OSG – PEP

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Tasks

- WBS7 (OSG-LHC): To provide a path for innovation from R&D through validation at scale through deployment into a maintained, secure, and supported product on OSG cyberinfrastructure.
  - W7.1: Continue to operate existing OSG-LHC services (e.g., cybersecurity, network monitoring, accounting, and software and data distribution) and to provide integrated software and support for the production grid services operated by LHC sites.
  - W7.2: Provide new features and capabilities for the LHC computing infrastructure by packaging, integrating, testing, and deploying software that comes from other IRIS-HEP areas, LHC collaborators, and external sources.
  - W7.3: Develop and maintain software that is owned by the OSG or that the OSG takes over in cases of critical but abandoned software.
  - W7.4: Improve the sustainability of OSG-maintained software by finding replacements for abandoned products.
  - W7.5: 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 to facilitate joint interests, reduce duplication of effort, and advance the state of the art of DHTC for all of open science.

Milestones and Deliverables

	Timeframe (months)	Description	WBS x-ref	Risk Register	OSG Owner
2	0–3	Document and test integration of current LHC uses of XRootD in the OSG	7.1	R.7.4	Software
3	0–3	Release Grid Community Toolkit packages in the OSG and EPEL repositories	7.2	R.7.4	Software
4	0–3	Design a process that allows site administrators to provide feedback on testing-grade software to expedite its release	7.2	R7.5	Software
5	0–3	Contribute OSG-LHC Globus Toolkit patches to the Grid Community Toolkit	7.3	R.3.2, R.7.4	Software
6	0–3	Develop web form for LHC site administrators to register service downtimes	7.3	R.7.4	Software
7	0–3	Validate the networking performance data pipeline, including backup/restore	7.1	R7.4	Networking
8	0-3	Start a discussion about the matrix of security responsibilities between OSG, US LHC ops program, US LHC Tier-1	7.1		Security
9	3–6	Update OSG Service Level Agreements (SLAs) with the LHC experiments	7.1	R.7.1	Operations
10	3–6	Review the operations transition from OSG to OSG-LHC for completeness	7.1, 7.4	R.7.1	Operations
11	3–6	With DOMA, define a replacement path and schedule for GridFTP and GSI	3.2, 7.4	R.3.2	Software
12	3–6	Unify OSG and HTCondor BLAHP code bases	7.3	R.7.2, R.7.4	Software
13	3–6	Realign the OSG Cybersecurity Program with the Open Science Cybersecurity Framework	7.5	R.7.3	Security
14	3–6	Coordinate with WLCG management to contribute as appropriate to the first LHCC review of WLCG in early 2019	7.5	R7.6	Management
15	3–6	Integrate perfSONAR 4.1 change in data collection from pull to push	7.1	R7.4	Networking
16	6–12	Release OSG 3.5 with major additions to and deletions from OSG software for OSG-LHC	7.2	R.7.2, R.7.4	Software
17	6–12	Implement the process that allows LHC site administrators to provide feedback on testing-grade software to expedite their release into production	7.2	R7.5	Software
18	6–12	Report to OSG Council on the completed review of operations transition at the OSG AHM Council meeting on 21 March 2019	7.4, 7.5	—	Operations

Milestones & Deliverables (II)

19	Deliverable	6–12	Summarize past year of the monthly accounting reporting to WLCG, including all issues with reporting and their resolutions	7.5	-	Operations
20	Deliverable	6–12	Complete brief annual reports on software, operations, and security team contributions to LHC program	7.5	R7.6	Management
21	Deliverable	6–12	Complete annual program of work process with the larger OSG community for Year 2 of IRIS-HEP	7.5	R.7.1, R.7.2	Management
22	Deliverable	6–12	Coordinate data gathering with external network performance community (e.g. PRP/NRP/NetSage)	7.1	R7.5	Networking
23	Deliverable	6–12	Document the matrix of security responsibilities between OSG, US LHC ops program, US LHC Tier-1	7.1		Security
24	Deliverable	6–12	Evaluate use of DOMA software and configuration by US ATLAS and US CMS for common use	7.2, 7.5		Software
25	Deliverable	6–12	Improve reproducibility of nightly OSG integration tests through container orchestration	7.2	R7.4	Software
26	Deliverable	12–18	Support an additional deployment model based on orchestration of containers	7.2	R.7.2, R.7.4	Software
27	Milestone	12–18	Create cybersecurity interest group for OSG resource providers, and interested VOs and users	7.5	R7.5	Security
28	Milestone	12–18	Turn off pull model for network performance gathering	7.1	R7.5	Networking
29	Deliverable	12–18	Evaluate operations of DOMA services by US ATLAS and US CMS for common use	7.2, 7.5		Operations

Summary of M & D

- 0-3 months
  - Software has 5
  - Security & Networking each have 1
- 3-6 months
  - Operations & Software each have 2
  - Networking, Security, management each have 1
- 6-12 months
  - Software has 4
  - Operations & management each have 2
  - Networking & security each have 1
- 12-18 months
  - Software, Security, Networking, Operations each have 1
- 28 total … 22 of which have risks identified

Risk 7.1

Risk ID: R.7.1 - OSG Operations

- **Description:** The OSG-LHC effort must provide the operational services for the common distributed computing components required by WLCG; the effort was precisely sized for today's services. Through the nearly 15-year lifetime of the OSG, the set of required services has continuously evolved. There is risk that future services not yet in the pipeline require significantly more effort than allocated to OSG-LHC.
- **Timeframe:** Years 2–5
- **Probability:** Low
- **Impact:** High
- **Monitoring & Trigger:** The OSG-LHC effort includes explicit effort for coordination with the WLCG, allowing IRIS-HEP to monitor for potential new services. The OSG area coordinator will estimate required effort levels and trigger a mitigation plan during the yearly planning activities.
- **Mitigation:** OSG-LHC effort can be increased as necessary during the yearly budget process; based on about a decade of prior experience, yearly changes are a sufficient cadence. The Institute's steering board contains representatives from many stakeholders dependent on OSG; for example, IRIS-HEP can negotiate with the USCMS and USATLAS operations programs to contribute effort to the OSG Consortium to mitigate the effort required for large, new services.

Risk 7.2

Risk ID: R.7.2 - Components of the software stack become defunct or unsupported

- **Description:** The OSG-LHC software stack consists of many pieces of software maintained by parties external to IRIS-HEP. If external software providers cease to maintain their software, the burden of maintenance and planning a migration is placed onto the OSG-LHC.

- **Timeframe:** Duration of institute
- **Probability:** Medium
- **Impact:** Medium
- **Monitoring:** The OSG-LHC team will track external software components and their owners or maintainers. OSG-LHC leads will work with major upstream providers to understand their support model and, as appropriate, funding liftetime, incorporating this into the work plan.
- **Mitigation:** The OSG-LHC is already well-versed in developing relationships with key software providers and supporting defunct software until a migration plan can be put into place. OSG-LHC effort can be increased as necessary during the yearly budget process; based on about a decade of prior experience, yearly changes are a sufficient cadence.

Risk 7.3 & 7.4

Risk ID: R.7.3 - Security breach

- **Description:** Major security breaches that affect computing or storage services of the production grid.
- **Timeframe:** Duration of institute
- **Probability:** Medium
- **Impact:** High
- **Monitoring:** The OSG-LHC team will subscribe to security announcements for all components of the software stack.
- **Mitigation:** The OSG-LHC team will maintain security contacts for all users of OSG-LHC software and promptly distribute security data and announcements.

Risk ID: R.7.4 - Delays in releasing required features

- **Description:** To support the infrastructure necessary for the HL-LHC, we expect to make software modifications to the OSG-LHC production grid. Delays in software distribution could negatively affect LHC productivity.
- **Timeframe:** Duration of institute
- **Probability:** Low
- **Impact:** Low
- **Monitoring:** The OSG-LHC will regularly meet with LHC VO management, production, and infrastructure teams and report software release activities and timelines.
- **Mitigation:** This is mitigated by maintaining open communication channels with upstream developers, DOMA, and LHC Operations so effort can be reallocated as necessary to meet milestones.

Risks 7.5 & 7.6

7.5: Description: Low adoption of new processes, services, and features
Timeframe: Duration of institute
Probability: Low
Impact: Medium
Monitoring: Monitoring of adoption of processes and software
Mitigation: Collaborative decision-making on innovations and continued collaboration during innovations

7.6: Decreased impact of OSG on the global LHC community
Description: Software services and process within the WLCG community depend on appropriate coordination between experiments, facilities, and national infrastructures.
Timeframe: Duration of institute
Probability: Low
Impact: High
Monitoring: Perform assessment of status with LHC members of OSG Council on a regular basis.
Mitigation: Actively participate in WLCG working groups. Attend appropriate global ATLAS and CMS meetings to understand where the global collaborations are heading, and contribute to them. Include WLCG/HSF in annual OSG All Hands Meetings.