

# Hall-D Online Status



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# gluonraid5

- Large RAM disk for buffering High Intensity data
- Supplements gluonraid3/gluonraid4
- Specs:
  - 420TB SAS drives in RAID-6
  - 240 GB SSD (for system)
  - **768GB DDR4-2666 RAM**
  - Order placed 9/13/2019
    - ~\$30k
    - estimated delivery 9/24/2019 (more likely 10/31)

## Storage:

gluonraid1	77TB
gluonraid2	77TB
gluonraid3	264TB
gluonraid4	310TB
gluonraid5	420TB
gluonwork	41TB
gluondaqfs	1.7TB
gluonfs1	10TB*

## gluonraid3/4/5 @ high intensity:

$994\text{TB} \cdot 0.80 / (1.25\text{GByte/s} \cdot 0.6 \cdot 3600) = 294 \text{ hr} = \mathbf{12 \text{ days}}$   
(n.b. FY20 running = **110 days** model predicts **7.3PB raw data**)

- No compression of raw data
  - LZ4 (fast) saves <15%
  - gzip(slow) saves 40% (*too much CPU!*)
  - Disk bandwidth addressed other ways
- Plan to leave gluondaqfs in place for the coming RunPeriod
- gluonwork1 performance issues with small files + NFS over IB

# OS Upgrade (August)

- RHEL6 -> RHEL7
- System management using *puppet*
  - Better alignment of packages installed on all systems
  - A few categories of machine (RAID, farm, desktop, controls)
- Default system compiler: gcc 4.4.7 -> gcc 4.8.5
- Default *hdops* compiler: gcc 4.9.2 -> gcc 5.3.0
- Majority of packages rebuilt (*e.g. halld\_recon, coda*)
- cronjobs not re-installed yet (*e.g. no file->tape*)

# New NetApp File server

- Replace aging NetApp server
  - Hosts home directories and /gapps
  - Snapshot utility
  - Redundant failover power supplies
  - Old one under 3rd party service warranty for a couple of years (few \$k/year)
- 1Gbps -> 4 x 10Gbps
- 4TB -> 10TB
- Will hopefully address some “global performance” issues

# Online Systems Summary

- New high-reliability server
- New RAID server
- New OS
- New Data Movement + Online Skim System
- New Monitoring System feature (RSAI + Hydra)

Lots of modifications since last run!

Still a lot of work to do to bring all old systems + new systems to being production ready.