

# Technology Investigations Update

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Area Coordinator's Meeting - March 1

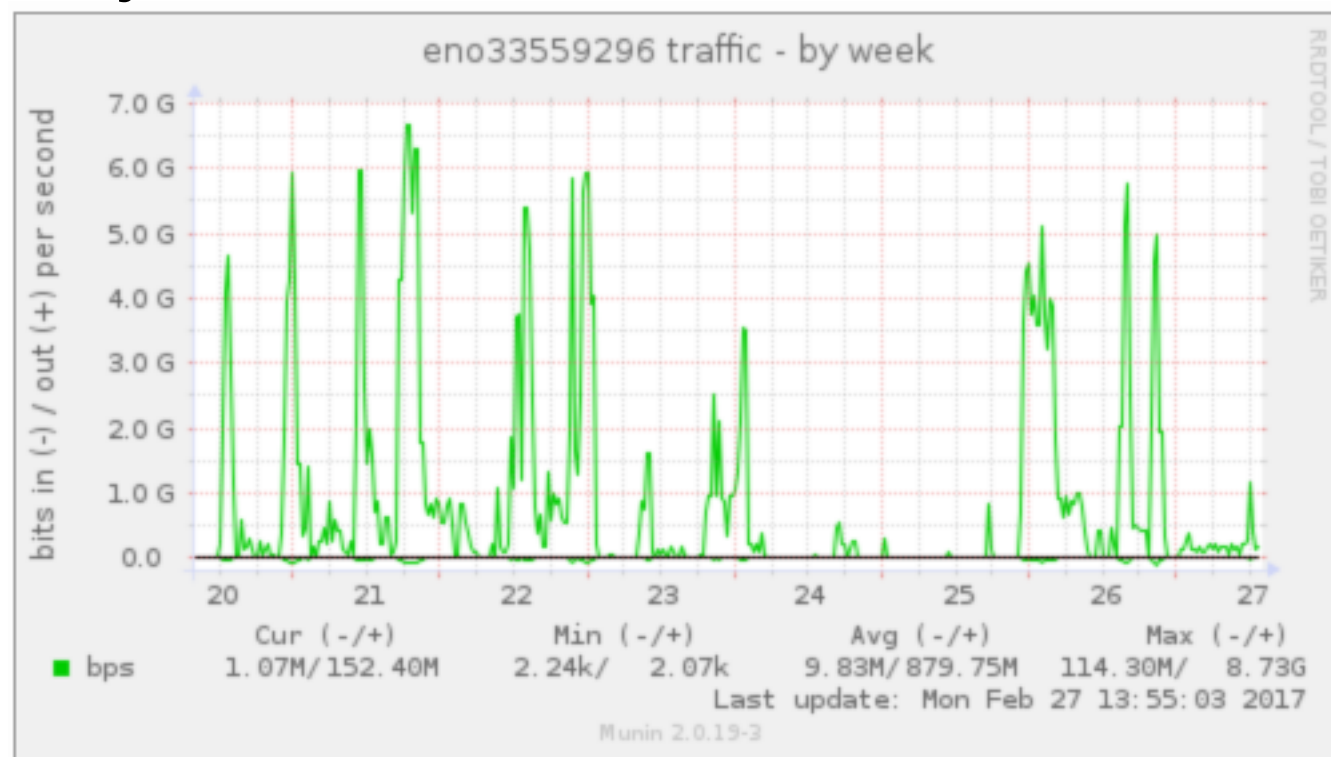
# Highlights

- LIGO runs are increasing scale continuing.
- Production StashCache activity for authenticated repositories.
- Singularity use scaling up.
- GRÅCC: Exercising.
- BDII retirement is hitting the endgame.
- CHEP papers are done! Working on a PEARC17 paper...

# OSG-Storage

- Seeing consistent, multi-hundred-TB use of the StashCache infrastructure.
  - Still O(5) large users: infrastructure can get very quiet between runs.
- LIGO is now using StashCache in production.
- StashCache cache server at Syracuse and Nebraska performs authentication when serving LIGO data.
  - Syracuse server peaks around 9Gbps when LIGO is running workflows.

## Syracuse cache server traffic



# Singularity

- Still aiming for OSG 3.4 release (mid-2017?). That said, 15 sites have installed it on their own or through `osg-upcoming` repo.
- OSG VO using in production where available.
- Depending on site mix, up to 60% of opportunistic slots have singularity enabled. Minimum seems around 40%.
- Increased usage by about 2 orders of magnitude in the last 2 weeks. OSG VO has about 250k jobs / day inside containers and a sum of about 1.2M.
- OSG has “handed off” integration scripts to CMS. CMS has transitioned to testing phase.
  - CMS’s internal goal is Singularity in production by April 1. This is *critical* for removing glxexec from OSG 3.4. Note that Singularity is already at more sites than glxexec.

# OASIS

- Most important upgrade done: **no more RHEL5!**
- Working with upstream CVMFS on the best way to remove update latency. There are at least three different prototypes / concepts being examined (push updates, pull updates with local daemon, pull updates with systemd timer).
- CVMFS 2.4 will feature “hierarchical cache” and “external cache” -> LHC or LIGO sites can keep the CVMFS files cached on local storage.
- OASIS content distribution network (CDN) is being used to distribute images for Singularity.

# GRÅCC

- “Version 1.0 punchlist” is now **down to 3 items**:
  - Update Reports. GRACC-38
  - Clean up some records that generated duplicates. GRACC-43
  - Finish and deploy archiving component. GRACC-59
- Once the punchlist is done, we must decide on transition sequence. Possible route:
  - Stop remote read access to Gratia DB. Should break scripts that aren't transitioned.
  - Redirect GratiaWeb URLs to GRACC. Should break user habits
  - Wait X weeks to collect complaints and iterate with discovered users / use cases. Revert above changes as needed.
  - Cutover the collector DNS alias. Once the cutover to GRACC is done, Gratia stops receiving data.
    - This is “recoverable” if done too soon - we have a tool to pull data from GRACC and feed it back to Gratia.

# BDII Retirement

- AGIS-compatibility JSON URL being used by ATLAS (<http://collector.opensciencegrid.org/json/agis-compatible>).
  - Current production version of service and **OSG software is *sufficient* for switching off BDII.**
  - Only 3 US ATLAS sites have updated in AGIS (out of 10). 3 US ATLAS sites aren't even running HTCondor-CE.
  - **Not clear what happens when the deadline passes.**
- To help coordinate on this and other issues better, Brian Lin will be attending the biweekly US ATLAS Facilities call.
- OSG long-term goal: iteratively improve on the data in the collector to closely match ATLAS and OSG's desired model. Second major revision of schema in testing.

# SRM Retirement

- High priority need from T2 sites (CMS & ATLAS): improve LVS / GridFTP documentation from OSG.
  - **Holdover from NOVEMBER.**
  - **Why can we not get one documentation page done in 4 months?** Particularly as we have identified it as a high-priority issue...
- CMS has transitioned 3 sites (last meeting - 2 sites). Will use next week's meeting to pester remaining sites.
- ATLAS is progressing:
  - All US ATLAS Tier-1 / 2 sites have transitioned away from SRM for space reporting.
  - One Tier-2 (and a few Tier-3s) remains SRM-only in Rucio. **NOTE** this is different from actually decommissioning SRM...
    - PanDA pilot mover is not ready for GridFTP-only. Work ongoing - should be ready within weeks?
  - **Multiple sites report they are waiting on documentation from OSG.**



# Authz overhaul

- In the middle of the technical work for the authz overhaul.
- Replacing `edg-mkgridmap` with a VOMS plugin for LCMAPS. Requires us to make sure VOMS attributes are verified - a config change.
- Plugin code & RPMs ready to ship.
- Now working on updates to configuration files: updated `lcmaps.db`, new authz template file, update `osg-configure`.
  - The OSG authz templates are in **poor** shape. Needs significant work from across several areas.
  - I hope to get these shipped in OSG 3.3 — but only support / enable it in OSG 3.4. **Sites wanting to use this in OSG 3.3 will have to go out of their way.**
- Much better progress report this time than last time: I feel confident this will be in OSG 3.4.0.

# Authz Overhaul Vision

- It is a good thing in itself to improve the various authz templates and retire a perl script that hasn't been maintained for 10+ years.
- This is a core piece of the retirement of GUMS — possibly as early as 2018?
- Outside the VOMS-based mapping, GUMS also implements “pool accounts”.
  - Pool accounts are not needed on the CE anymore — we use pilots.
  - Singularity removes the need for pool accounts on the worker nodes.
  - Storage remains: looking at changing gridftp / gridftp\_hdfs to correctly handle CMS’s “sticky directories” without needing pool accounts. Alternately, CMS needs to decide “sticky directories” without user separation is an acceptable risk.
  - Authorization policy would still need to be synchronized across the site (e.g., with Puppet / Ansible / Chef).
- We had a goal of retiring one GUMS server this year (AGLT2 volunteered) during the project year. I’m not 100% sure we’ll hit that - but it seems plausible we can retire GUMS support in 2-3 years.
  - Even if OSG no longer provides support, the site can still use GUMS. Particularly, it’s used extensively at FNAL.

# Concerns

- The TODO list for OSG 3.4 remains daunting but starting to become more organized and *no longer growing*.
- BDII deprecation remains a race to the finish.
- **LVS / GridFTP documentation is at risk of being too late to be useful.**