

CMS Status

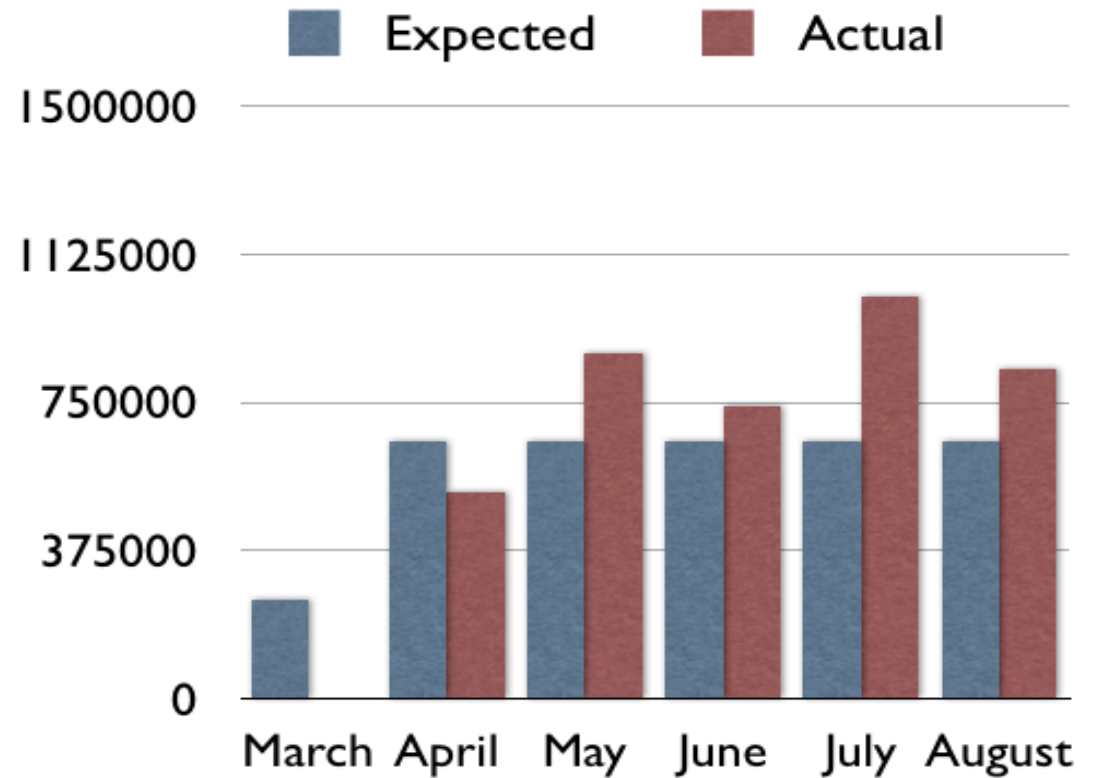
LHCC

General Status

- Computing has performed generally well
 - Data complexity is high, but we're keeping up
 - Volumes of data and simulation are large
 - Longer tails than we would like on data reprocessing
 - Overall simulation production speed has been good, but closing out all the samples for all the users is still challenging
- Analysis activities are succeeding
 - Squeezing into the Tier-2 disk space
 - Trying to move the collaboration to better use the popularity information to make reasonable choices of what to clean up
 - Moving the next generation of analysis tools into integration testing

Data Collected

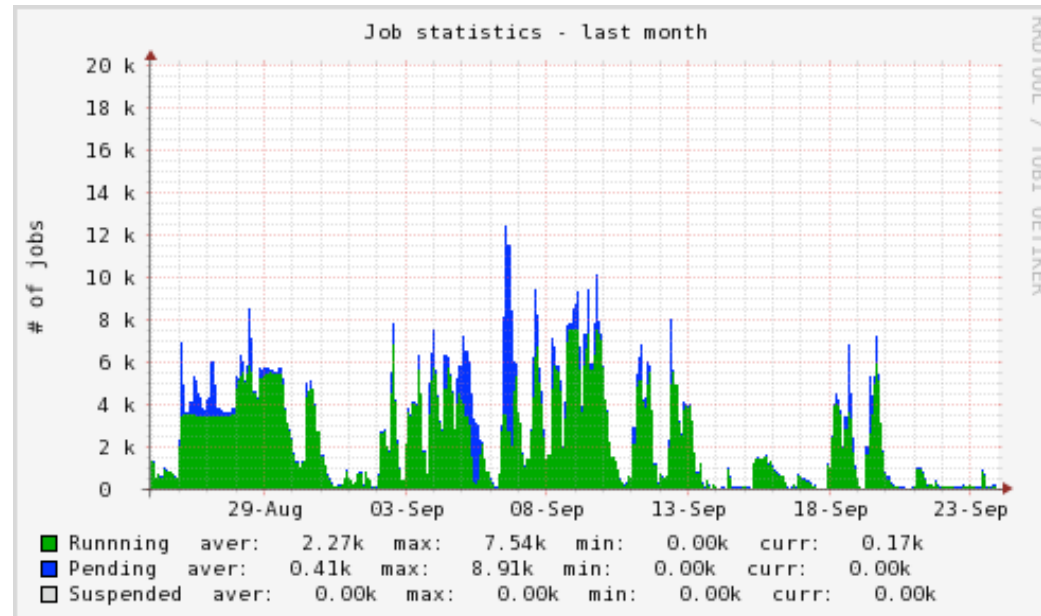
- Live time is close to what was expected
- Trigger rates also close
 - Long term parked is lower than planned but increasing post-TS
 - ~double



Month	Average Prompt Reco Trigger Rate (with overlap)	Average Parked Trigger Rate
April	435Hz	
May	403Hz	207Hz
June	387Hz	327Hz
July	491Hz	257Hz
August	405Hz	304Hz

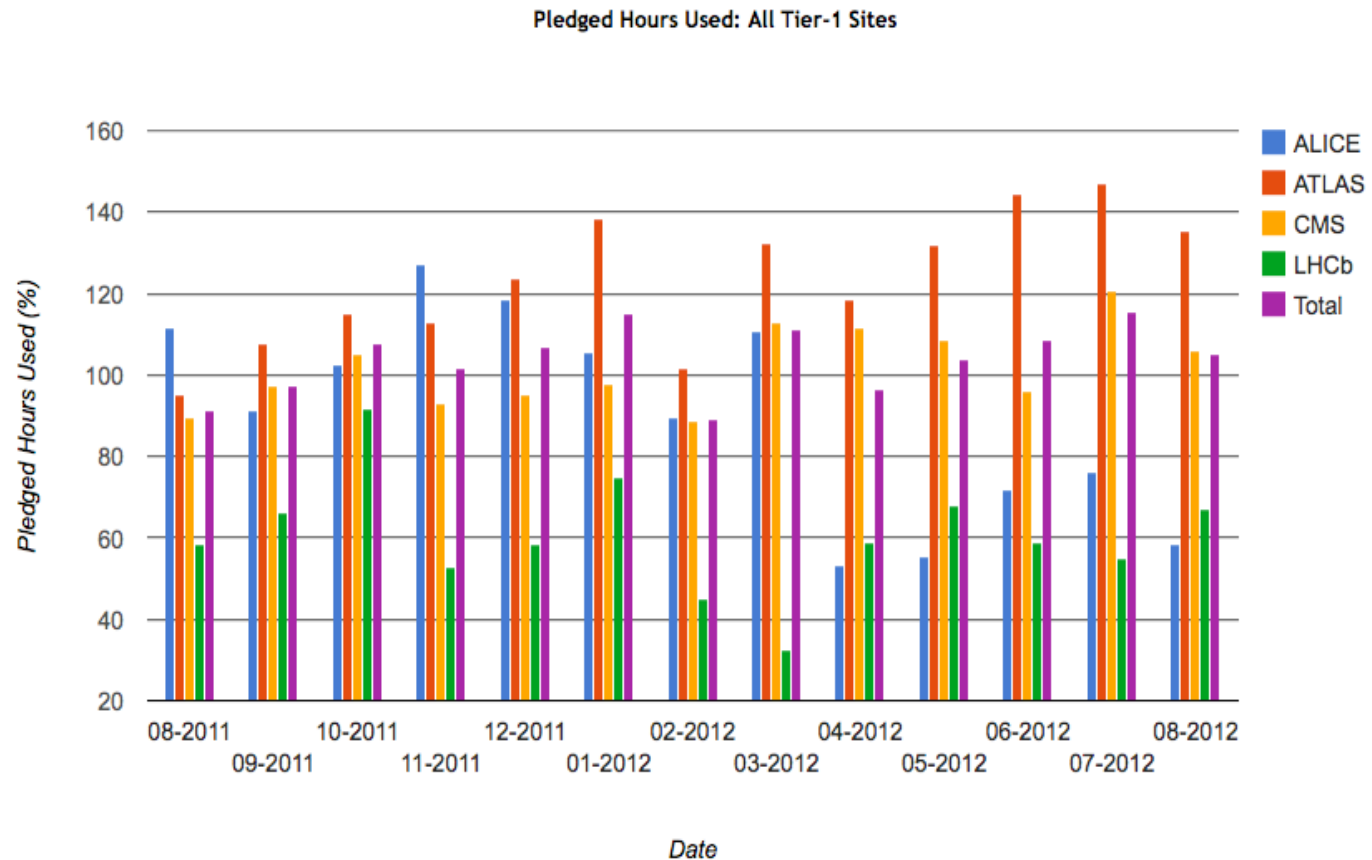
Tier-0

- Even with extra parked data to repack the Tier-0 is working well
 - CPU efficiency is between 80-90%
- Tier-0 can spill over to the public queues
 - Used mostly to catch up after long or particularly high luminosity runs



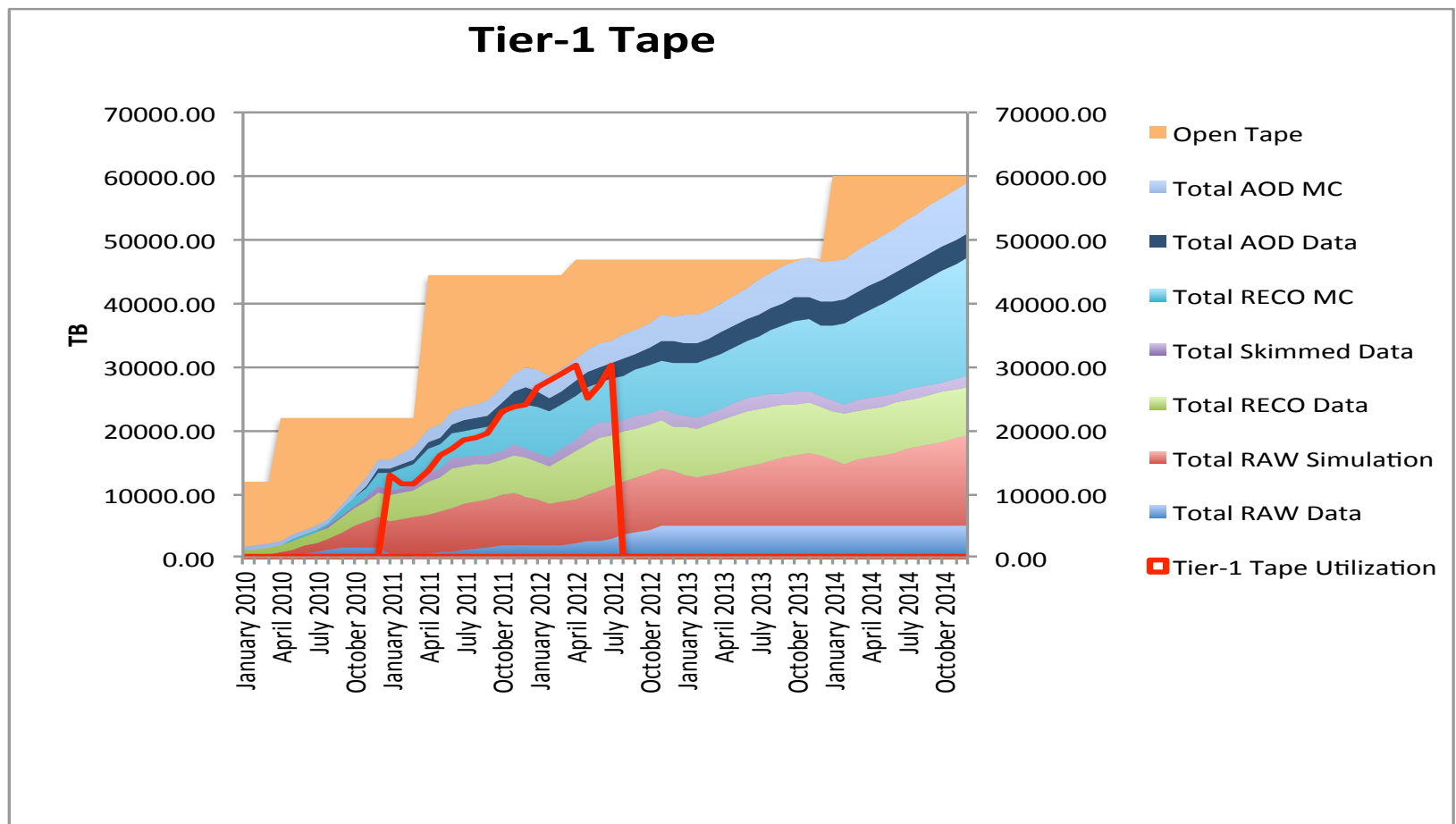
Tier-1

- Utilization of Tier-1s is high
 - Averaging 102% of pledged capacity used over the last 12 months



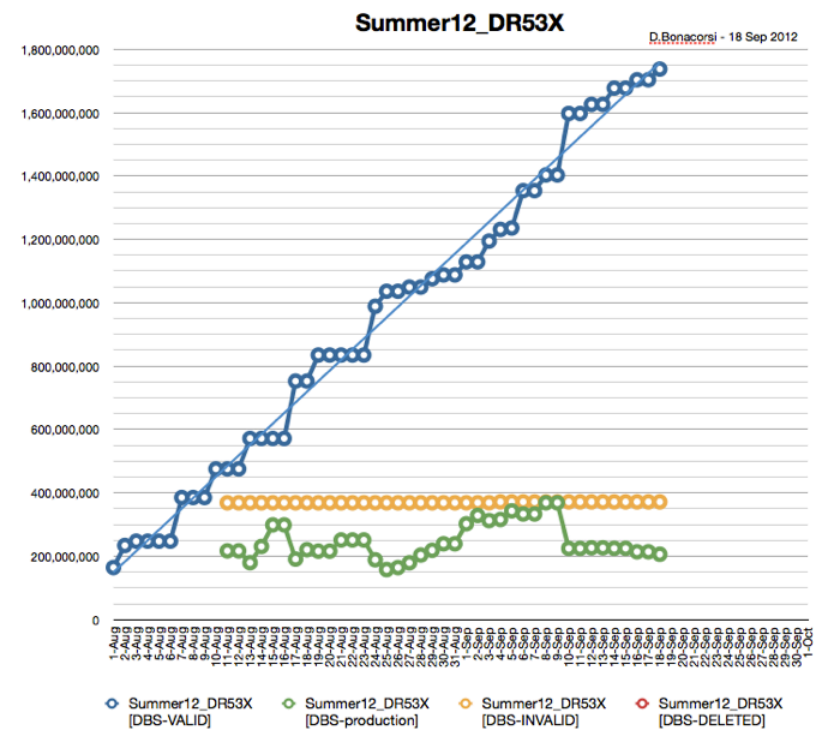
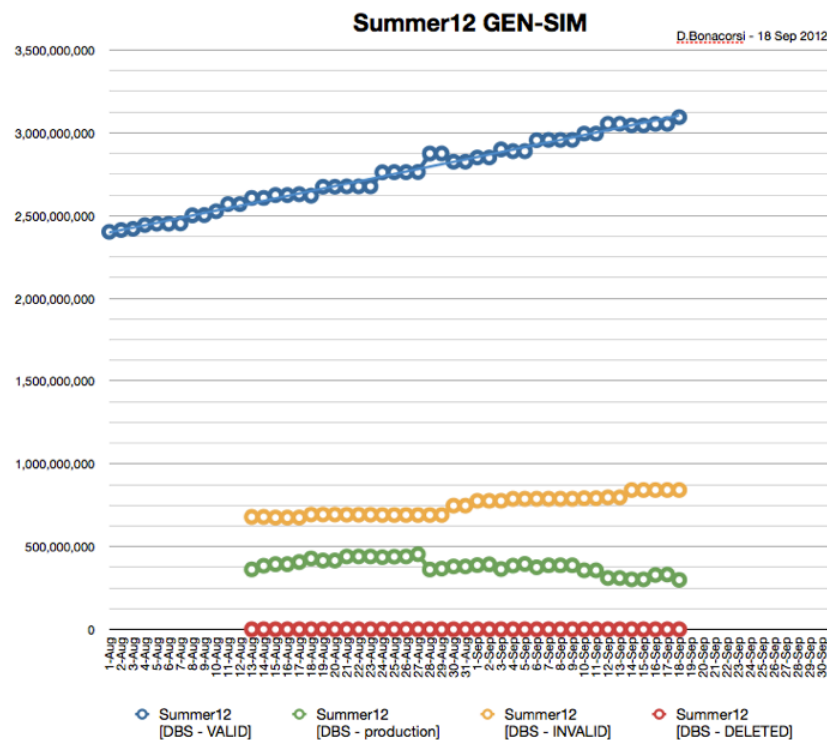
Storage Use

- Total Tier-1 Tape is tracking nicely with the planning



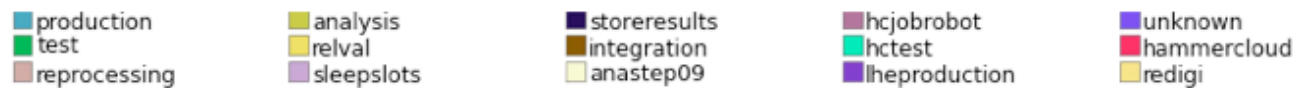
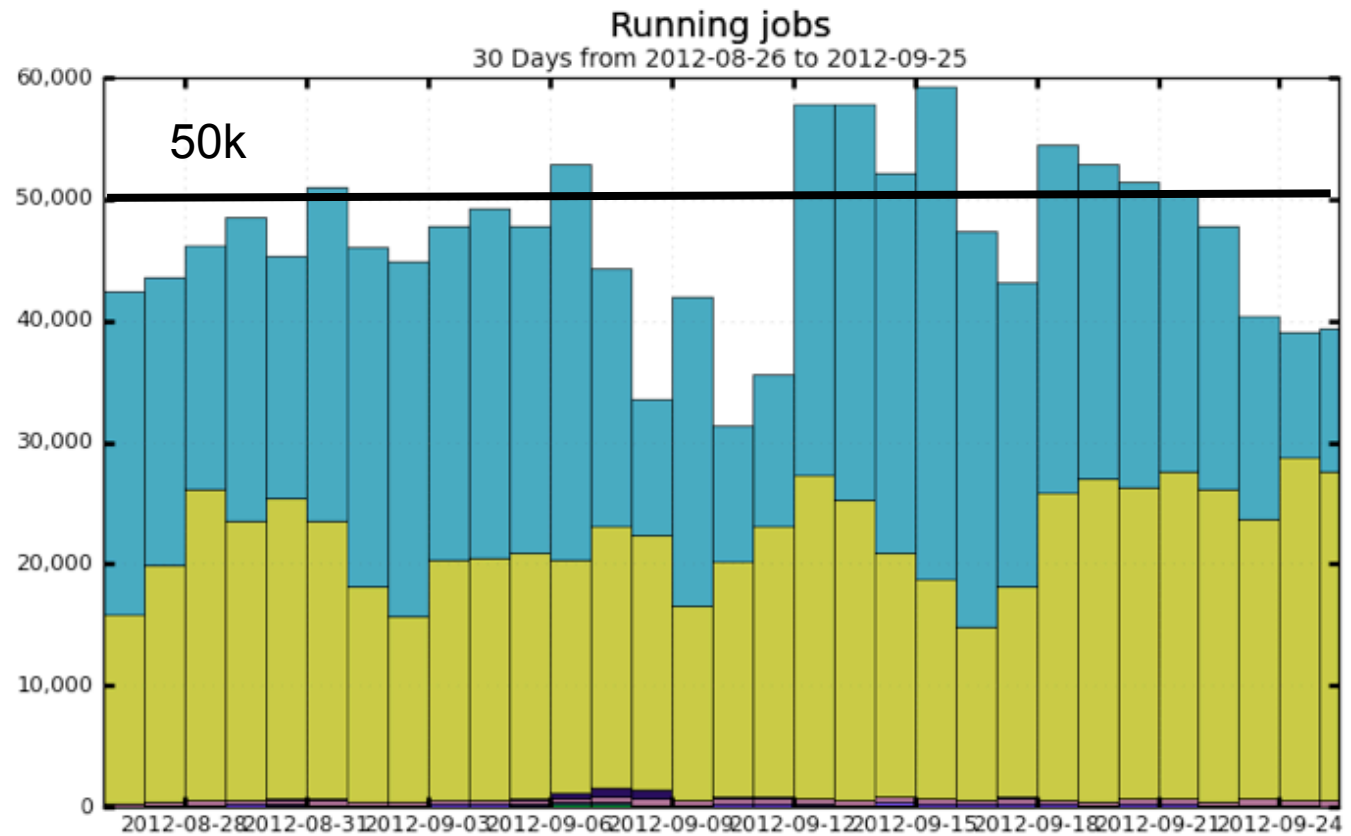
Simulation

- Simulation Production is roughly what we anticipated
 - ~400M simulated events
 - ~1B reconstructed events



Analysis

- Activity remains high for analysis



Maximum: 59,220 , Minimum: 31,339 , Average: 46,656 , Current: 39,341

Ian Fisk
FNAL/CD

2013 and 2014

- With the extended run in 2013 we take more data.
About 30% more events
 - More data to reprocess and serve
 - Impacts T1 CPU, and T2 Storage
 - Tape generally

	Approved CMS Request 2013	CMS Needs 2013 incl. extended LHC run	Relative Increase	2014 Request
CPU [kHS06]				
Tier-I	145	175	+20%	175
Disk [PB]				
Tier-2	26	28	+8%	29
Tape [PB]				
CERN (incl. HI)	23	26	+13%	26
Tier-I	45	50	+11%	60

2015

- For the purposes of planning we assume 2014 has very little stable running due to LS1 and the extended first run
 - But we assume 2015 is a roughly nominal year with a commissioned machine
- We assume there is data and simulation from the first run, but the data has been well analyzed and published so the sample is not heavily accessed
 - Makes 2015 look something like 2010, with a new energy and high excitement level but less integrated data to deal with

2015 Conditions

- We don't have firm guidance from CMS yet, but extrapolating
 - 1kHz trigger rate could be easily sustained from the DAQ side
 - 25ns running should give ~30 interactions per crossing
 - Simulation is longer do to the extra out of time pile-up to include
- 1kHz would accumulate 3 times the number of events per data collection time
 - At the end of 2015 we could have a sample similar to what was collected in 2010-12 combined

Higher trigger rate impacts

- In order for the Tier-0 to keep up with the data collection the Tier-0 CPU needs to be increased
 - 25ns running should give a better reconstruction time
 - But higher rates probably still requires
 - ~300 kHS06 at Tier-0 (up from 120kHS06 in 2012)
 - 34PB of tape (up from 24PB in 2012)

Tier-1

- For the beginning of 2015 the Tier-1s can be roughly the value in 2013, but the capacity grows toward the end of the year when a full reprocessing of 2015 is needed
 - 300kHS06 allows a full reprocessing of 1 year's data in 3 months (up from ~150HS06 in 2013)
 - Disk storage grows by the end of the year to but only by 10-15%, as much of the previous years data is not needed on disk

Tier-2

- By the end of the year
 - 400HS06 is needed for analysis (up from 350HS06)
 - and 30PB of storage is needed for serving the data, up from 25PB