# JLAB OPEN SCIENCE GRID DEPLOYMENT STATUS

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HISTORY & NETWORK BUILD-OUT 2016 – 2021

- Began with a single, firewalled submitter host (scosg16) in 2016. No network infrastructure to support internet-facing services

- In 2019, build out began

- First, networking groundwork

  - Ethernet Core

  - Science DMZ

  - firewalls, routing policies

  - VM capabilities (VXLAN, firewalls)

- Design for data transfer nodes, service nodes
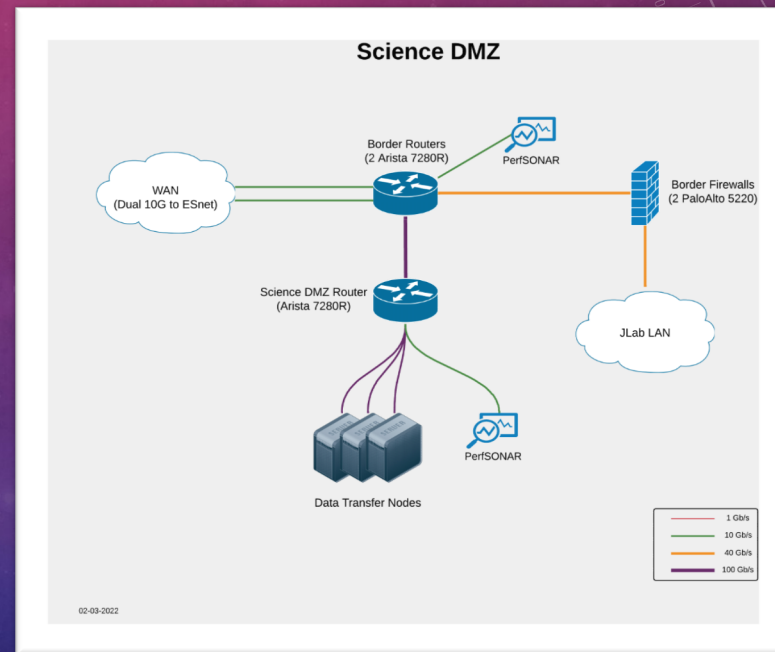
2021: CAPACITY BUILD OUT

- Supply chain delays (June order delivered in January)

- Working with ESNet on upgrade from 2x10Gbit to 2x100Gbit in FY22

- Engaged with OSG weekly to expand capabilities in a robust way

  - scosg20 production submitter node

  - development submitter node

  - redundant collector nodes

  - compute element (osg-ce-1) to allow for jobs to run at JLab ("flow back")

  - Next up: One submitter Node per project (GlueX, Clas12, EIC)

- We have nearly completed the Upgrade to OSG 3.6, including IDTokens for Condor

- Examples of OSG core hours delivered and sample internet connection peaks (for illustration)
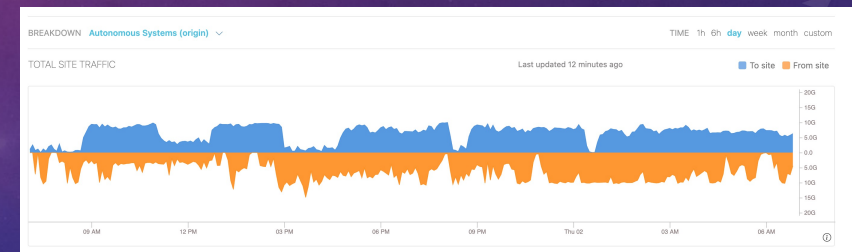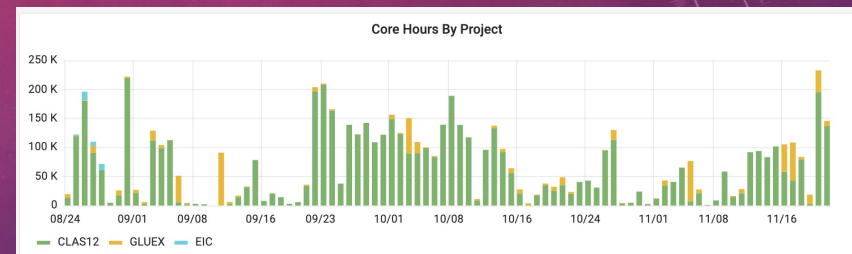
STORAGE, FROM SIMPLE TO COMPLEX

- Simplest case: Files can flow back from completed OSG jobs using condor, but this does not scale in the long term. It is easiest because it relies on the simplest security model, leveraging condor.

- Larger scale read-only storage is useful. We have read-only OSDF (formerly stash cache) capabilities for the JLAB VO. CVMFS for namesapce, XRootD for streaming data transfer

- → *We want to join and contribute origin disk space to the existing GlueX VO OSDF pool*

  - (which I believe is read-only?)

  - We are interested to know if there are plans for read/write by users to this storage

SCITOKENS FOR FEDERATED IDENTITY

- OSG is Moving to Token based Authorization and Authentication for Storage

- The transition for some services (like Condor) using IDTokens is straightforward and largely done.

- The transition for user-facing services beyond condor (e.g. XRootD) is more complex.

- Because JLab never had a big investment in X509 user certificates, we will move directly to identity services using SciTokens with XRootD writeable Storage as the target

- We are standing up the software stack to do this, working with CILogon at NCSA/University of Illinois.

- This is a significant infrastructure project, but all roads lead to storage

- Targeting this summer to pilot a token based, writeable XRootD storage pool using COmanage+SciTokens for federated identity management.

REFERENCES

- https://scitokens.org/
- https://www.cilogon.org/faq
- https://spaces.at.internet2.edu/display/COmanage/Home