

Computing Sector

Program Charter

“Scientific Computing Monitoring and Accounting Program”

Version 1.0

Date 2015-8-07

DocDB #

PREPARED BY:

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CONCURRENCES:

Name	Date	Name	Date
Program Sponsor		Ruth Pordes	

Charter Revision Log

Revision	Description	Effective Date
1.0	Initial Program Charter	2015-08-07

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1. Program Purpose/Background

The purpose of this program is to provide a comprehensive framework to allow the various teams in SCD, Fermilab projects and experiments to monitor Grid services and jobs running at Fermilab Grid clusters and HEP Cloud Facility. This includes but not limited to status of Grid jobs, health of the GRID infrastructure, SAM, FTS, dCache and BlueArc, and availability of the OSG sites. We also monitor VMs and jobs running on AWS, the current spot prices and data transfer charges.

2. Program Scope

The program will consist of several projects and will be implemented in phases. Currently we have identified three projects that will address the requirements we have collected so far.

1. User Dashboard: Allows users and support groups to monitor jobs on Grid and Cloud.
2. Service Provider Log Analytics Dashboard: Collects various logs, allows to do monitoring, search, analysis, and visualization in real time.
3. Services and Sites Availability Dashboard: Collects status of the various services and Grid sites, allows generating alarms and handling troubleshooting responses.

We will expand the infrastructure to include accounting data during the next phase of the program.

3. Program Objectives

- Provide a monitoring framework that assists Fermilab experiments and projects, and SCD GRID and Cloud services and user support teams to monitor and troubleshoot Grid jobs, Grid and Cloud Infrastructures.
- Deliver a service to present SCD management resource utilization trends and provisioning needs.

4. Program Deliverables

A production instance of monitoring services and monitoring agents setup and operated under an appropriate Distributed Computing SLA.

We will deliver abovementioned program in phases described below:

1. User Dashboard
 - Phase I: The initial release of a monitoring framework that will include FIFEMon replacement for experiments currently running and expected to be running in the next 2 years.
 - Phase II: Condor schedds, Data Handling (SAM, FTS, BlueArc, dCache, Enstore) and IF databases.
 - Phase III: Fully integrate monitoring with HEP Cloud Facility.
2. Service Provider Log Analytics Dashboard
 - Phase I: Evaluate ELK (Elasticsearch, Logstash, Kibana) to assess its compatibility with the current requirements.

- Phase II: Collect all the relevant logs that include condor schedds, GlideInWMS factory and frontend, JobSub, SMS, FTS and other log files related to Grid jobs execution.
 - Phase III: Configure default dashboard and initial queries.
 - Phase IV: Train interested services' administrators, user support and operation staff to create custom queries and dashboards.
3. Services and Sites Availability Dashboard
- Evaluate check_mk to assess its compatibility with the current requirements.
 - Phase I: Request installation of check_mk
 - Phase II: develop and deploy check_mk agents to monitor FIFE submission infrastructure (JobSub Server, schedd, FIFE GlideInWMS Frontend, etc)
 - Phase III: develop and deploy check_mk agent that runs test grid jobs on all the OSG sites for various experiments.

5. Program Customers

The primary customers will be Fermilab project and experiments (NOvA, Mu2e, DUNE, MicroBooNE, etc.) that are using Grid and Cloud infrastructure, Grid and Cloud services support and operational staff (USDC, OPOS, DCSO). SCD management will also use the service to monitor resource utilization trends and understand provisioning needs.

6. Program Stakeholders

The program stakeholders include the SPPM leadership, SCD coordinators, Intensity and Cosmic Frontiers coordinators and liaisons, and associated management.

7. Program Time Frame

The program requirements gathering, design, and initial releases of this program will be completed in calendar year 2016.

8. Program Budget

CS Activity Name:			
FTL Identifier:			
Task Code:			
	FY15	FY16	Total
Personnel (FTE-yrs)	0.6	1	1.6
M&S (\$K)	TBD	TBD	We will use existing Fifemon nodes, DCSO will provide hardware for ELK installation.

9. Program Acceptance Criteria

This project will be considered complete when the following criteria have been met:

1. Majority of FIFE experiments is able to use it as a FIFEMon replacement.
2. FIFE Support, OPOS, HEP Cloud Project and DCSO are accepted the service as suitable for monitoring and troubleshooting.
3. Suitably version-controlled software has been released.
4. System has been brought up under an appropriate ITIL SLA.
5. Suitable documentation has been provided.

10. Flexibility Matrix

	<i>Most Critical (Inflexible)</i>	<i>Moderately Critical (Adaptable / Negotiable)</i>	<i>Least Critical (Accepting / Will Concede)</i>
SCOPE		X	
SCHEDULE		X	
RESOURCES	X		

11. Program Organization

Program Sponsor: Ruth Pordes

Program Manager: Tanya Levshina

Technical Lead: Joe Boyd (Log Analytics Project)/Kevin Retzke (User Dashboard)/?
(Services Status)

Service Owner: Project I (USDC)/Project II (DCSO)?/Project III (ECF)?

Program Team: Joe Boyd, Michael Geith, Tanya Levshina, Kevin Retzke, Paul Tader

Steering Committee: Ruth Pordes, SCD Coordinators, Panagiotis Spentzouris, Mike Rosier, Jon Bakken, Mark Kaletka ; call quarterly meetings

12. Program Reports

The Program Manager will report status to the Program Sponsor(s) via weekly written status reports. Status meetings will be arranged on an as-needed basis.

The Program Team will meet on a weekly basis to discuss project status, review progress against milestones and deliverables, and discuss risks, issues and concerns.

The Steering Committee will meet on a quarterly basis to review project progress and risks, and address issues and concerns.

13. Infrastructure Operation

- User Dashboard (FIFEMon) will be operated by USDC group.
- Service Provider Log Analytics Dashboard operation responsibilities will be shared between USDC group and DSCO deparatment.
- Service Provider Log Analytics Dashboard operation will be shared between ECF department and USDC group.

