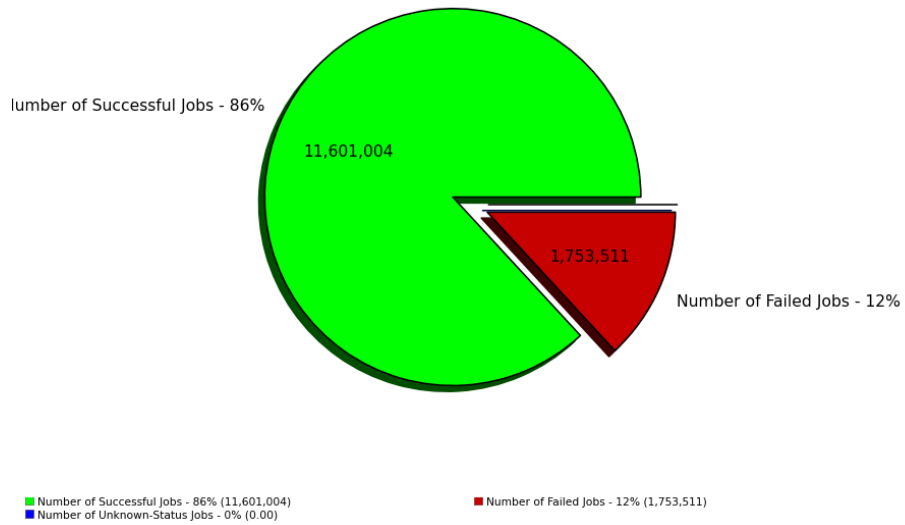
WallClock Consumption for Successful and Failed Jobs (Time Stacked Bar Graph)



Maximum: 2,292,142,643 , Minimum: 13,482,271 , Average: 1,356,328,552 , Current: 1,574,223,025

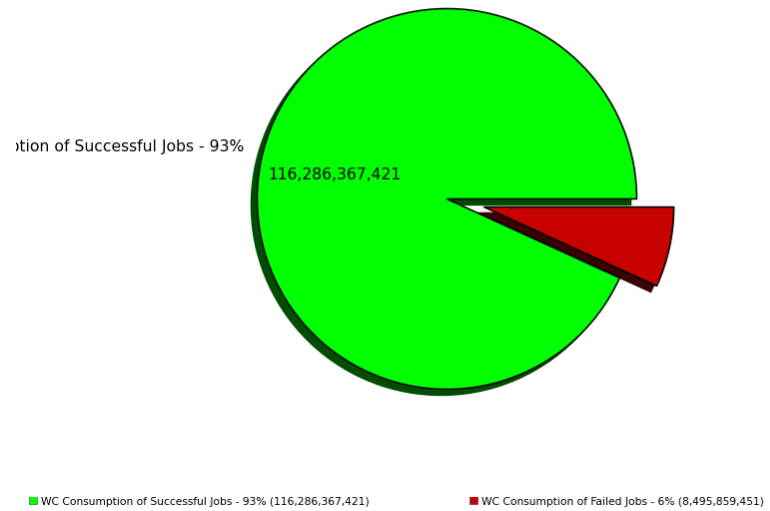
US ATLAS - last quarter

Number of Successful and Failed Jobs (Pie Graph) (Sum: 13,354,515)



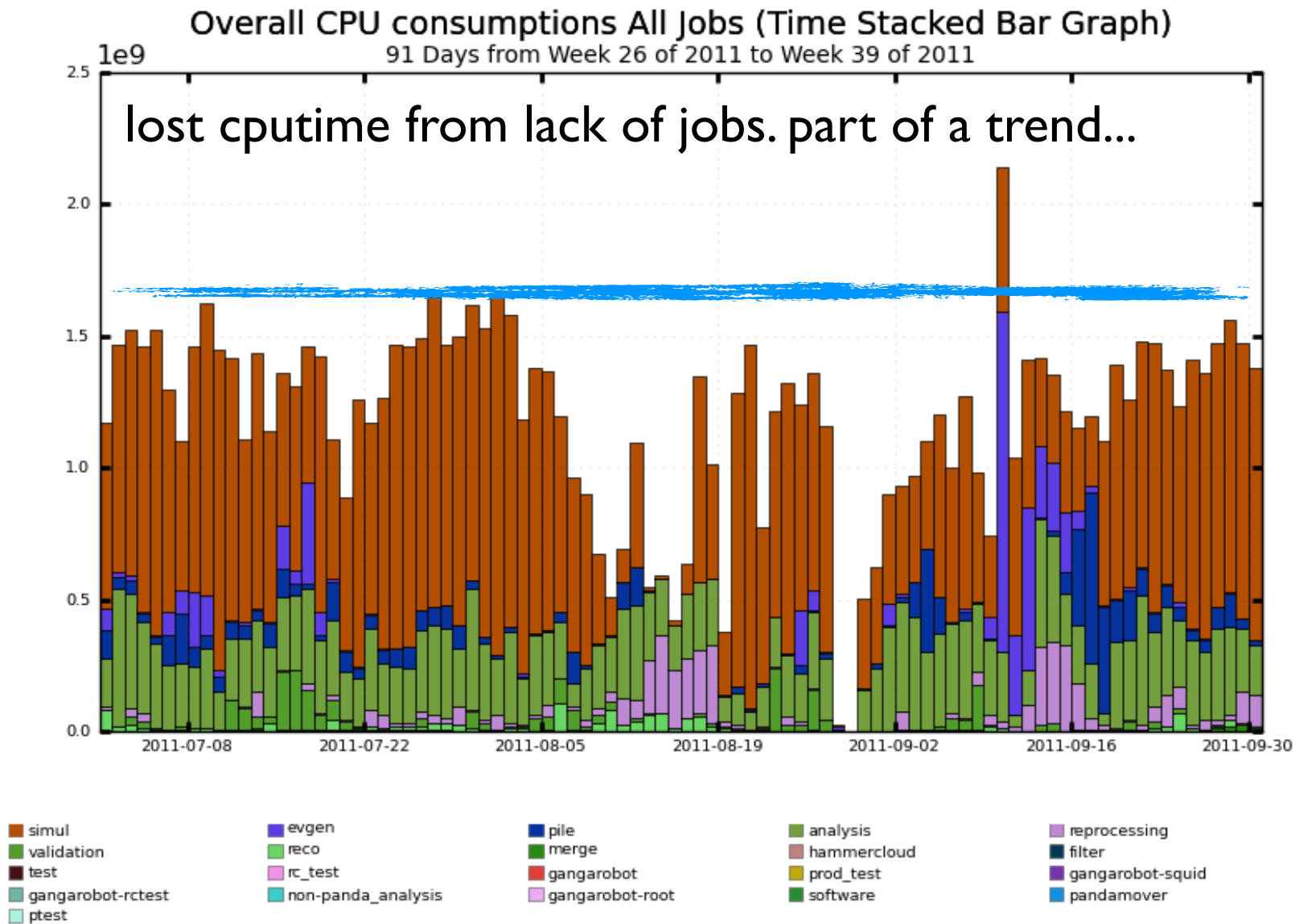
jobs

WC Consumption for Successful and Failed Jobs (Pie Graph) (Sum: 124,782,226,872)

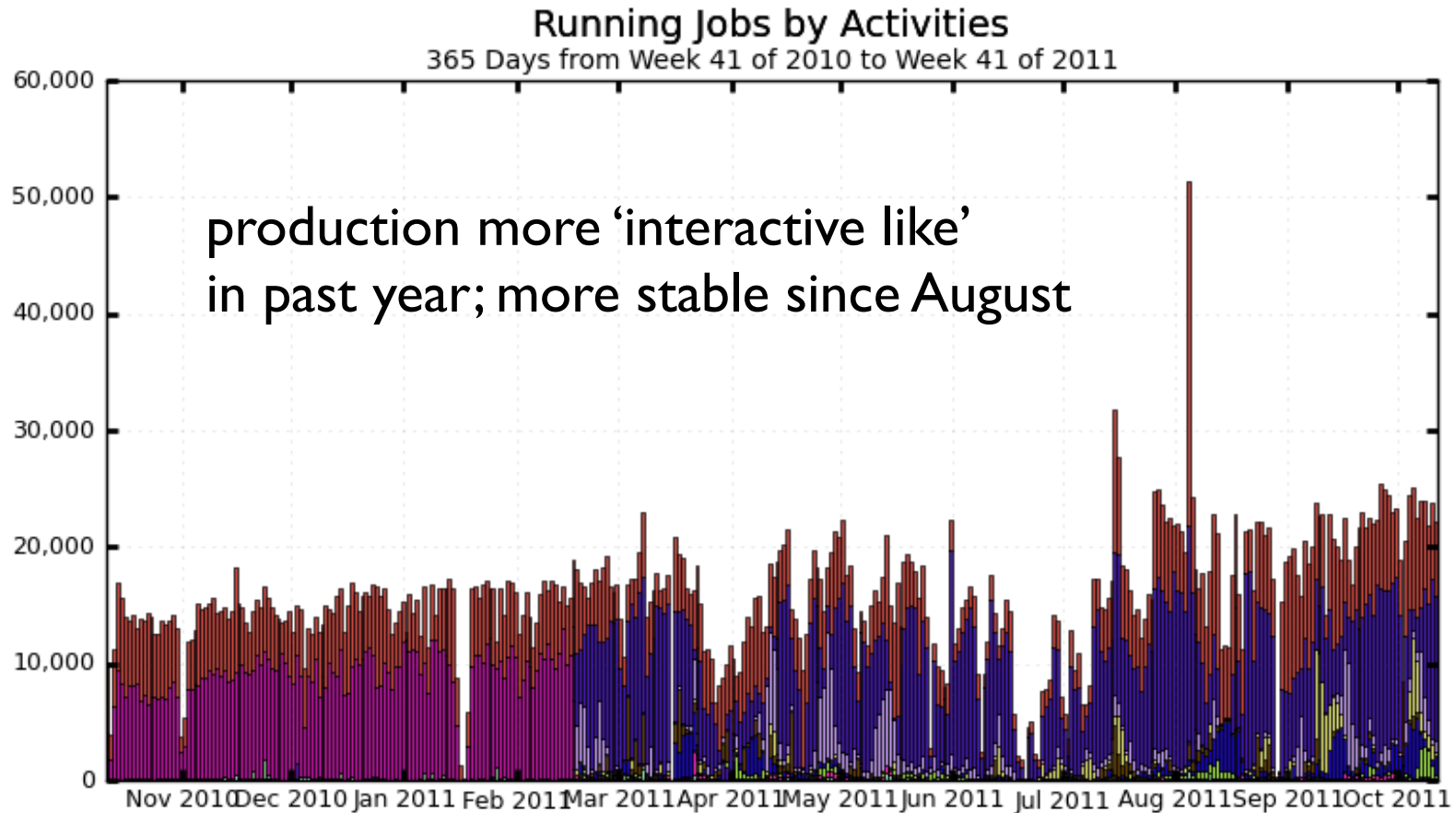


wall time loss

US ATLAS - last quarter - by task



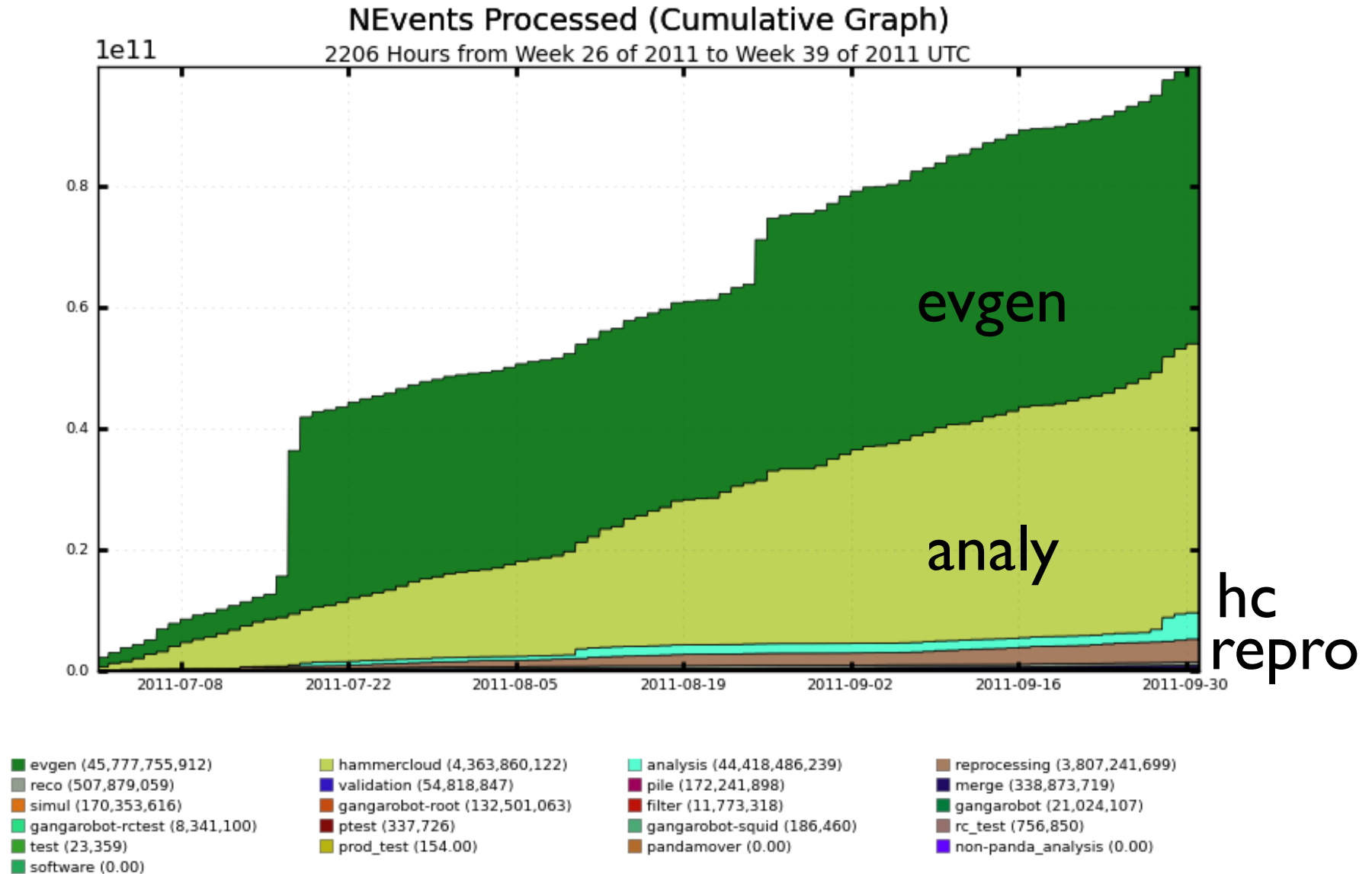
US ATLAS - year - by task



Maximum: 51,316 , Minimum: 0.00 , Average: 15,408 , Current: 22,185

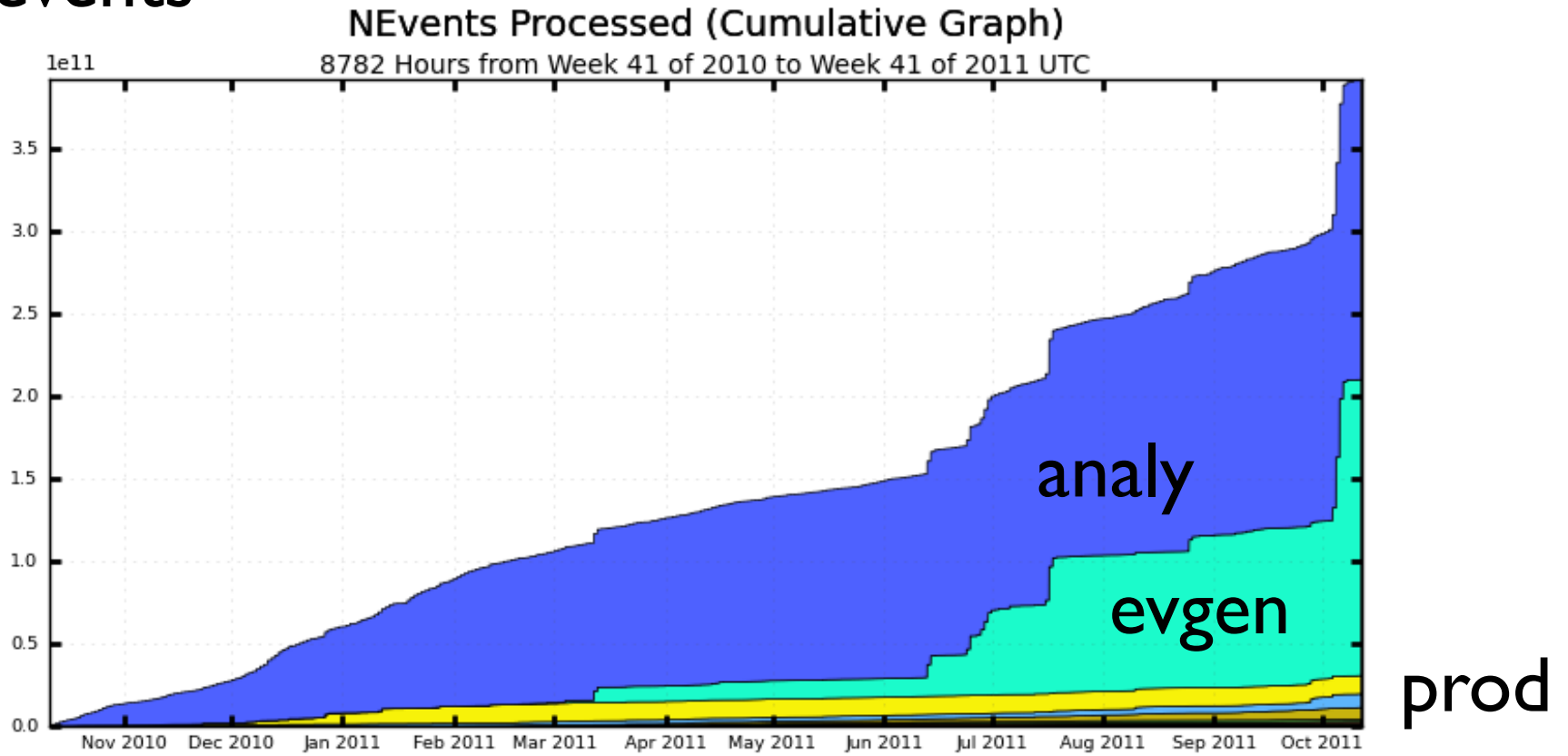
US ATLAS - last quarter

- # events



Total: 99,786,455,248 , Average Rate: 12,559 /s

US ATLAS - year # events

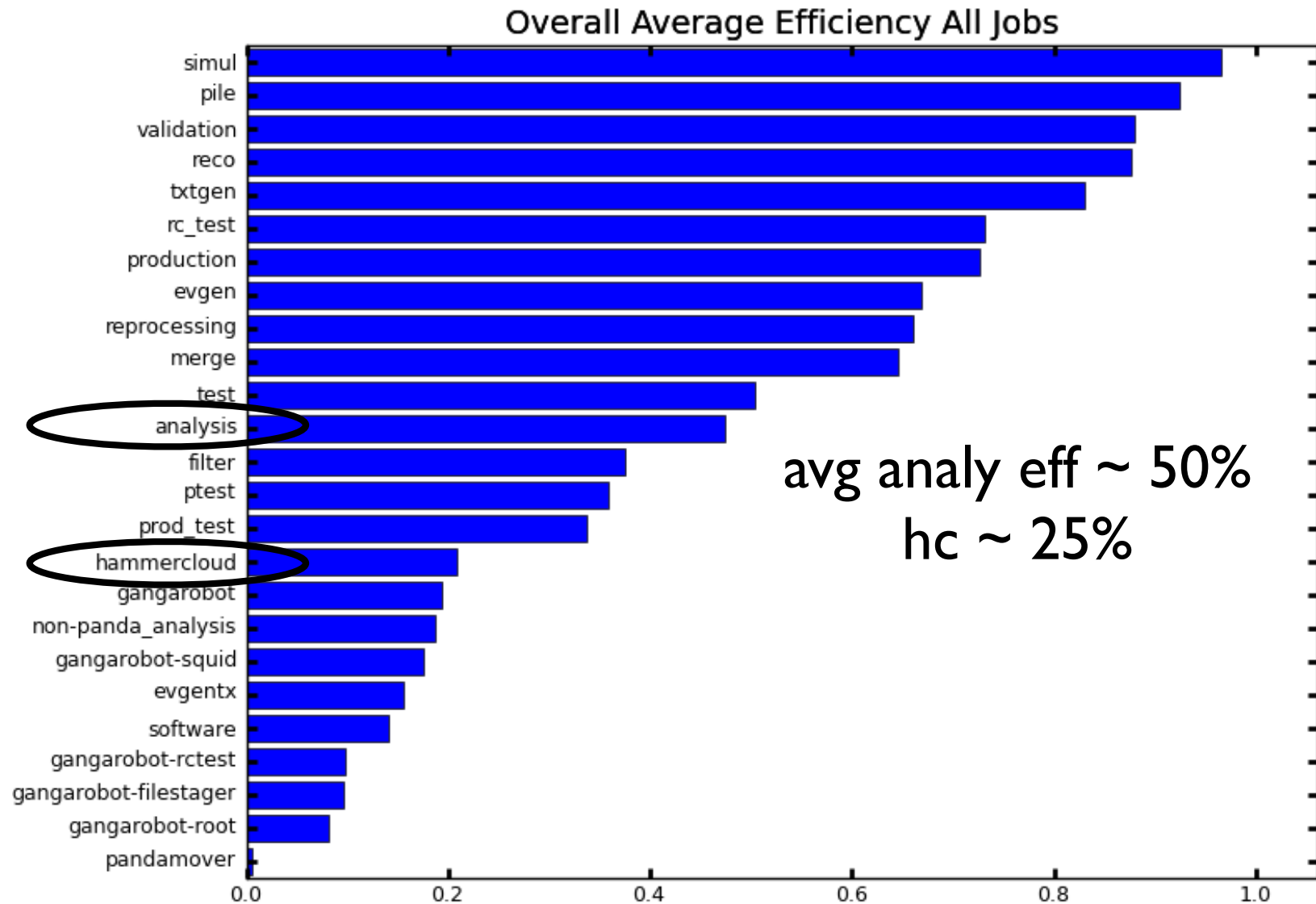


evgen (179,247,754,829)	analysis (181,956,366,924)	production (11,064,019,558)
hammercloud (8,290,186,520)	reprocessing (6,949,011,055)	reco (1,557,610,965)
merge (1,088,365,137)	pile (727,477,927)	validation (103,126,278)
simul (397,007,262)	filter (24,026,659)	gangarobot-root (190,832,997)
evgentx (732,000)	gangarobot (43,441,921)	gangarobot-rctest (17,727,396)
gangarobot-squid (3,400,229)	test (381,772)	ptest (1,225,563)
gangarobot-filestager (1,894,396)	rc_test (930,191)	txtgen (60,264)
prod_test (6,589)	pandamover (115.00)	software (12.00)
non-panda_analysis (0.00)		

Total: 391,665,586,559 , Average Rate: 12,387 /s

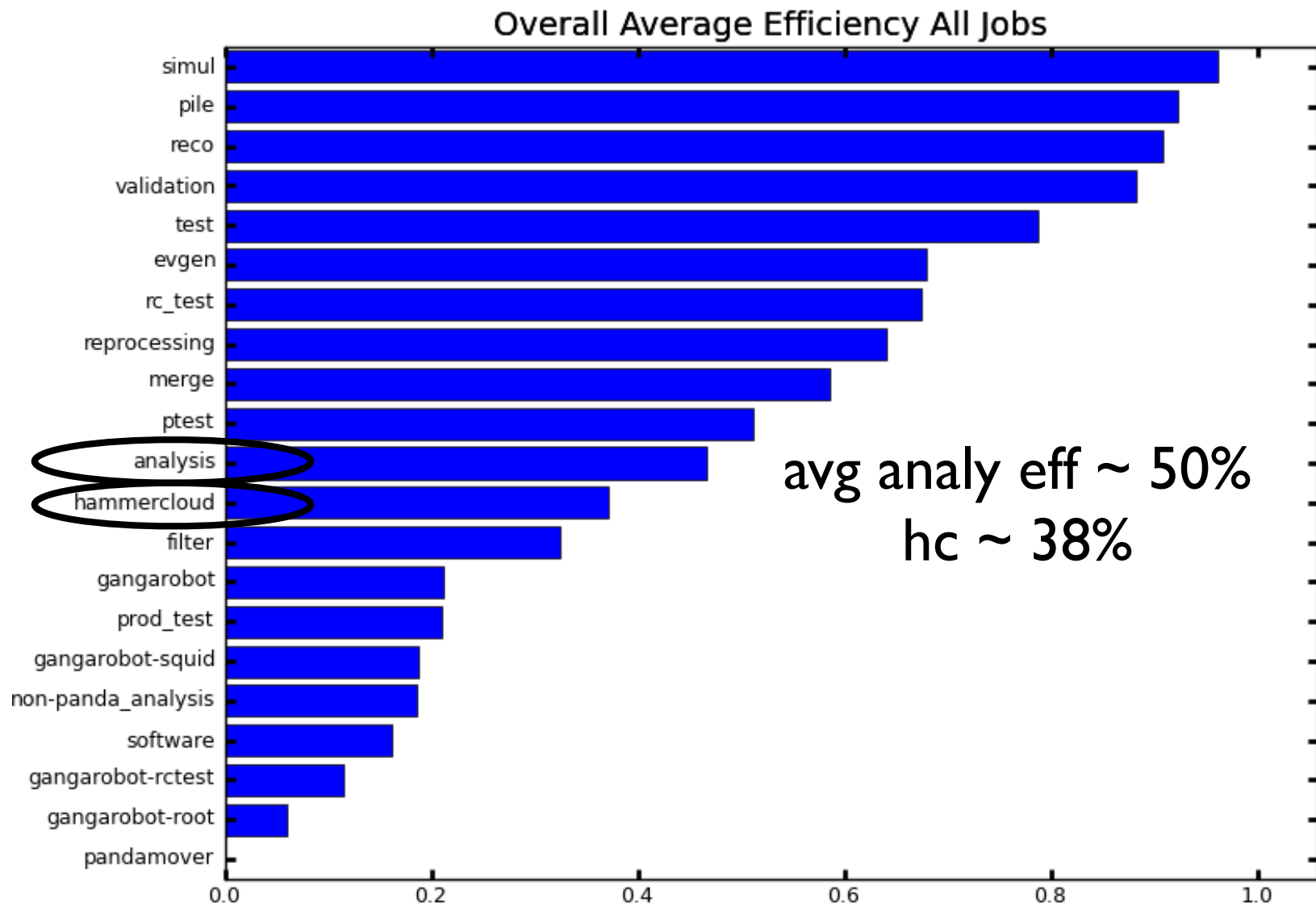
...

US ATLAS - year



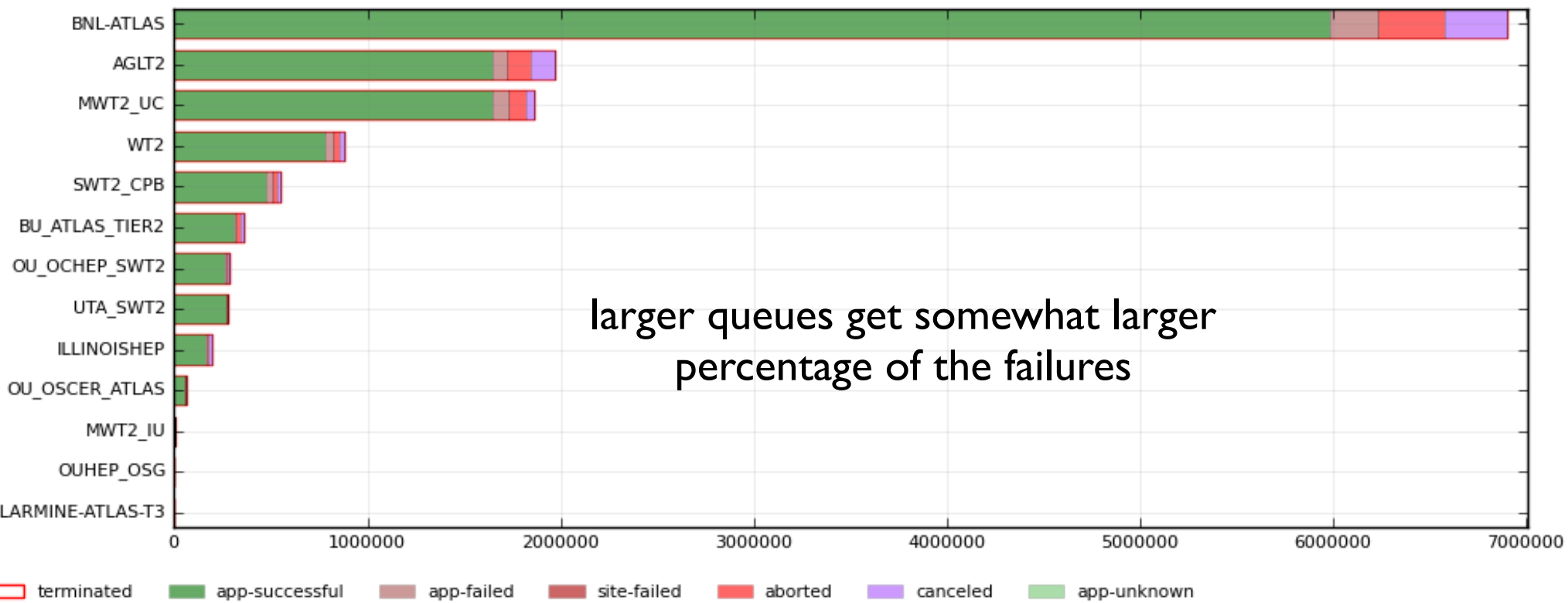
reflect's HC team's efforts to get
more realistic jobs into HC

US ATLAS - last quarter

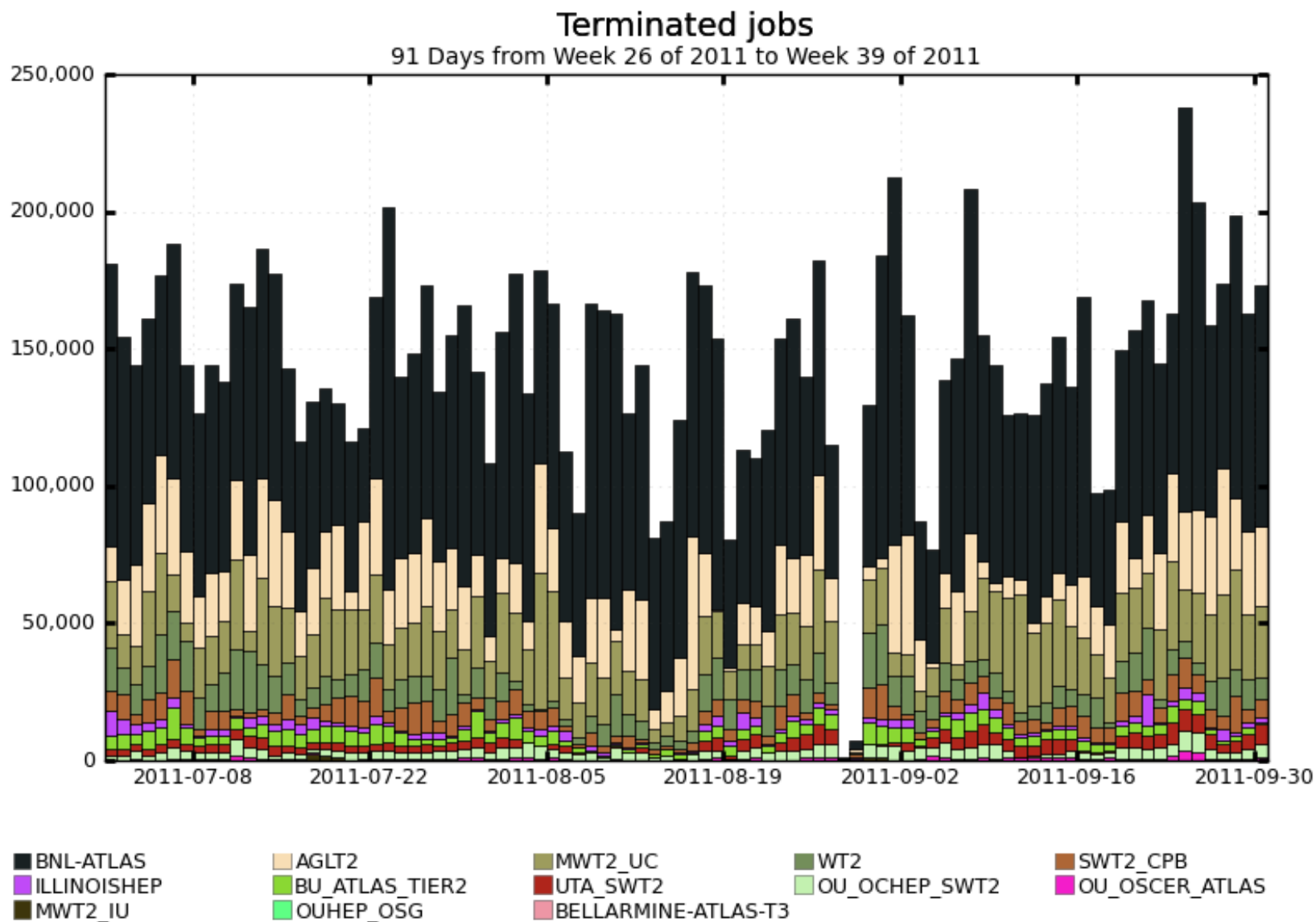


US ATLAS - last quarter - # jobs

Terminated Jobs per site



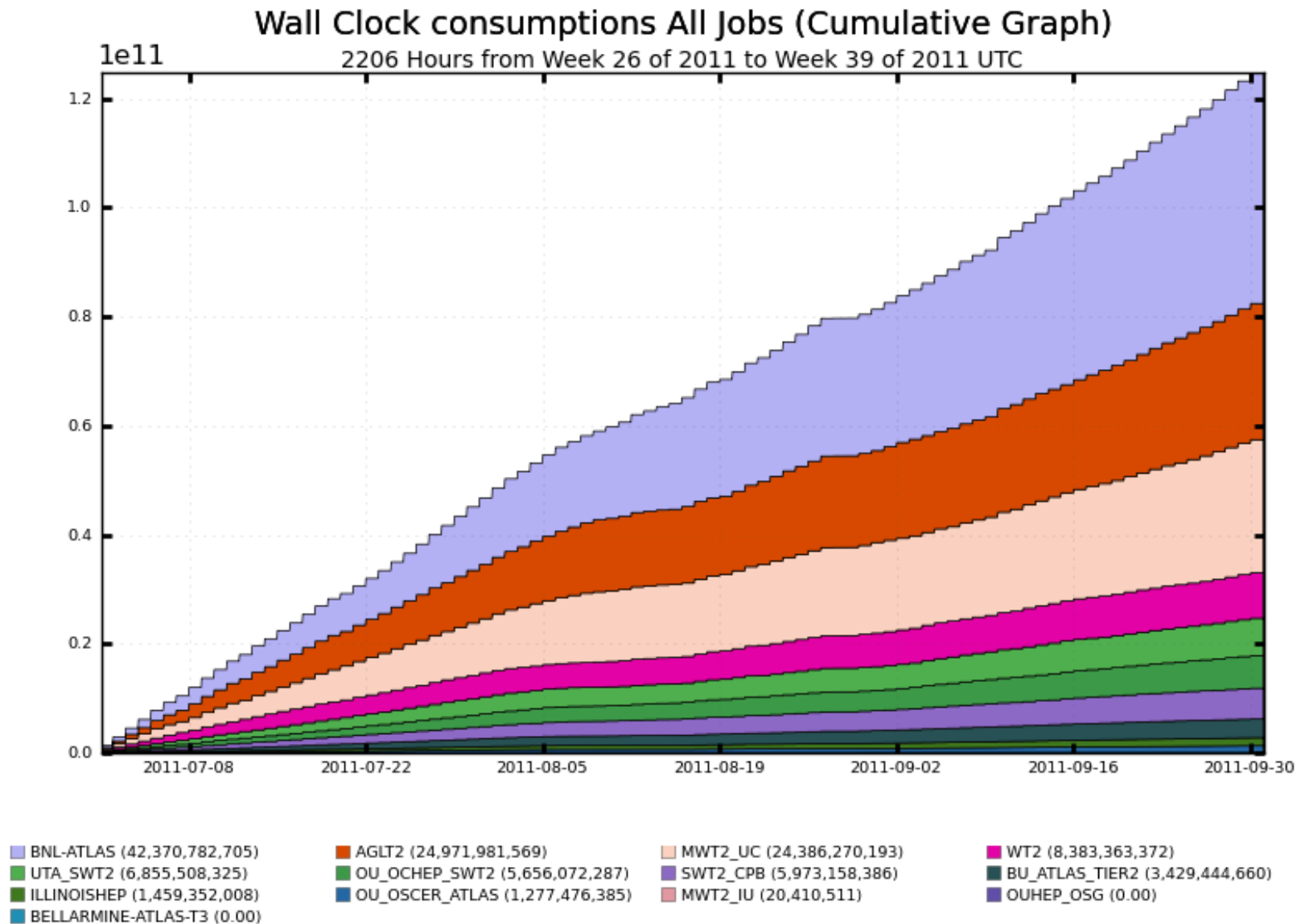
US ATLAS - last quarter - by site - by day



Maximum: 238,002 , Minimum: 1,159 , Average: 145,157 , Current: 173,309

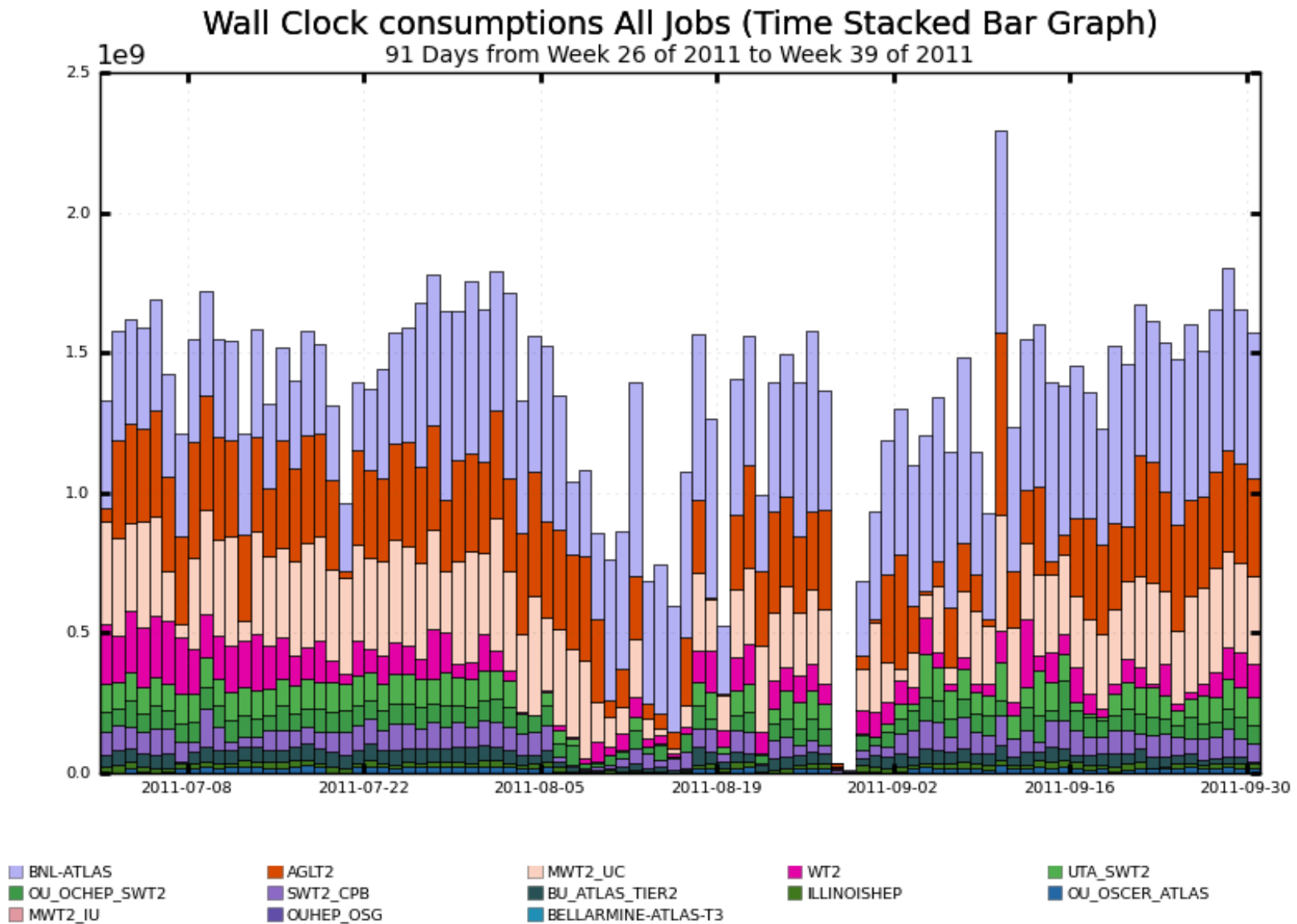
Comparing T1 T2 job distro

US ATLAS - last quarter



Total: 124,783,820,401 , Average Rate: 15,705 /s

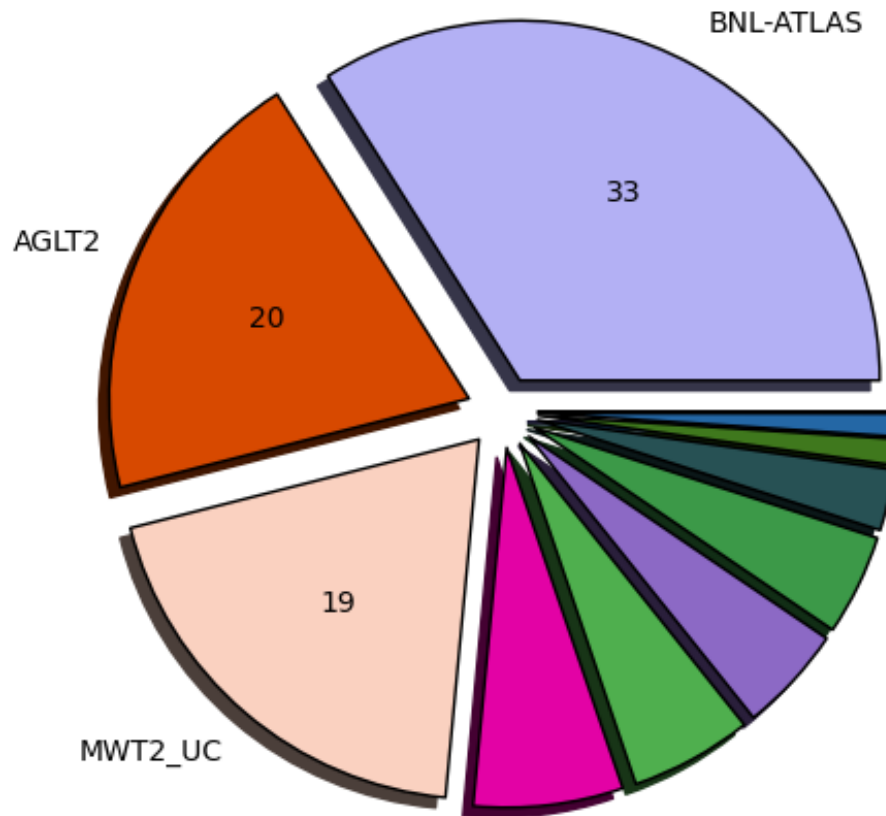
US ATLAS - last quarter



Maximum: 2,292,142,643 , Minimum: 13,560,143 , Average: 1,356,345,873 , Current: 1,574,228,054

US ATLAS - last quarter

Wall Clock consumptions All Jobs (Pie Chart in percentage) (Sum: 100.00)



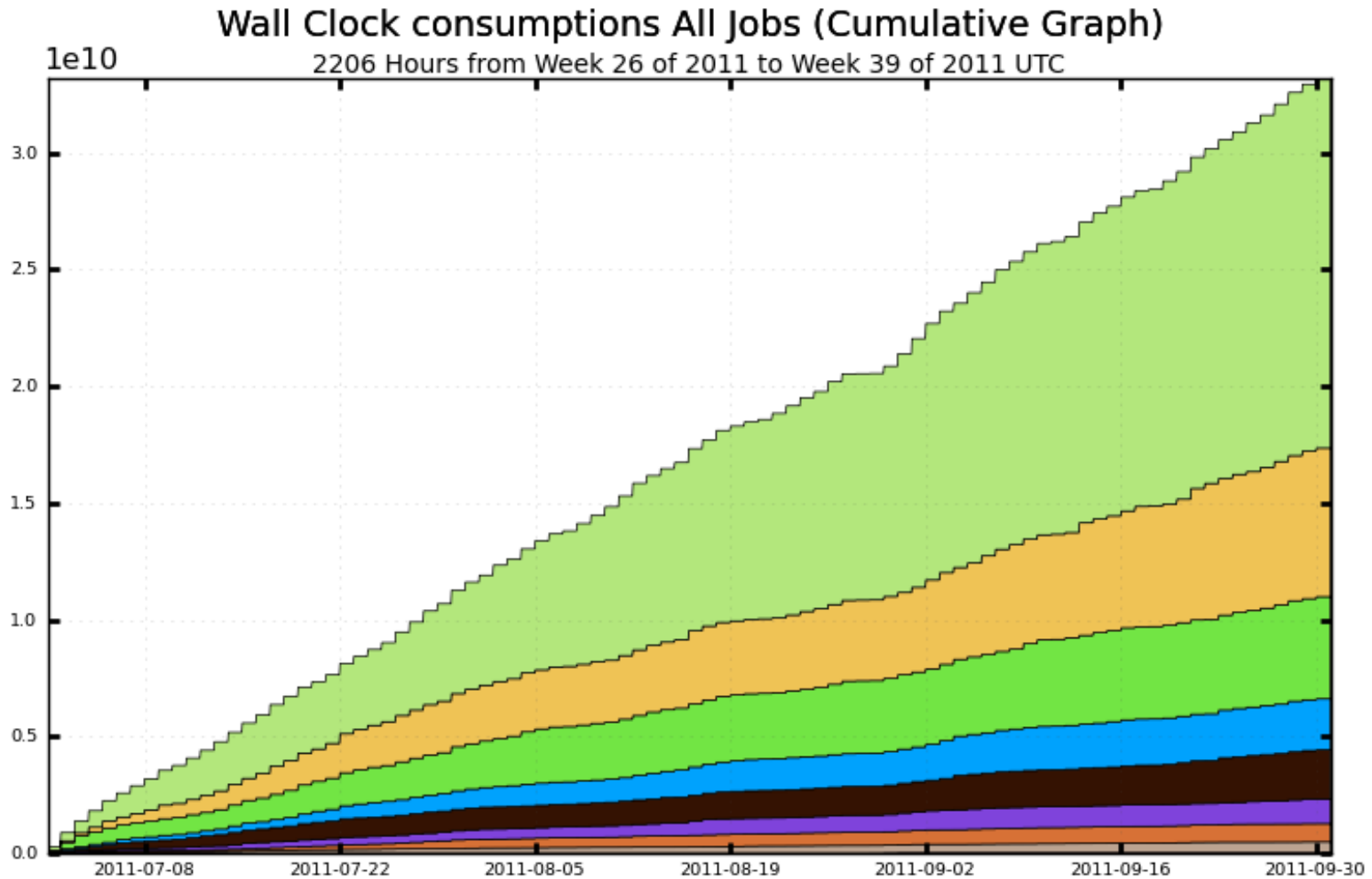
BNL-ATLAS (33.96)
UTA_SWT2 (5.49)
ILLINOISHEP (1.17)
OUHEP_OSG (0.00)

AGLT2 (20.01)
SWT2_CPB (4.79)
OU_OSCER_ATLAS (1.02)

MWT2_UC (19.54)
OU_OCHEP_SWT2 (4.53)
MWT2_IU (0.02)

WT2 (6.72)
BU_ATLAS_TIER2 (2.75)
BELLARMINE-ATLAS-T3 (0.00)

US ATLAS analysis



BNL-ATLAS (15,835,465,769)
SWT2_CPB (2,187,900,405)
MWT2_IU (16,908,464)

AGLT2 (6,362,726,716)

OU_OCHEP_SWT2 (1,059,343,213)

MWT2_UC (4,373,064,436)

BU_ATLAS_TIER2 (778,917,091)

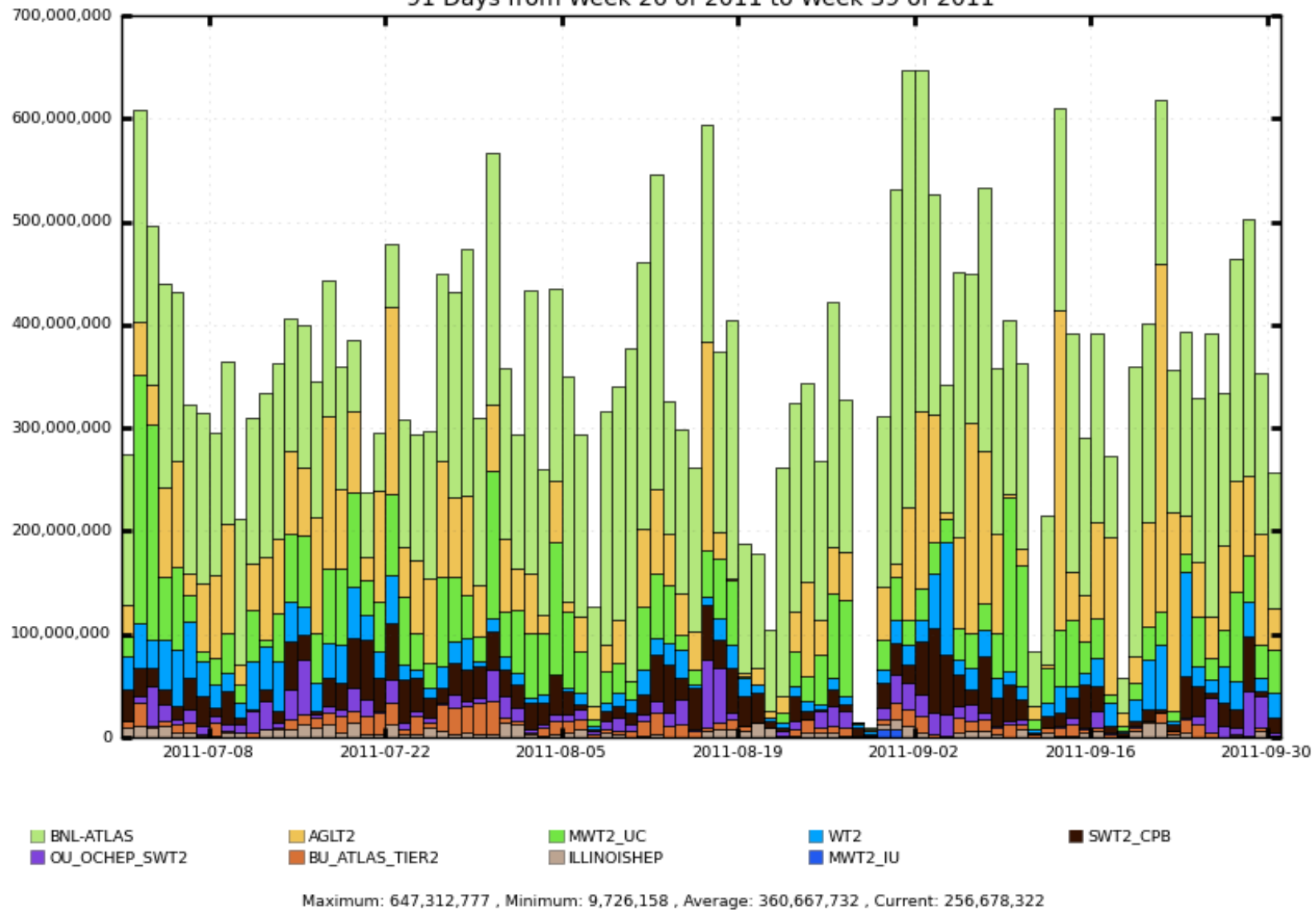
WT2 (2,099,010,752)

ILLINOISHEP (468,094,550)

Total: 33,181,431,396 , Average Rate: 4,176 /s

US ATLAS analysis

Wall Clock consumptions All Jobs (Time Stacked Bar Graph)
91 Days from Week 26 of 2011 to Week 39 of 2011

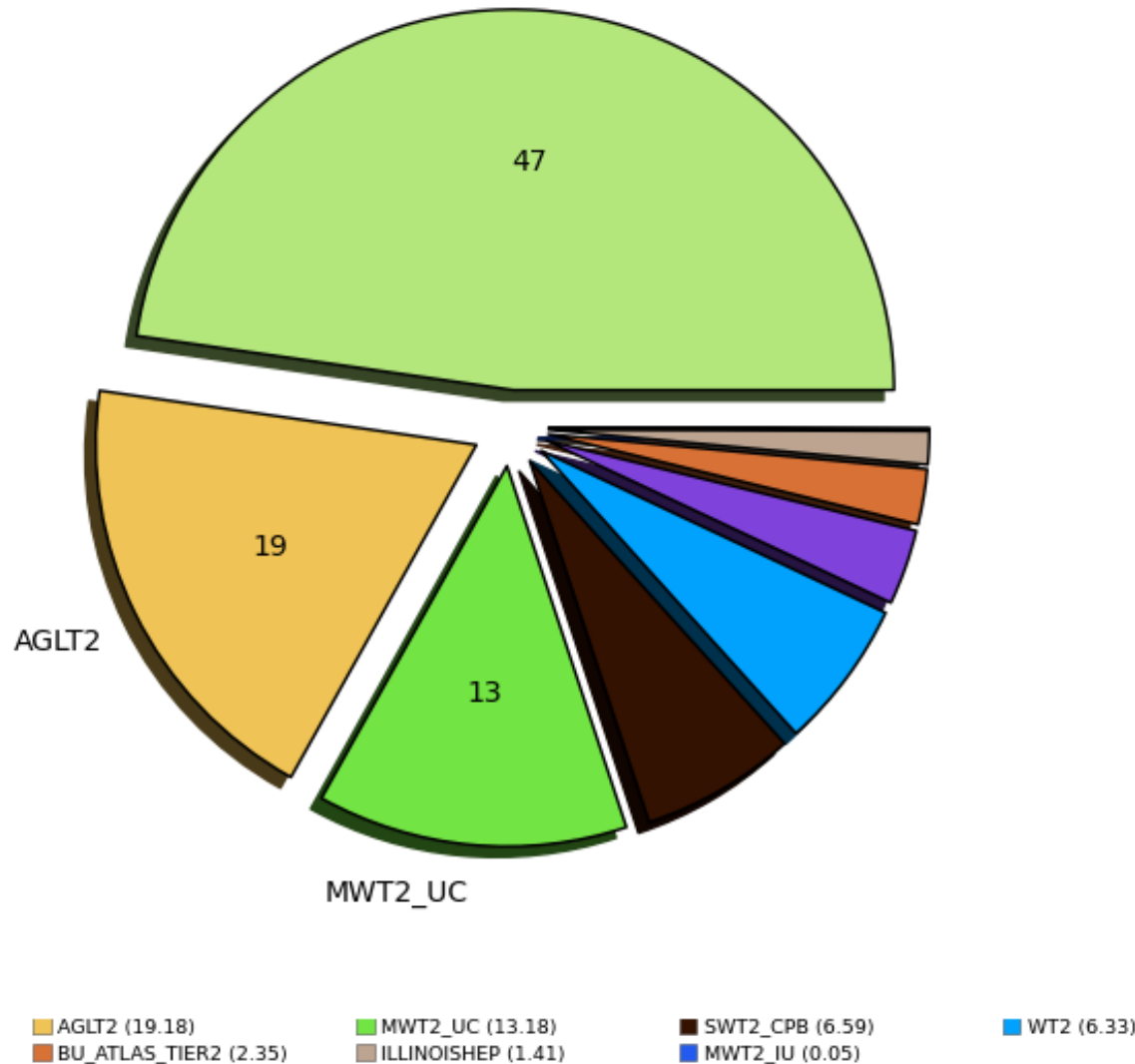


US ATLAS - last quarter

Wall Clock consumptions All Jobs (Pie Chart in percentage) (Sum: 99.00)

BNL-ATLAS

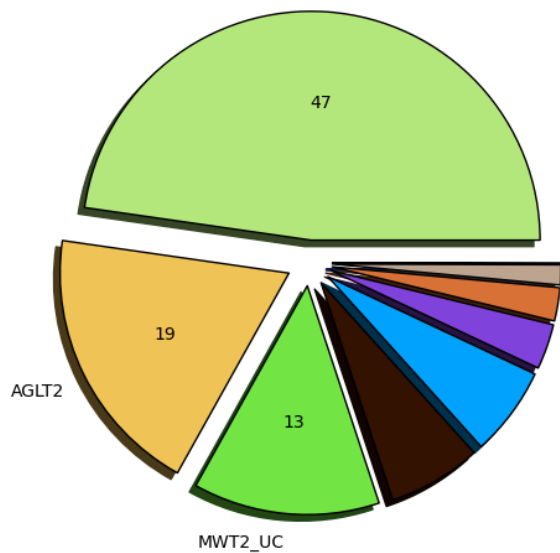
analysis



US ATLAS - last quarter

analysis

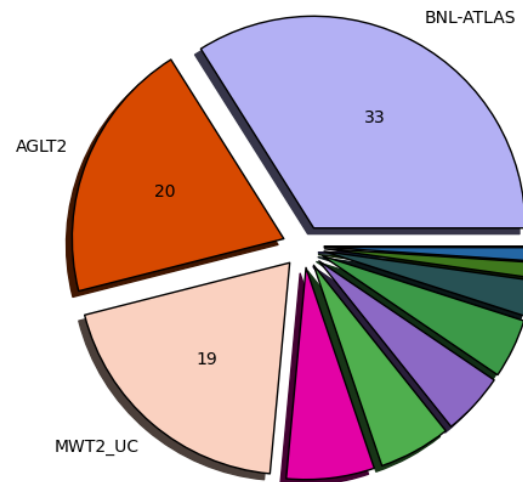
Wall Clock consumptions All Jobs (Pie Chart in percentage) (Sum: 99.00)
BNL-ATLAS



BNL-ATLAS (47.72) AGLT2 (19.18) MWT2_UC (13.18) SWT2_CPB (6.59) WT2 (6.33) UTA_SWT2 (5.49) ILLINOISHEP (1.17) OUHEP_OSG (0.00) MWT2_JU (0.05) OU_OSCER_ATLAS (1.02) MWT2_UC (19.54) OU_OCHEP_SWT2 (4.53) MWT2_JU (0.02) WT2 (6.72) BU_ATLAS_TIER2 (2.75) BELLARMINE-ATLAS-T3 (0.00)

all

Wall Clock consumptions All Jobs (Pie Chart in percentage) (Sum: 100.00)

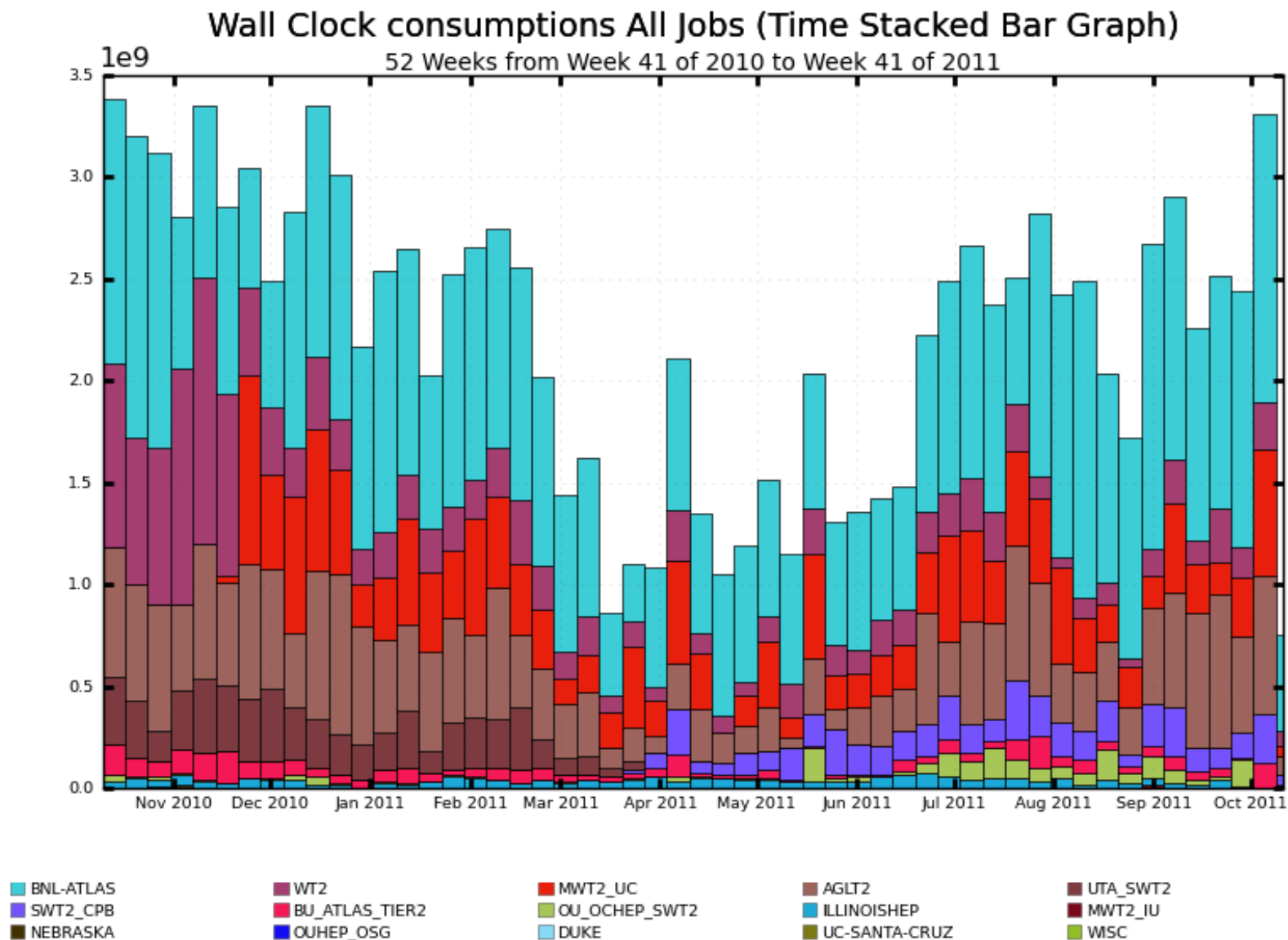


BNL-ATLAS (33.96) AGLT2 (20.01) MWT2_UC (19.54) WT2 (6.72) UTA_SWT2 (5.49) SWT2_CPB (4.79) OU_OCHEP_SWT2 (4.53) ILLINOISHEP (1.17) OUHEP_OSG (0.00) MWT2_JU (0.05) OU_OSCER_ATLAS (1.02) MWT2_UC (19.54) OU_OCHEP_SWT2 (4.53) MWT2_JU (0.02) WT2 (6.72) BU_ATLAS_TIER2 (2.75) BELLARMINE-ATLAS-T3 (0.00)

More analysis share at TI

AGLT2 alone seems to maintain a consistent analysis:prod fraction

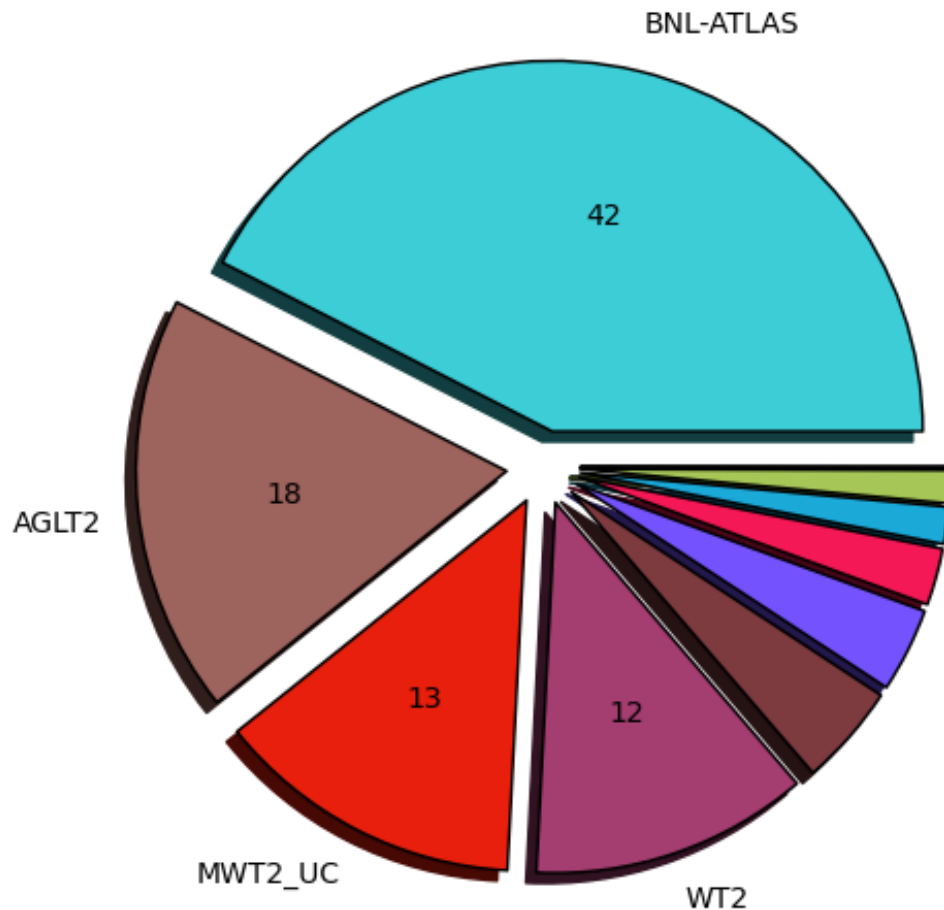
US ATLAS analysis - year



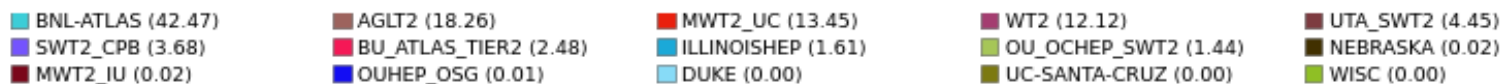
Maximum: 3,381,465,182 , Minimum: 0.00 , Average: 2,185,214,593 , Current: 750,896,718

US ATLAS analysis - year

Wall Clock consumptions All Jobs (Pie Chart in percentage) (Sum: 99.00)

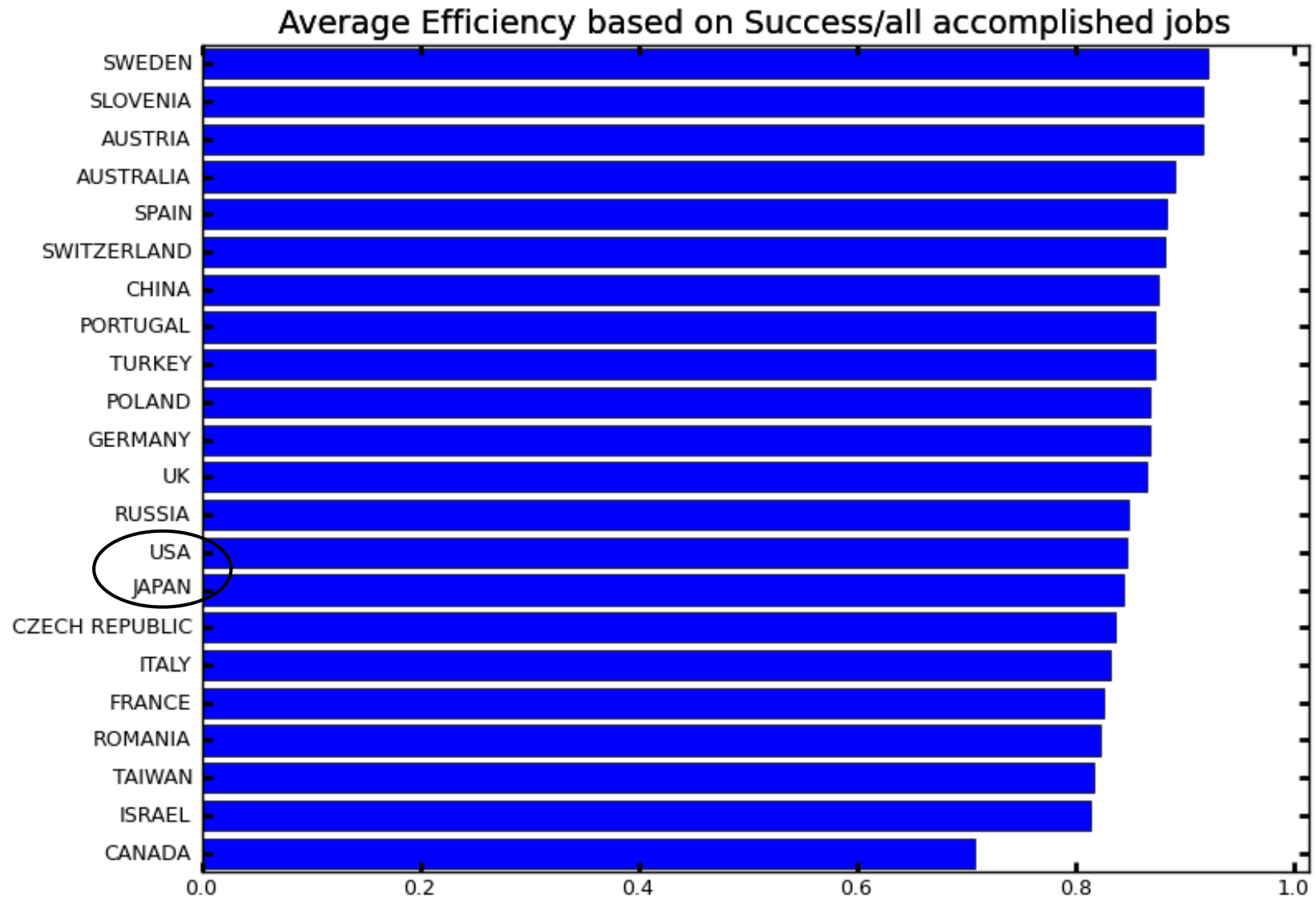


larger % at
TI in last
quarter than
in past year

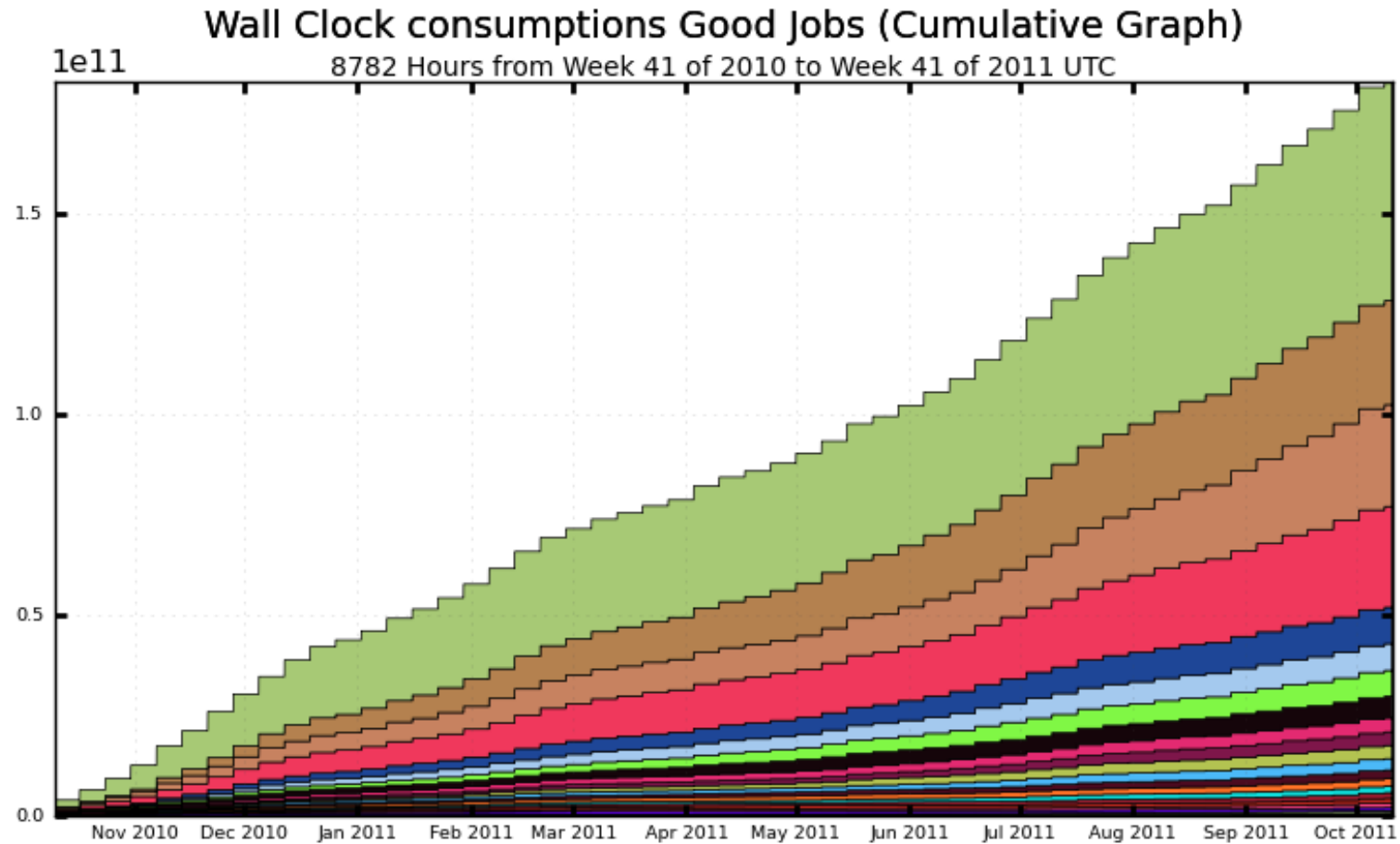


Comparing T2 clouds

analysis at all Tier 2's - year



analysis at Tier 2 - year

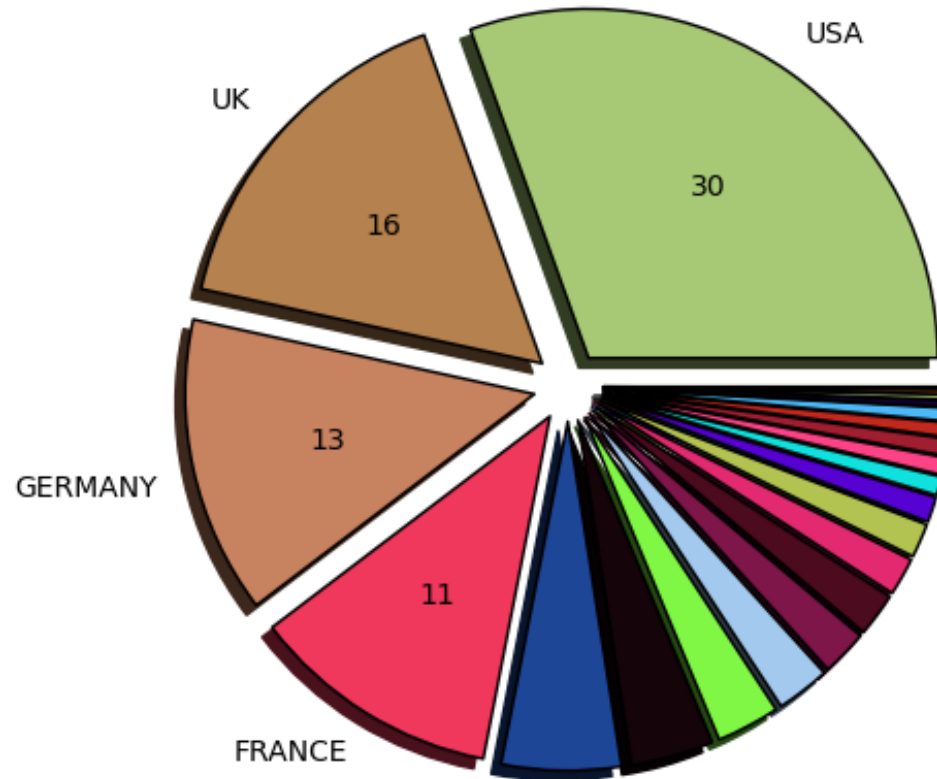


USA (54,615,557,352)	UK (25,408,001,905)	GERMANY (25,142,511,890)	FRANCE (25,951,040,040)
ITALY (9,087,934,975)	SPAIN (5,465,494,844)	CANADA (6,401,832,800)	JAPAN (6,665,592,077)
POLAND (3,373,852,953)	SWITZERLAND (3,300,611,442)	CZECH REPUBLIC (2,833,920,540)	ISRAEL (1,095,147,791)
SLOVENIA (3,470,094,050)	TAIWAN (788,763,380)	SWEDEN (1,886,820,160)	CHINA (1,616,859,264)
PORTUGAL (1,196,327,321)	AUSTRALIA (1,390,677,926)	RUSSIA (2,154,992,957)	ROMANIA (376,677,136)
TURKEY (639,333,457)	AUSTRIA (244,649,625)		

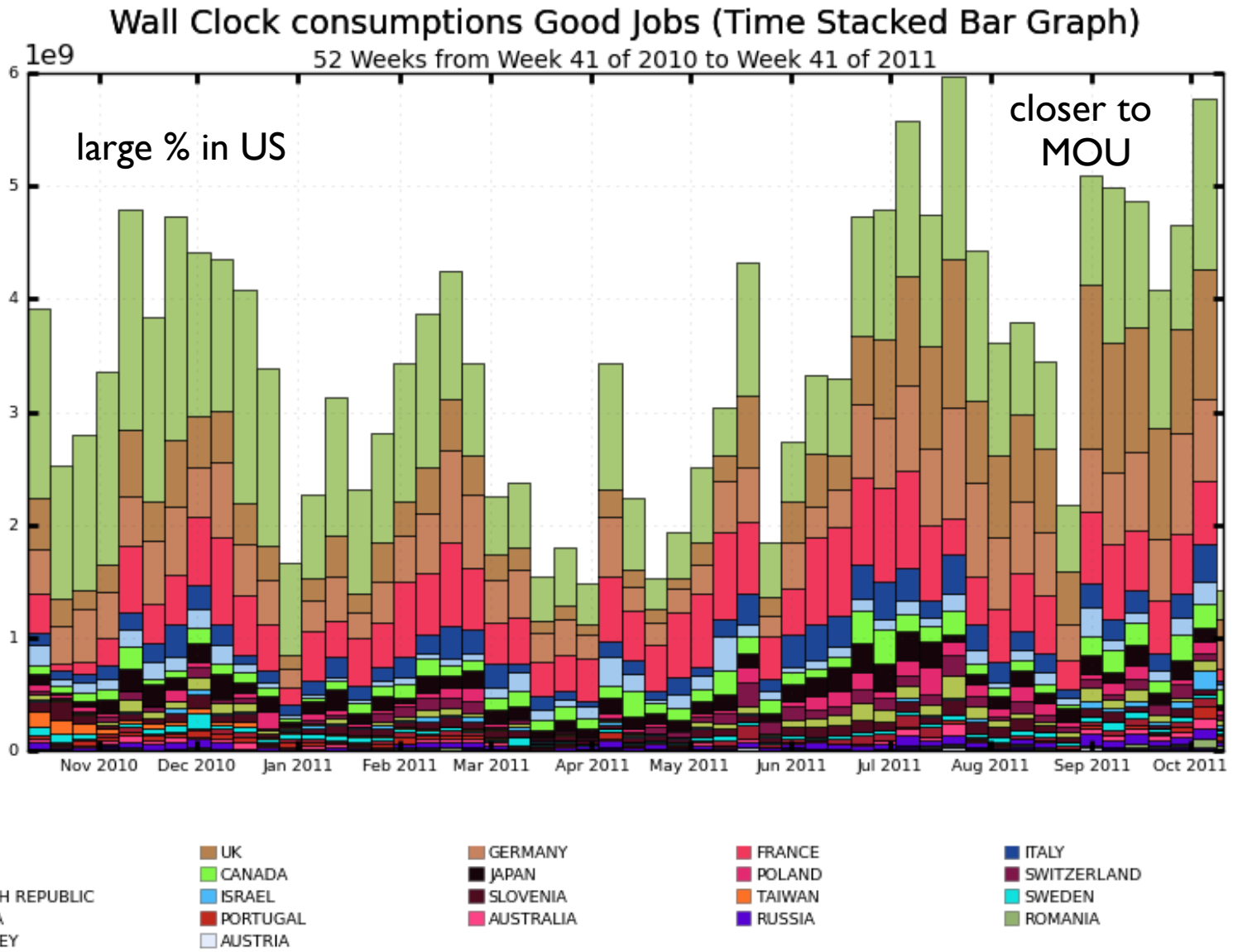
Total: 183,106,693,885 , Average Rate: 5,791 /s

analysis at Tier 2 - year

CPU consumptions Good Jobs (Pie Chart in percentage) (Sum: 99.00)



analysis at Tier 2 - year



Summary

- See more even distribution of analy jobs among clouds in recent months
- However T1:T2 analysis split in US is about 47:53 (wall time) while for all jobs it is 33:67
 - increased in last quarter
- US T2's analysis success rate avg (~85%) compared to other clouds though contributes 30% of CPU time
- Improvement in HC resembling analysis in terms of efficiency