

Open Science Grid



OSG Accounting System

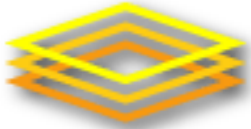
Matteo Melani
(matteom@slac.stanford.edu)
SLAC

9/28/05
Joint OSG and EGEE Operations Workshop
Culham, UK



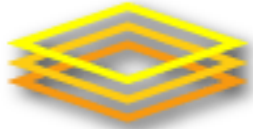
Overview

- What do I hope to get out of this workshop?
- OSG Accounting Activity
- View of accounting, monitoring, logging and auditing
- OSG Accounting System Requirements
- OSG Accounting System Design
- Questions about Accounting in EGEE



Overview

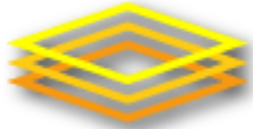
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What do I hope to get out of this workshop?

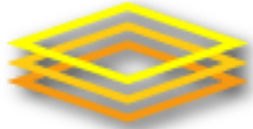
- Present OSG view of the accounting problem:
 - OSG accounting requirements
- Understand the EGEE/LCG view of accounting:
 - Terminology
 - Requirements: goals, scope, main
 - Monitoring, accounting, LCG experiences and communalities
- Understand what are the key requirements for OSG Accounting
- Understand what DGAS we can re-use
- Understand technical difficulties in designing an accounting system environment.

**Interoperability requirements
Leverage EGEE/LCG people experience**



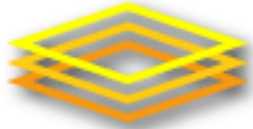
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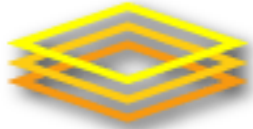
Who are we?

- Matteo Melani – SLAC
- Philippe Canal – Fermilab
- Sudhir Borra – Fermilab



And we are talking to

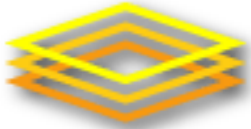
- Ian Foster, Frank Siebenlist, Martin Stuart - Globus
- Sebastien Goasguen, Michael Shapiro - TeraGrid
- David Kant, APEL developer - LCG
- Andrea Guarise, Rosario Piro, DGAS developers - EGEE



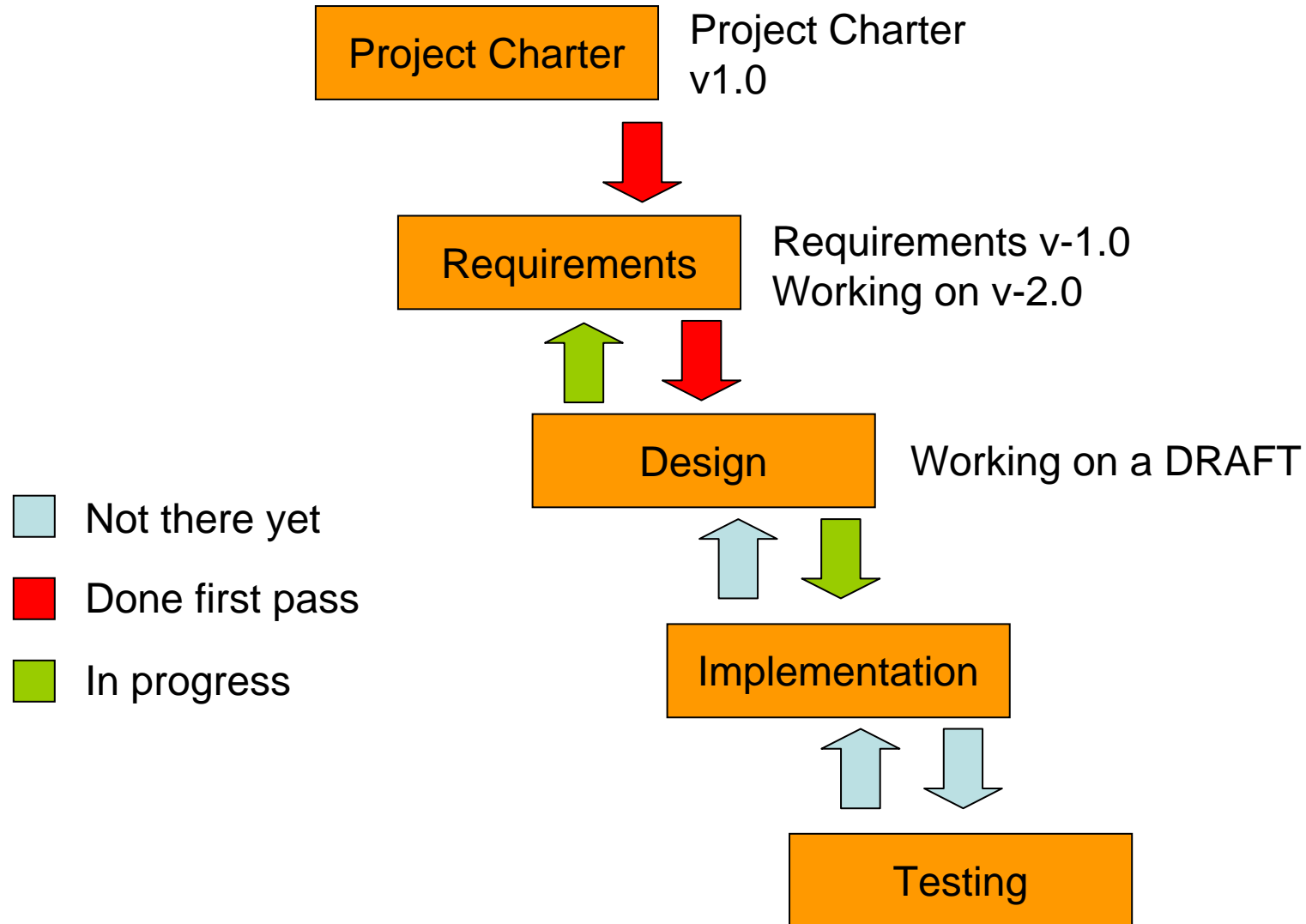
What are the Activity Goals?

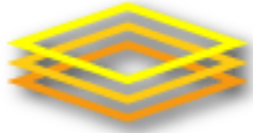
- To provide the OSG stakeholders with a reliable and accurate set of views of the OSG grid resources usage

- The OSG Accounting Activity objectives are:
 - To design (or choose) the accounting system data model
 - To design (or choose) a software system for gathering, storing, managing and presenting accounting data
 - To define and deploy repositories and access tools for the reporting and analysis of the OSG grid wide accounting information
 - To ensure interoperability with other Grids (LCG, TeraGrid,...)



What are we doing?





Learning from others

- Talking to the stakeholders
 - OSG stakeholders
 - Other Grids stakeholders: LCG, TeraGrid, EGEE, Globus...
- Reviewing other Accounting Systems
 - DGAS, APEL, SGAS, GridBank, AMIE and TGAccounting
 - GGF groups RUS/UR/GESA/OGSA-WGs,
 - IETF's AAA, Telecommunications Network

Web Results 1 - 10 of about 106,000 for **osg accounting**. (0.06 seconds)

[OSG-doc-205-v1: Accounting System Presentation - Requirements and ...](#)

OSG-doc-130: Accounting System Requirements Version 1.0. Conference Information::

Associated with **OSG Consortium Meeting (Jul 2005)** held from 20 Jul 2005 to ...

[osg-docdb.opensciencegrid.org/cgi-bin/ShowDocument?docid=205 - 8k - Cached - Similar pages](#)

[PPT] [OSG Accounting Service Requirements](#)

File Format: Microsoft Powerpoint 97 - [View as HTML](#)

OSG Accounting Service Requirements v1.0 - Just released! ... OSG Grid Services.

Site **Accounting** system. Site Monitoring System. Storage. Resources. Network ...

[osg-docdb.opensciencegrid.org/0002/000205/001/OSG-Accounting-Service-Requirements.ppt - Similar pages](#)

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[WebHome < Accounting < OSG](#)

Welcome to the home of **OSG Accounting**. The Grid **Accounting** Activity designs and

... **OSG Accounting** Requirements Presentation We also presented a general ...

[osg.ivdgl.org/twiki/bin/view/Accounting/WebHome - 48k - 25 Sep 2005 - Cached - Similar pages](#)

[WebHome < Deployment < OSG](#)

OSG-Accounting.doc: OSG accounting plots. **OSG-Accounting-AUG19.doc: OSG Accounting**

plots for Aug11-18. to top. End of topic Skip to action links | Back to ...

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Open Science Grid

Accounting

- Accounting Web**
- Accounting Web Home
- Changes
- Index
- Search

Webs

- Accounting
- Auditing
- Blueprint
- CommunitySupport
- Deployment
- Documentation
- EdgeServices
- GriphynMainTWiki
- Integration
- Interoperability
- Main
- MisCi
- MonitoringInformation
- Operations
- PolicyPublicationTrust
- Provisioning
- ResourceSelection
- Sandbox

Edit Attach Printable

Accounting.WebHome r1.11 - 22 Sep 2005 - 20:24 - [RuthPordes](#) [topic end](#)

OSG Accounting Activity

Monthly statistics
([calculate](#))

4 [RuthPordes](#)

- ↓ [Introduction](#)
- ↓ [Monitoring vs Accounting](#)
- ↓ [Requirements](#)
- ↓ [References and Resources](#)
- ↓ [Site Tools of the Accounting Web](#)

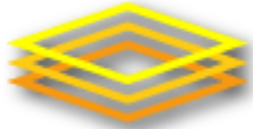
[MeetingMinutes?](#)

Introduction

Welcome to the home of **OSG.Accounting**. The Grid Accounting Activity designs and deploys robust, scalable, trustable and dependable grid accounting services, publishes an interface to the services and provides a reference implementation

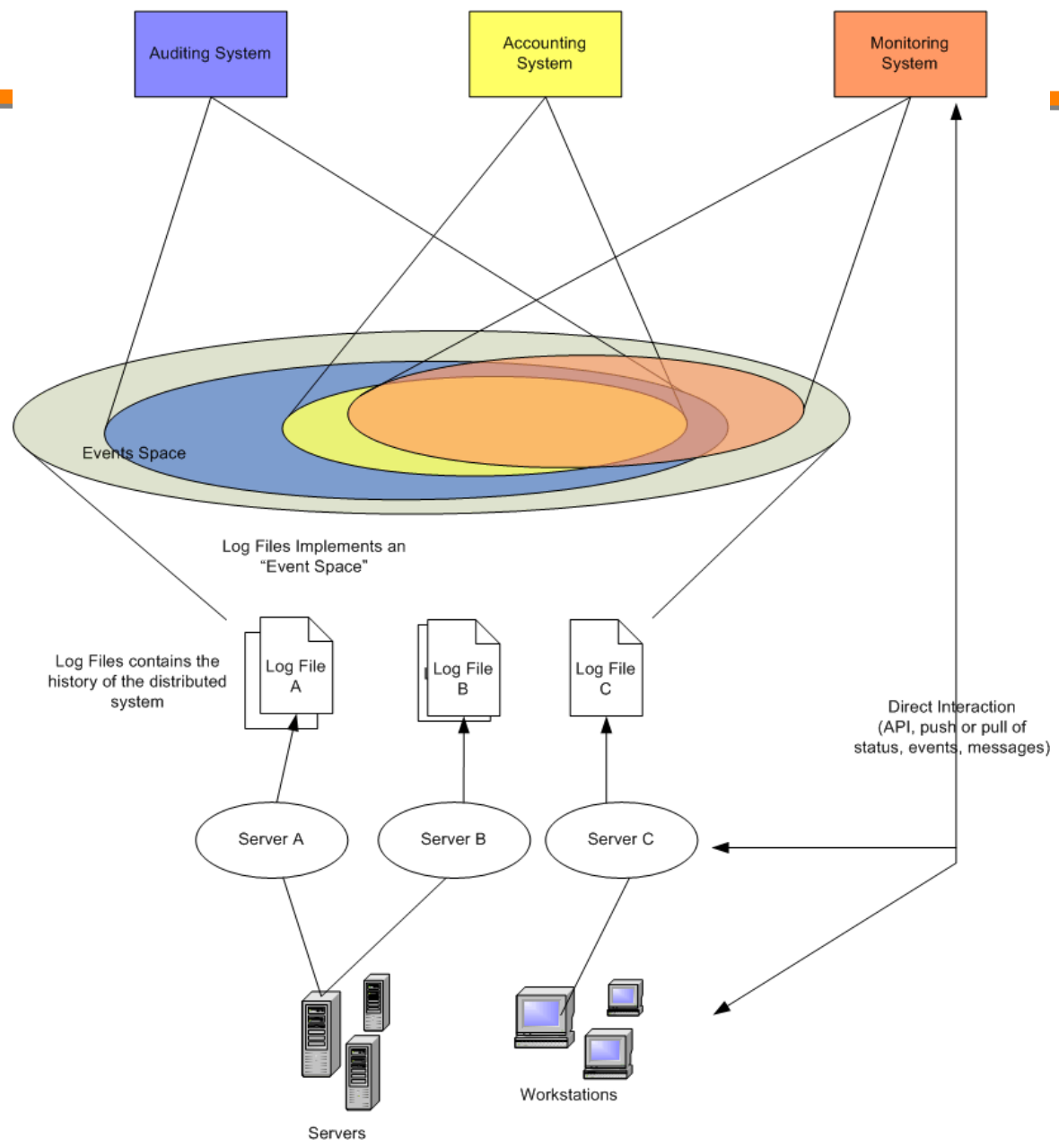
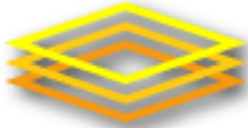
The co-chairs of the Activity are Philippe Canal and Matteo Melani. The mail list is osg-accounting@opensciencegrid.org.

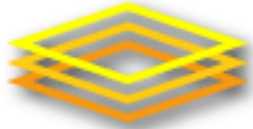
Goals



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Accounting is not monitoring

Accounting:

- User request to a service → Resource consumed

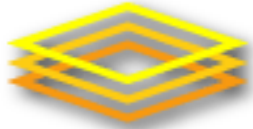
Monitoring:

- Service availability
- Services performances
- Alerting
- Debugging



Overview

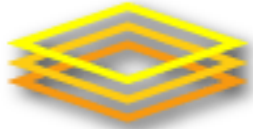
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Main Functionalities (1)

- The ability to collect services (CE and SE) usage data from each resources and services provider site.
- The ability to combine authentication data and resource usage data related to a Grid to produce detailed accounting records.
- The ability to store and retrieve accounting records and accounting data.
- The ability to export accounting records in tabular format at the Grid level.

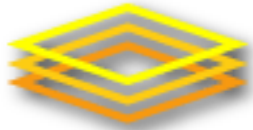
**Track resource Usage per user
“after the fact”**



Main Functionalities (2)

- The ability to apply various (statistical) functions to the analysis of accounting records and data to facilitate the identification of trends and patterns in the usage of resources.
- The ability to present the results of the analysis with graphical views.
- The ability to support analysis of resource usage by storing the raw usage data and maintaining the link between the accounting records and the data used to generate them.

Accounting Information Presentation
Graphic and Tabular View

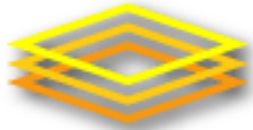


Non-Functionalities

- No user charging system,
- No resources or services pricing
- No support for an economic resource allocation

But we have to find a way to do it and!

**No Economic Model
(for now)**



System Properties(1)

- Interoperability
 - The Accounting System should leverage existing systems to maximize interoperability with other Grid Services.

- Fault Tolerance
 - The Accounting System should store as much as possible usage data and access logs.
 - The Accounting System must be resilient to temporary network outages over LAN and WAN.
 - The Accounting System must be resilient to the failure of one of its components.

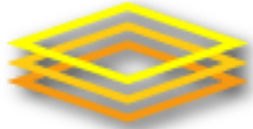
**EGEE is a stakeholder
(because of USCMS and USATLAS)**



System Properties(2)

- Security
 - The Accounting System will guarantee integrity and non-repudiation of the accounting records at the time of creation.
 - The Accounting System must protect communication using secure communication channels (e.g., encryption, message integrity, confidentiality) and authentication.
- Scalability and Performance
 - Not really a system property.
- Other
 - The system should leverage existing tools and infrastructures to solve problems.

Dependable

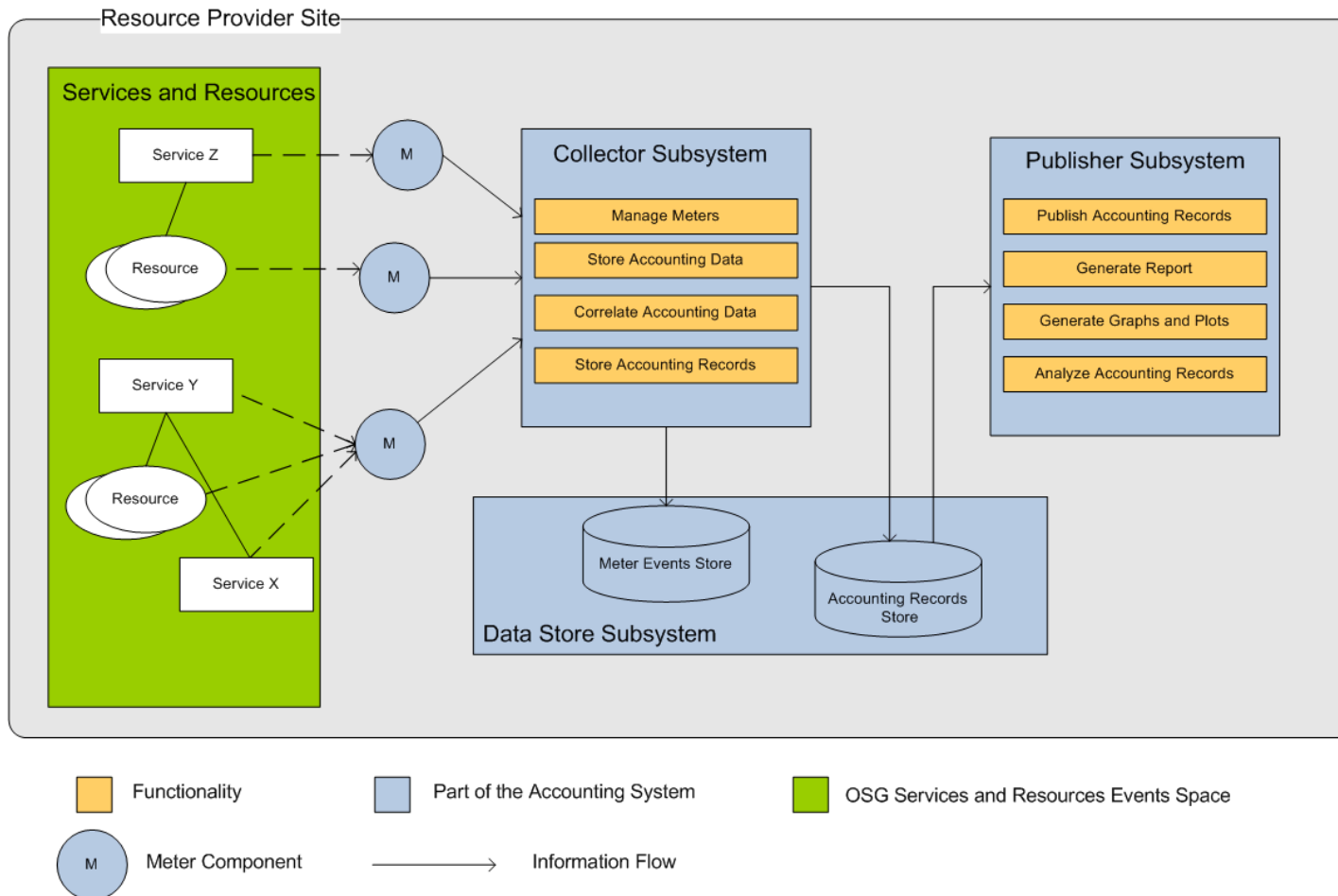


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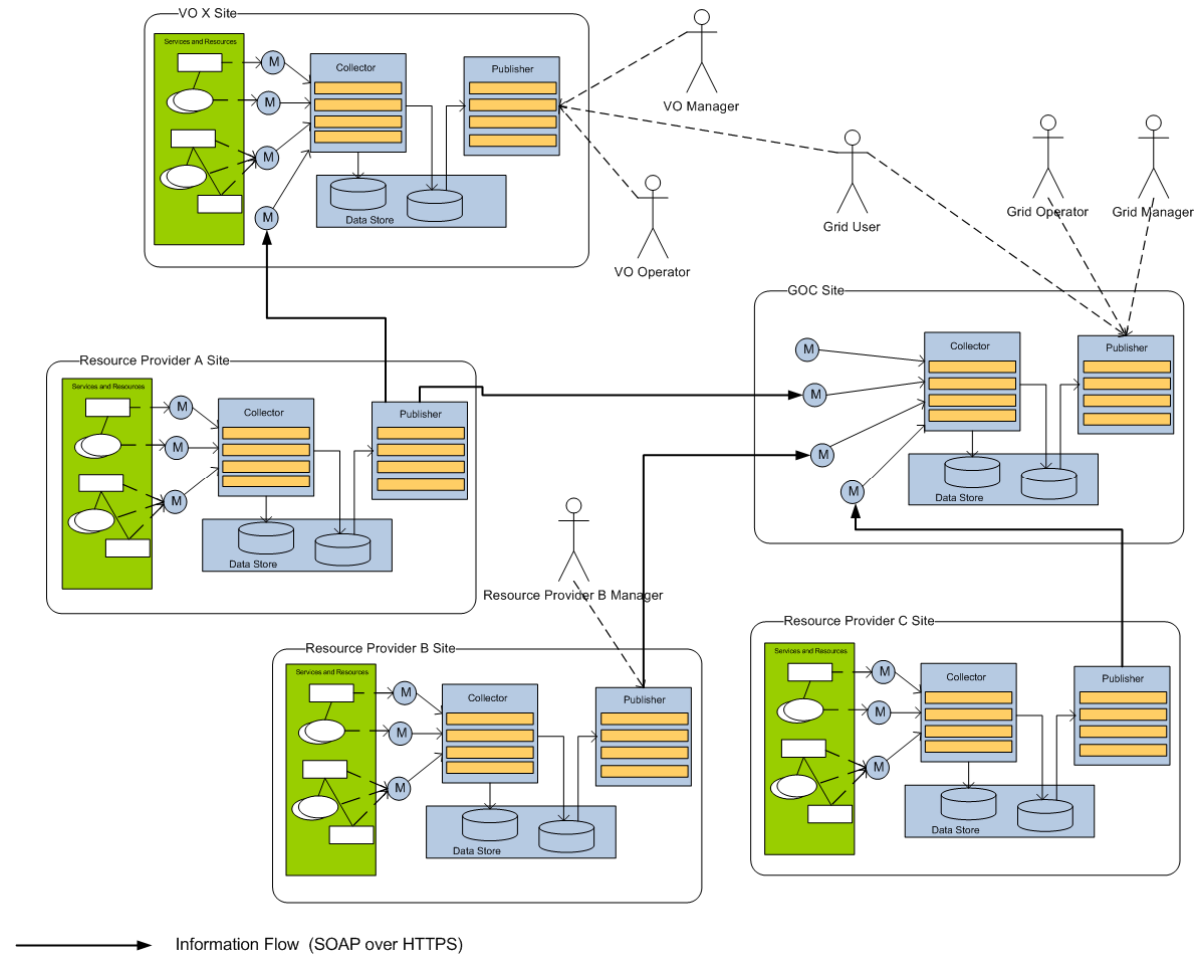


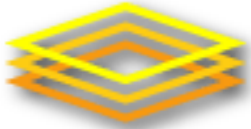
Design (1)





Design (2)





Design (3)

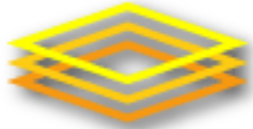
- Service a distributed objects so meter are
- Meter support pull/push of accounting service
- Meter-Collector communication
- Accounting Service
- Once the information gathered is available to the sites accounting record store

Distributable Meter
Accounting Records Storage at each site
Separation of info gathering and info presentation
Web Service based



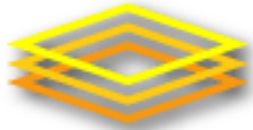
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Questions about Accounting in EGEE

- APEL-DGAS relationship
 - How are they similar/different?
 - Why two systems?
 - What is the directions for the future?
- Are they difficult to install, configure and manage?
- Lessons learned for DGAS/APEL
 - What are the complains?
 - What are the praises?



What are your accounting needs?



OSG-ACCOUNTING@OPENSOURCEGRID.ORG