

Diamond Light Source Site Report

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Diamond Light Source

April 25, 2022



Outline

Compute

Hardware

Stats Reporting

Storage

Cloud

Miscellaneous



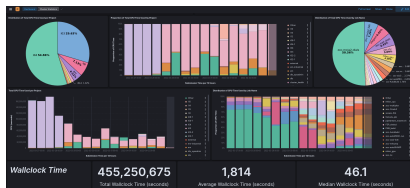
Compute

No major hardware changes (in production systems)

- ▶ Science Cluster
 - ▶ 7k CPU cores
 - ▶ 84 GPUs
 - ▶ 1.8k cores and all GPUs out of support
- ▶ Hamilton
 - ▶ 6k cores
 - ▶ 300 GPUs
- ▶ Univa/Altair Grid Engine
- ▶ RHEL7
- ▶ evaluating SLURM on one development cluster
 - ▶ 1 CPU node, Ice Lake, 2x 38 core CPU
 - ▶ 3 GPU node with 4x NVIDIA A100 NVlink each
 - ▶ prototyping/testing potential hardware for next procurement

Compute

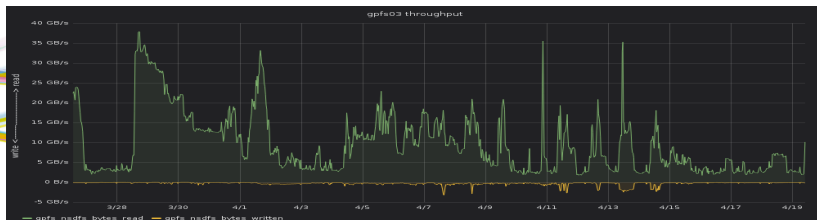
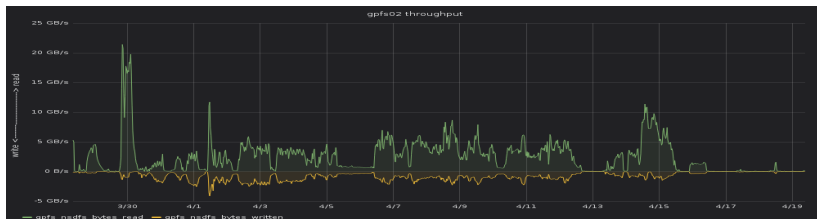
- ▶ logstash for data extraction
- ▶ dashboards to help users understand the cluster status
- ▶ more detailed dashboards available
- ▶ Graduate project completed by Abigail



Storage

- ▶ No major HW changes:
 - ▶ 1PB NetApp
 - ▶ gpfs02: 7.3PB
 - ▶ gpfs03: 15PB
- ▶ GPFS upgraded to 5.1.2

Storage



Cloud

- ▶ HTCondor deployed as using kubernetes operator on IRIS (on STFC Cloud)
- ▶ some data analysis moving into private cloud, includes GPFS access
- ▶ Expanded private kubernetes instance into second data centre
 - ▶ allows native access to file systems
 - ▶ workers now spread across different subnets, cluster internal traffic detect and handled by MetalLB
- ▶ prototyping IOCs (controls processes) on kubernetes continue
- ▶ Kyverno

Miscellaneous

- ▶ LOG4J
- ▶ Linux Distribution
 - ▶ Update to RHEL8 in progress
 - ▶ RHEL7 still around
- ▶ MFA implementation to be extended to remote SSH/NX access
- ▶ phone system migrating to zoom phone

Conclusion

Many thanks to my colleagues at Diamond who have contributed material for this presentation: Abigail Alexander, Chris Reynolds, James Thorne and many others in the team.

