



**UiO : University of Oslo**

# **ATLAS@Home Work**

**David Cameron**

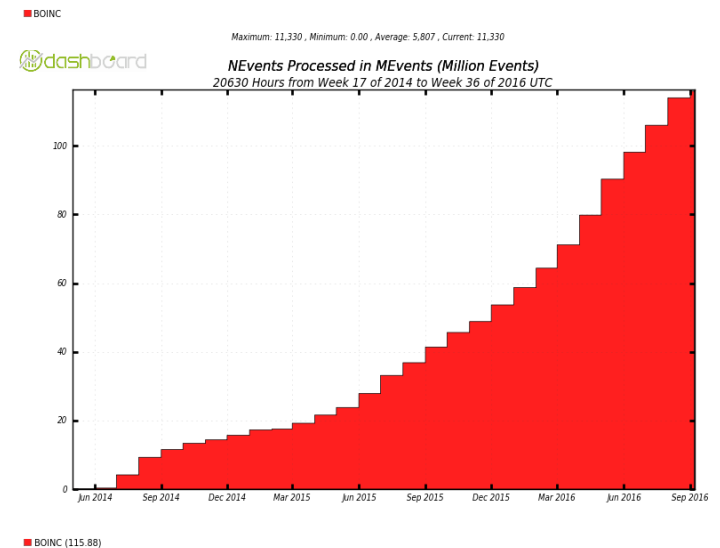
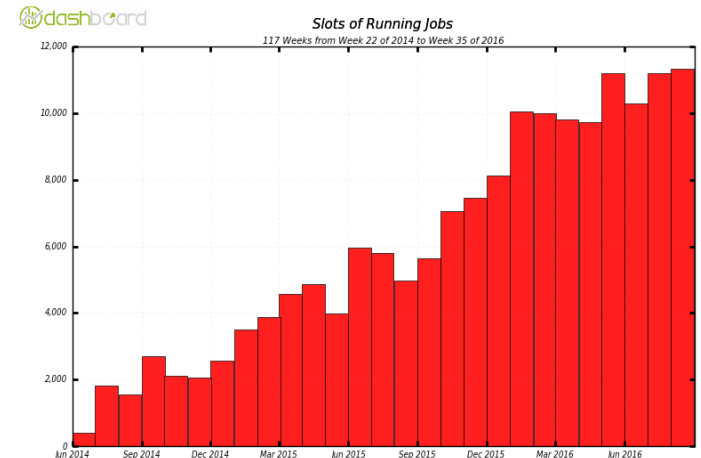
**ATLAS Site Jamboree, 20 Jan 2017**





# ATLAS@Home as a lightweight site solution

- What is it?
  - Volunteer computing for ATLAS: providing spare CPU on home/office PCs to run ATLAS simulation
  - BOINC software is used to pull jobs from a central server and launch VM
    - 70% of volunteers use Windows
  - Fully integrated with PanDA
    - Tasks are assigned to BOINC\_MCORE queue
    - Jobs and data are hosted on BOINC server, volunteers do not talk to Panda/Grid services
    - aCT/ARC CE provides the bridge to PanDA
  - Currently provides 1-2% of simulation resources Grid-wide





# ATLAS@Home as a lightweight site solution


















- How?
  - Create account on <http://atlasathome.cern.ch>
  - Install BOINC client and VirtualBox
  - Connect to ATLAS project
  - (Multicore) jobs start, using as many cores as available
- Why?
  - Doing good for science
  - Competition for credit
  - (For you) providing much-needed resources for ATLAS

# Current volunteers

## Top participants

3 credits  $\approx$  1 event  $\approx$  5-10 mins CPU

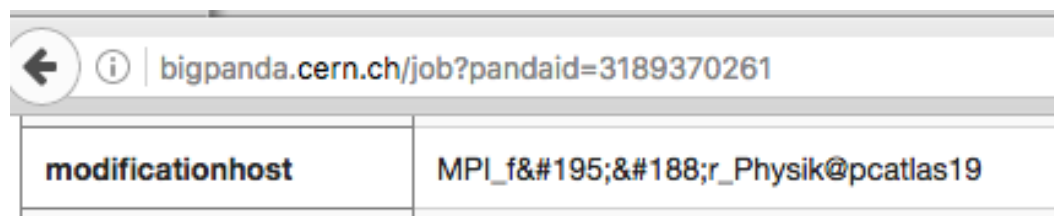
[http://atlasathome.cern.ch/top\\_users.php](http://atlasathome.cern.ch/top_users.php)

Rank	Name	Recent average credit	Total credit	Country	Participant since
1	 MPI für Physik   	135,584	46,336,957	Germany	20 Mar 2015, 9:41:04 UTC
2	David   	2,213	34,588,948	Switzerland	20 Jun 2014, 11:19:25 UTC
3	 Yeti   	44,651	20,844,584	Germany	20 Jul 2014, 10:50:08 UTC
4	WLCG Performance-Test Cluster   	163,337	19,351,353	Switzerland	12 Sep 2016, 18:02:13 UTC
5	Jiri Chudoba   	6,917	14,543,645	Czech Republic	11 Mar 2016, 15:16:15 UTC

1. Munich office PCs
2. David Smith (CERN IT)
3. Yeti (very helpful sysadmin working somewhere in Germany)
4. CERN cluster used for benchmarking or ATLAS@Home in spare time
5. Unused cluster/UI nodes in Prague

# Accounting and recognition

- The credit system and badges create incentives for competition among the public volunteers
- The main issue for ATLAS institutes is accounting in terms of Grid resources was largely missing until now
  - Only total numbers for ATLAS@Home were available, not individual volunteers
- New monitoring infrastructure makes it possible
  - Each panda job has BOINC user id and hostname stored – can filter information by volunteer name or host

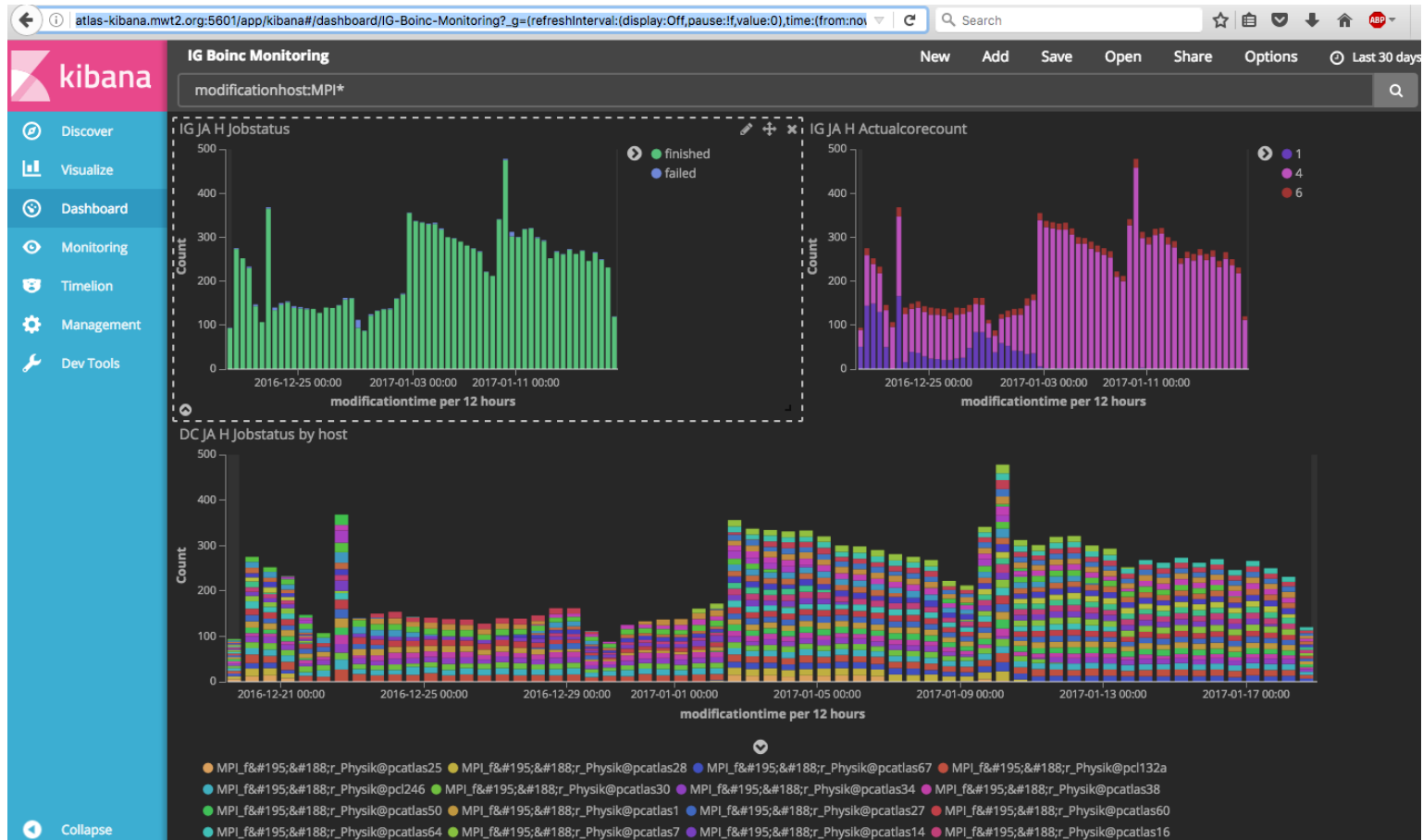


The image shows a browser window with the URL `bigpanda.cern.ch/job?pandaid=3189370261`. Below the address bar is a table with two columns: `modificationhost` and `MPI_f&#195;&#188;r_Physik@pcatlas19`.

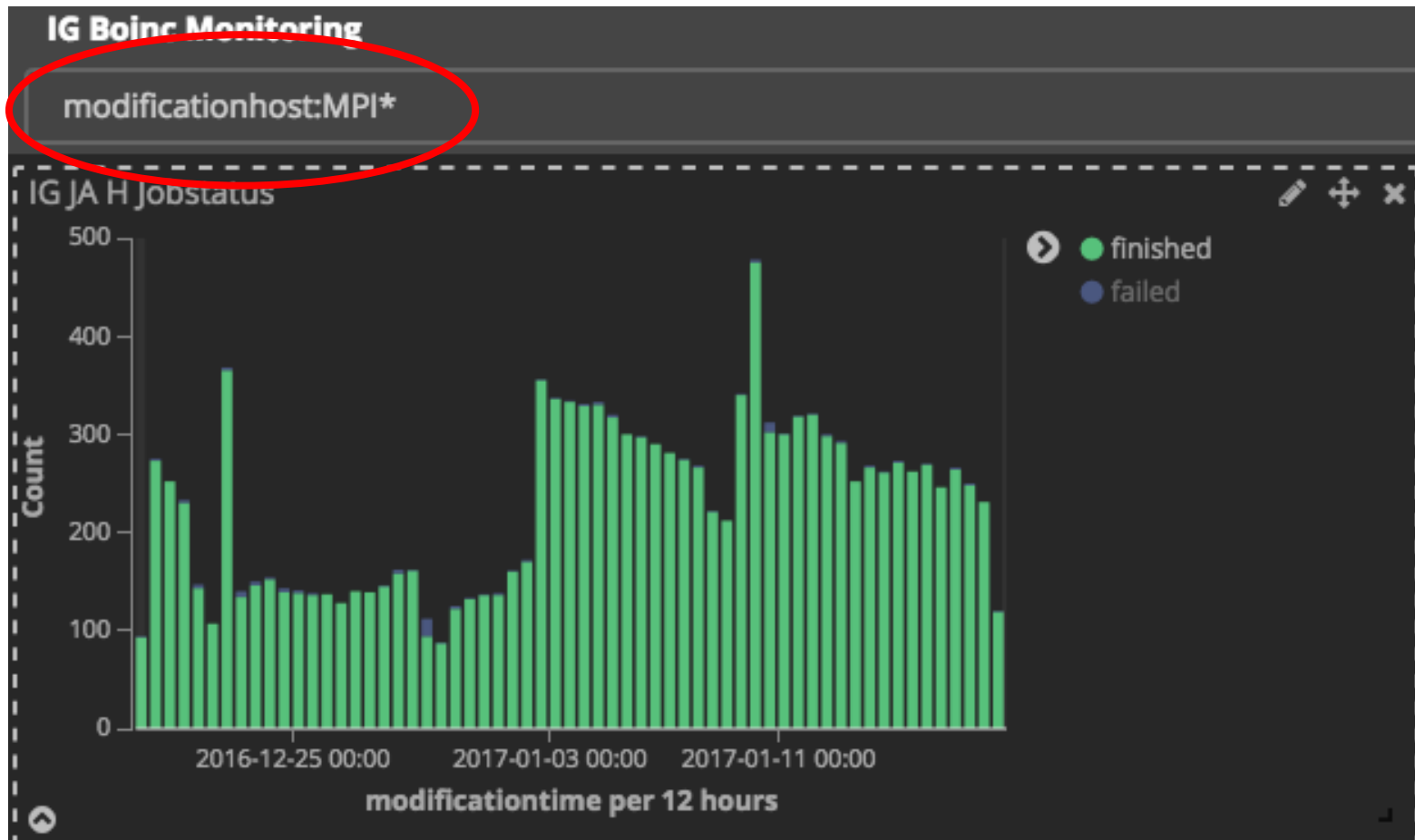
<code>modificationhost</code>	<code>MPI_f&amp;#195;&amp;#188;r_Physik@pcatlas19</code>
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# Kibana dashboard prototype ([link](#))

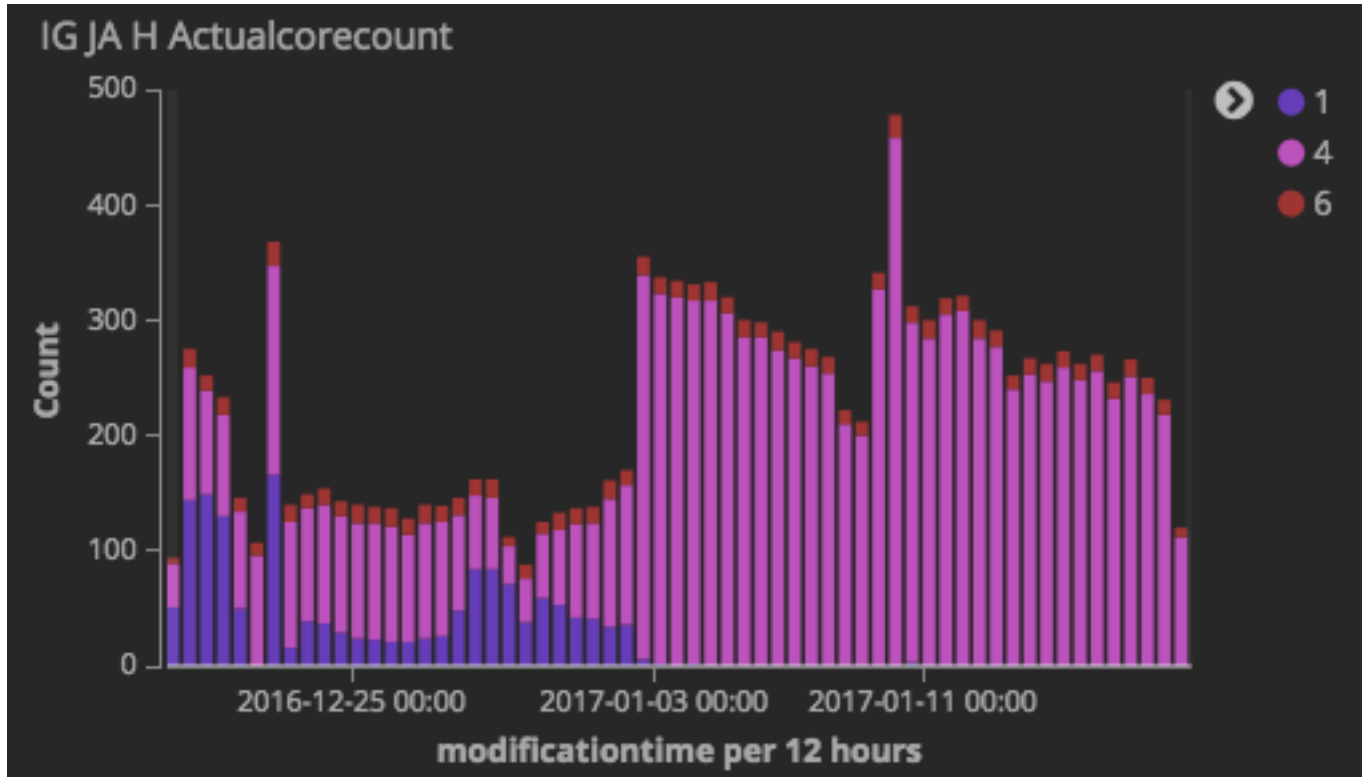
Big thanks to Ivan Glushkov who set this up



Expression with part of username or hostname

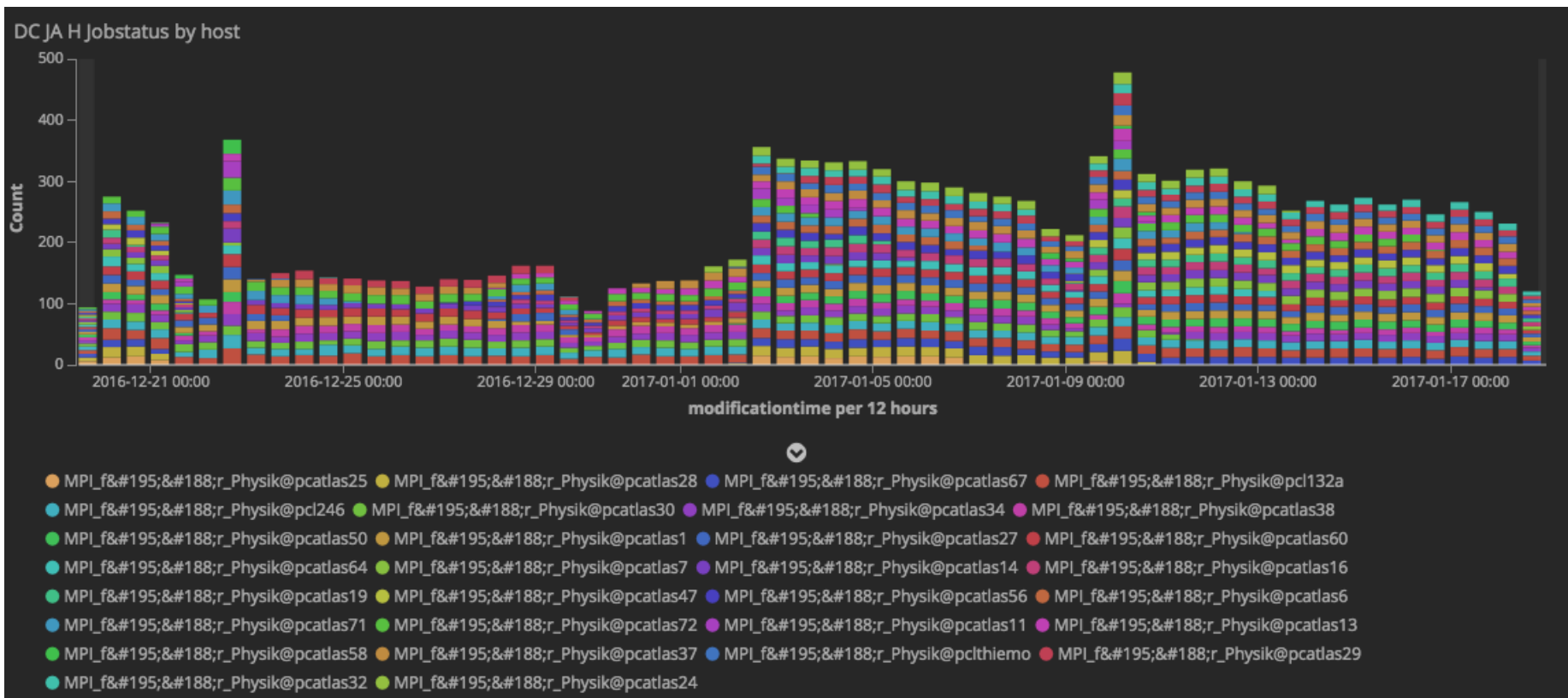


## Jobs split by core count

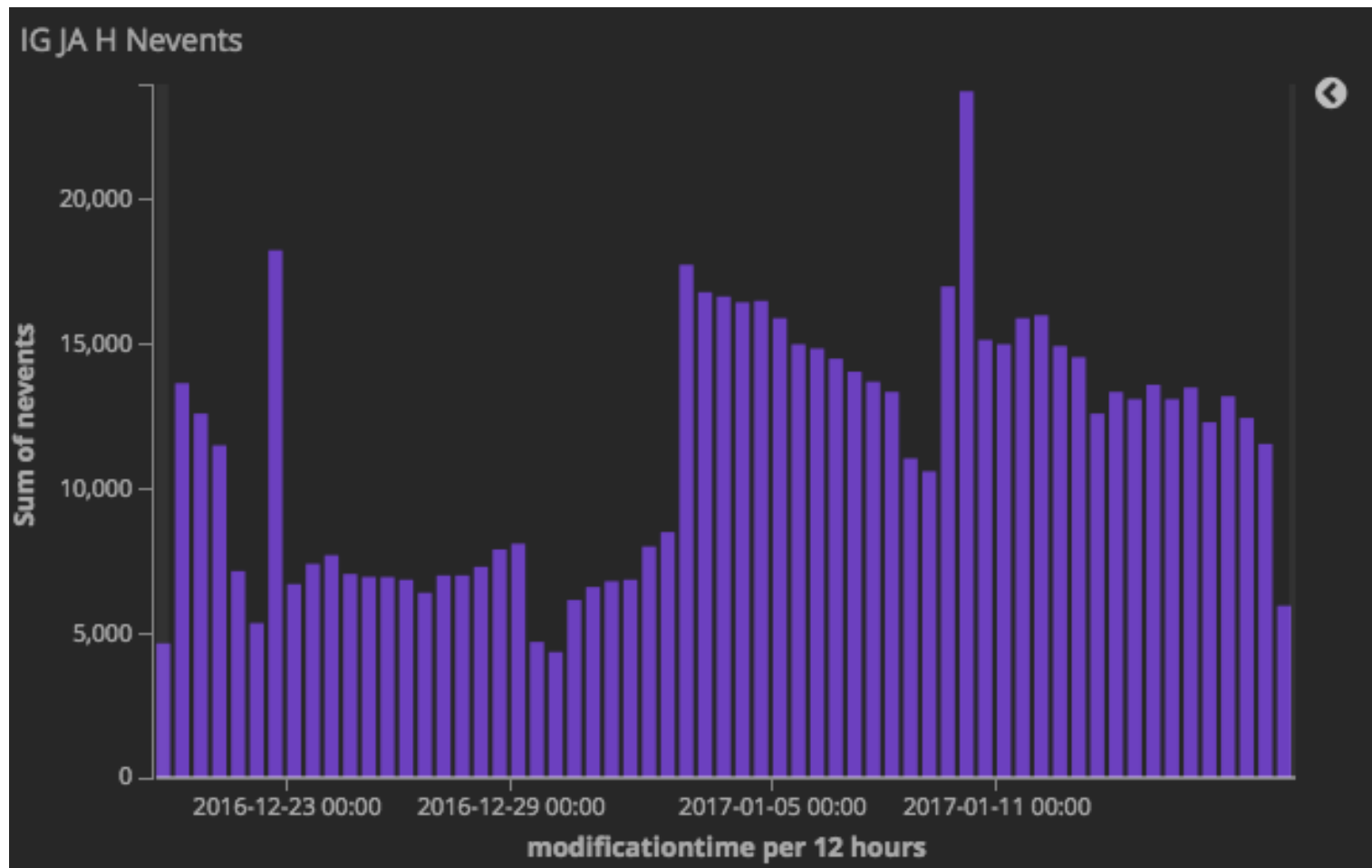




# Jobs per host

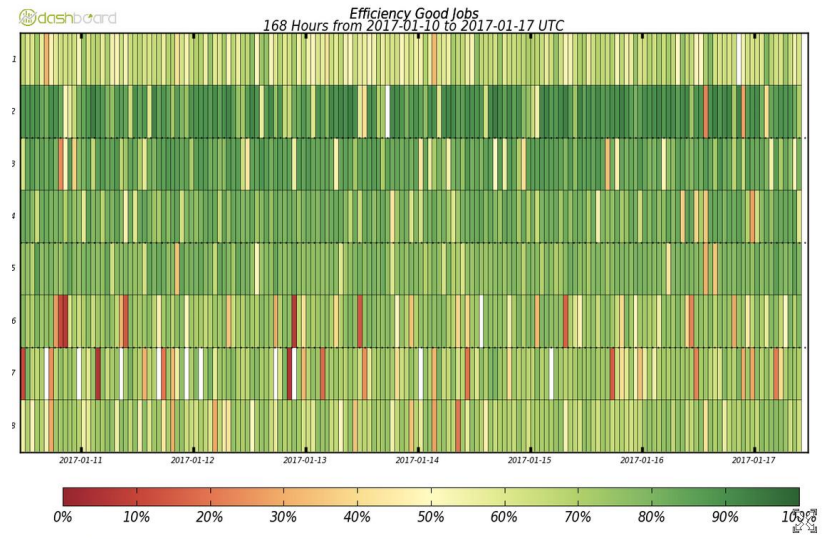
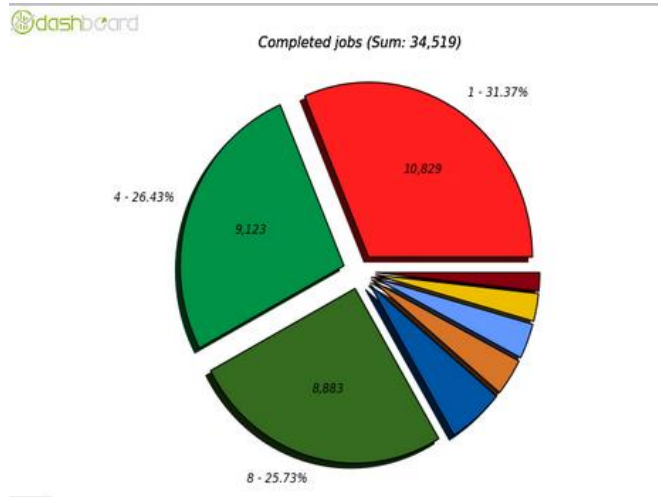


## No of events



# To add

- Efficiency
- Pie-charts/cumulative plots



# Summary

- ATLAS@Home is a very easy way for sites with a small amount of spare resources to contribute to ATLAS
  - Office PCs, old machines, under-used machines, new machines awaiting commissioning, ...
  - Just install 2 pieces of software on each node
  - No CE, SE, etc services required
  - Easily configurable when to run – e.g. only 5pm – 8am, only when CPU usage is < 25%
    - Jobs can be suspended and resumed later
  - ATLAS job accounting can be done as with any normal site
- One caveat: cannot run a VM inside another VM
  - Native linux version using containers is on the todo list