OSG-LHC and ATLAS

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What is the OSG-LHC?

- IRIS-HEP is the software institute designed to address the challenges of the HL-LHC
- OSG-LHC is the production grid branch of IRIS-HEP
- Software from R&D activities of other IRIS-HEP groups (e.g., DOMA) will be tested through the Scalable Systems Laboratory (SSL) and distributed in the OSG-LHC

- OSG-LHC funds approximately ⅓ of the overall OSG
- Instead of a monolithic grant, the OSG is funded by a collection of grants
- OSG funding levels are comparable to previous years

OSG-LHC Work Breakdown Structure

- An OSG-LHC WBS was submitted to the NSF as part of the IRIS-HEP project execution plan, reviewed by members of the LHC community
- WBS reflects 18mo plans; post-18mo plans will develop as IRIS-HEP evolves
- LHC community input will drive IRIS-HEP evolution
- Guiding OSG-LHC directives:
  - Continue to operate existing OSG-LHC services and to provide integrated software and support for the production grid services operated by LHC sites.
  - Provide new features and capabilities for the LHC computing infrastructure
  - Develop and maintain software that is owned by the OSG or that the OSG takes over in cases of critical but abandoned software.
  - Improve the sustainability of OSG-maintained software and services by finding replacements for abandoned products.
  - Continue coordination with the U.S. LHC Operations programs, the LHC experiments, the WLCG, the HEP Software Foundation, the OSG Consortium, and other external partners

OSG-LHC Services

After the 2018 service migration, we offer many of the same services distributed across OSG member institutions:

- Resource and contact registration (Topology) → AGIS, GGUS
- Resource downtime registration (Topology) → AGIS
- Information services (Central Collector) → AGIS
- Job accounting (GRACC) → WLCG
- Network monitoring (PerfSonar) → WLCG
- OSG Software repository and releases
- OSG Security announcements

OSG-LHC 18mo Project Schedule

- Document and test integration of current LHC uses of XRootD in the OSG
- Develop web form for LHC site administrators to register service downtimes
- Complete the transition from Globus Toolkit to Grid Community Toolkit packages in EPEL and OSG repositories
- With DOMA, define a replacement path and schedule for GridFTP and GSI
- Coordinate with WLCG management to contribute as appropriate to the first LHCC review of WLCG in early 2019
- Complete the overhaul of the networking performance data pipeline, including tests of data restoration from tape and the transition of data collection from a pull to a push model

OSG-LHC 18mo Project Schedule

- Align the OSG Cybersecurity program with the Open Science Cybersecurity Program Framework, the US-LHC Ops program, the US-LHC Tier-1s, and WLCG, and distribute responsibilities among teams to improve effectiveness and reduce unnecessary duplication of effort
- Complete the OSG Operations transition by cataloging all OSG services (owned or operated) and updating OSG Service Level Agreements (SLAs) in collaboration with key stakeholders including the LHC experiments
- Summarize past year of the monthly accounting reporting to WLCG, including all issues with reporting and their resolutions
- Release OSG 3.5 with major additions to and deletions from OSG software for OSG-LHC

OSG-LHC 18mo Project Schedule

- Implement a process that allows LHC site administrators to provide feedback on testing-grade software to expedite their release into production
- Implement the matrixed cybersecurity activity plan among OSG, the US-LHC Ops program, the US-LHC Tier-1s, and WLCG, including the foundation of a new cybersecurity interest group for OSG resource providers, plus interested VO and users
- Evaluate use and operations of data federation software, configuration, and services by US ATLAS and US CMS for common use
- Add an OSG software deployment model based on container orchestration, including test deployments in the SSL

OSG-LHC + ATLAS Collaboration Opportunities

- Regular support channels, i.e. GGUS
- OSG Production meeting
- XCache meeting
- OSG Software representation at the US-ATLAS Facilities meetingsp
- ATLAS representation on the OSG Council
- ATLAS representation in IRIS-HEP at multiple levels

Extra Slides

OSG Container Workshop

- https://indico.fnal.gov/event/19149/
- SLATE team members taught the OSG Software team about containers, Kubernetes, Helm, and SLATE
- Presentations by Ilija and Edgar discussing ATLAS XCache and StashCache Kubernetes implementations
- Worked on StashCache and Hosted CEs as examples, plans are to having a working Hosted CE by the end of January
- Generic XCache is the next obvious target

Generic XCache

- Hoping to utilize features in XRootD 4.9 to minimize the “extra stuff” needed by each implementation (ATLAS XCache, CMS AAA, StashCache)
- Coordination with a container pipeline is unclear
  - ATLAS XCache images can be based off of an OSG “Generic XCache” image
  - But Kubernetes/Helm don’t have inheritance, so unless ATLAS/CMS/OSG agree on support containers/interfaces within a pod, OSG Software’s contribution may have to be via documentation
    - Some obvious examples of coordination: X.509/CRL updating container
    - Less obvious: anything interfacing with VO-specific services, e.g. central monitoring