
OSG Middleware Roadmap

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Open Science Grid

Introduction

- Brief description of current OSG release 0.4.1
- Quick look at some planned services for OSG 0.6.0, planned Fall 2006

- Acknowledgements
 - Thanks to R. Pordes, I. Fisk for slides



OSG Service Stack

Applications

**ATLAS
Services**

**CMS
Services**

**Other VO
Services**

Infrastructure

**OSG Release Cache: VDT +
Configuration, Validation, VO management**

Virtual Data Toolkit (VDT) Common Services
NMI + VOMS, CEMon (common EGEE
components), MonaLisa, Clarens, AuthZ

NMI releases (Globus + Condor)

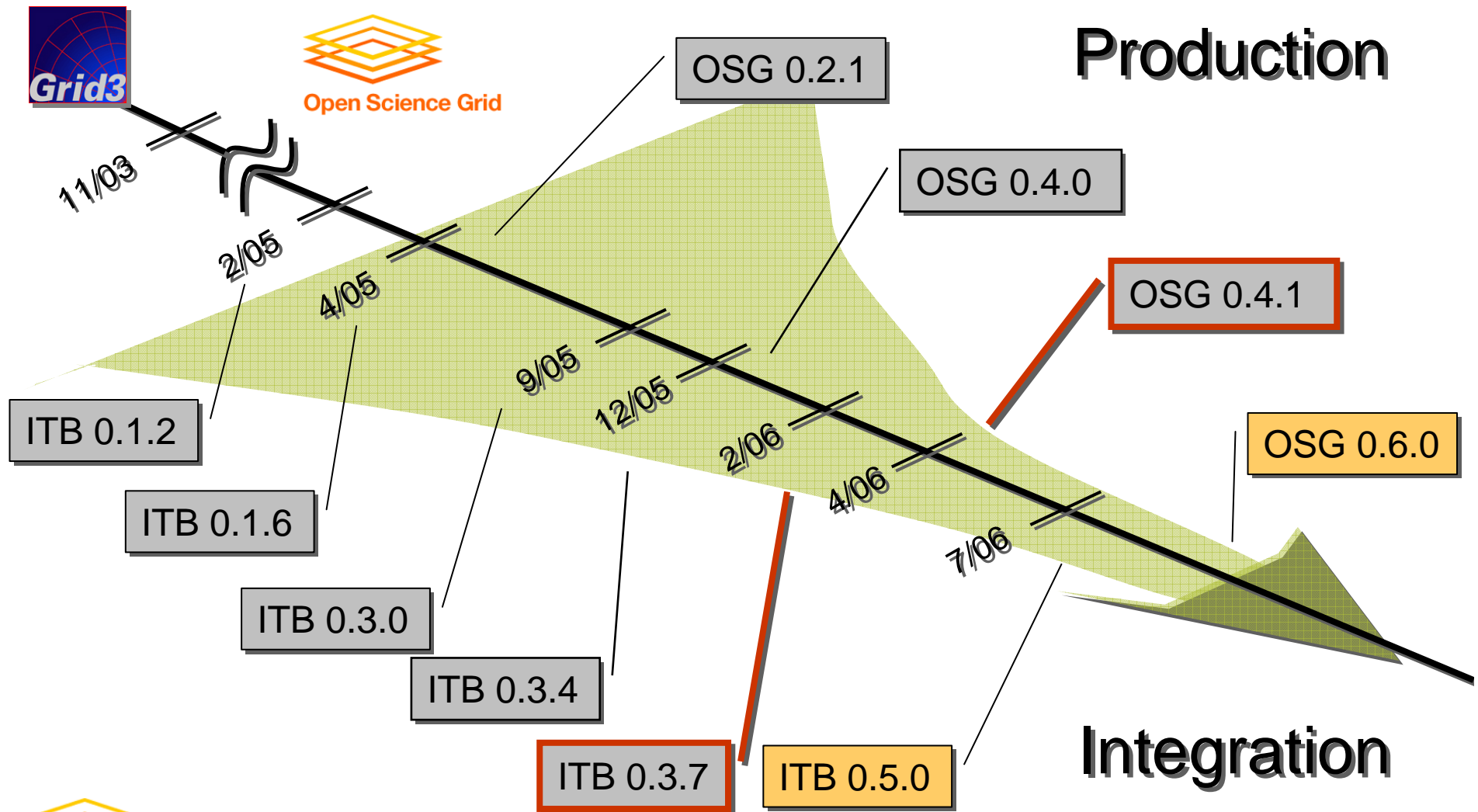


OSG Service Overview

- Compute elements
 - GRAM, GridFTP, information services (GIP), monitoring, worker node client tools (eg. srmcp)
- Storage elements
 - SRM-drm, SRM-dCache (provided by VOs), v1.1
- Site level services
 - GUMS - for privilege (authorization) mappings
- VO level services
 - VOMS and user role assignments
- VO edge services
 - Semi-persistent services & agents as needed by applications
- Multi-VO, common services
 - Monitoring repositories, Catalogs, BDII index services, etc



OSG Release Timeline



Current OSG Release Description

- VDT 1.3.10 based core infrastructure
- Privilege infrastructure
 - VOMS service
 - PRIMA gatekeeper callout for extended role-based proxy
 - GUMS site account/DN management
- GT4 GridFTP
- GT4 Pre-Web Services and Web Services GRAM
- Information services: GridCat Catalog, MDS + Generic Information Providers (LCG)
- MonALISA, Core-MIS and ACDC monitoring tools



VDT 1.3.10 Server Content

CA Certificates v13 (includes IGTF 1.1
CAs)

EDG CRL Update 1.2.5

EDG Make Gridmap 2.1.0

Fault Tolerant Shell (ftsh) 2.0.12

Generic Information Provider 1.0.15 (Iowa
15-Feb-2006)

Globus Toolkit, pre web-services, client
4.0.1

Globus Toolkit, pre web-services, server
4.0.1

Globus Toolkit, web-services, client 4.0.1

Globus Toolkit, web-services, server 4.0.1

GLUE Schema 1.2 draft 7

GPT 3.2

Java SDK 1.4.2_10

KX509 20031111

Logrotate 3.7

MonALISA 1.4.12

MyProxy 3.4

MySQL 4.1.11

PPDG Cert Scripts 1.7

PRIMA Authorization Module 0.3

RLS, client 3.0.041021

UberFTP 1.18

Virtual Data System 1.4.4

Several in common with WLCG/EGEE



Privilege Authorization Services

- Site level services to support fine-grained, role-based access to Tier2 resources:
 - GUMS - Grid User Management System - maps user proxy to local accounts based on role and group
 - Site admins grant access rights and privileges based on accounts
 - PRIMA callout from GRAM gatekeeper - assigns account based on GUMS mapping and submits to local scheduler
 - Roles at Tier2s (eg: usatlas1=production; usatlas2=software; usatlas3=users)
- Receives updates on mappings from VOMS
- Reverse map created periodically for accounting purposes (Monalisa presently)
- More work needed to integrate app framework priorities with site-level infrastructure and accounting services (DN, Group -based fair share mechanisms)

Authorization Process

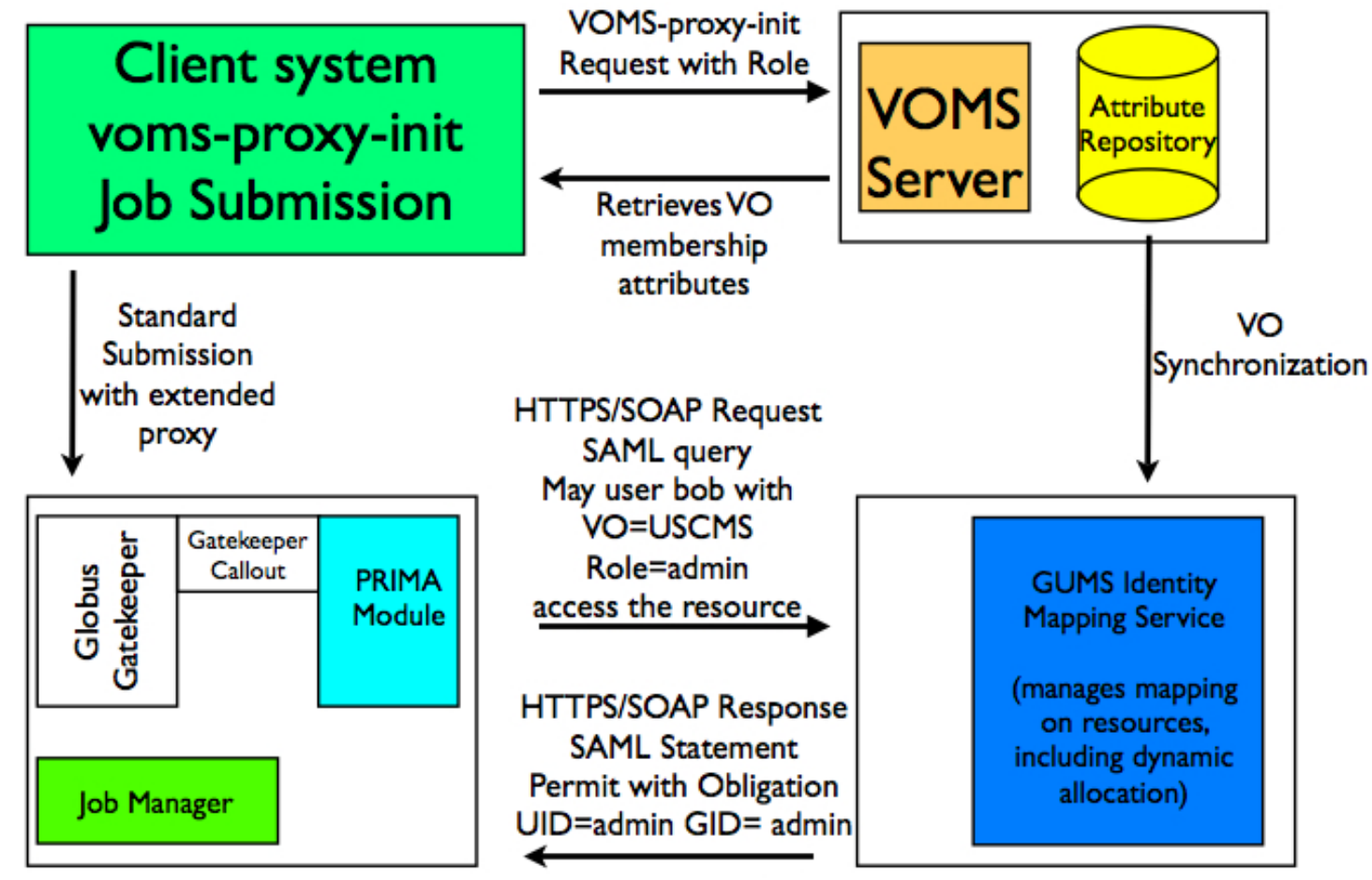


Fig. from I. Fisk



Information Services

■ GIP (Generic Information Provider)

- ❑ An information service that aggregates static and dynamic resource information
- ❑ Produces information for use with LDAP-based Grid information systems
- ❑ Glue 1.2 schema

■ GIP use cases

- ❑ LCG-OSG interoperability
- ❑ GridCat cross checks

■ Site level BDII service

- ❑ Scalability
- ❑ Query by LCG RB

ITB

How to use this page:

- If your site has a test colored yellow or red, click on the box to get more information and pe
- If your site has a green test with an [i] next to it, click on [i] to see the output generated by the (GIP) Gen
- If your site has white tests, those mean skipped tests because there are no attributes
- If your site has a grey test, that means it is marked as inactive in Gridcat

• This page is created by [GROW \(www.uiowa.edu/~grow\)](http://www.uiowa.edu/~grow) to validate OSG GIP. Please send your questions!

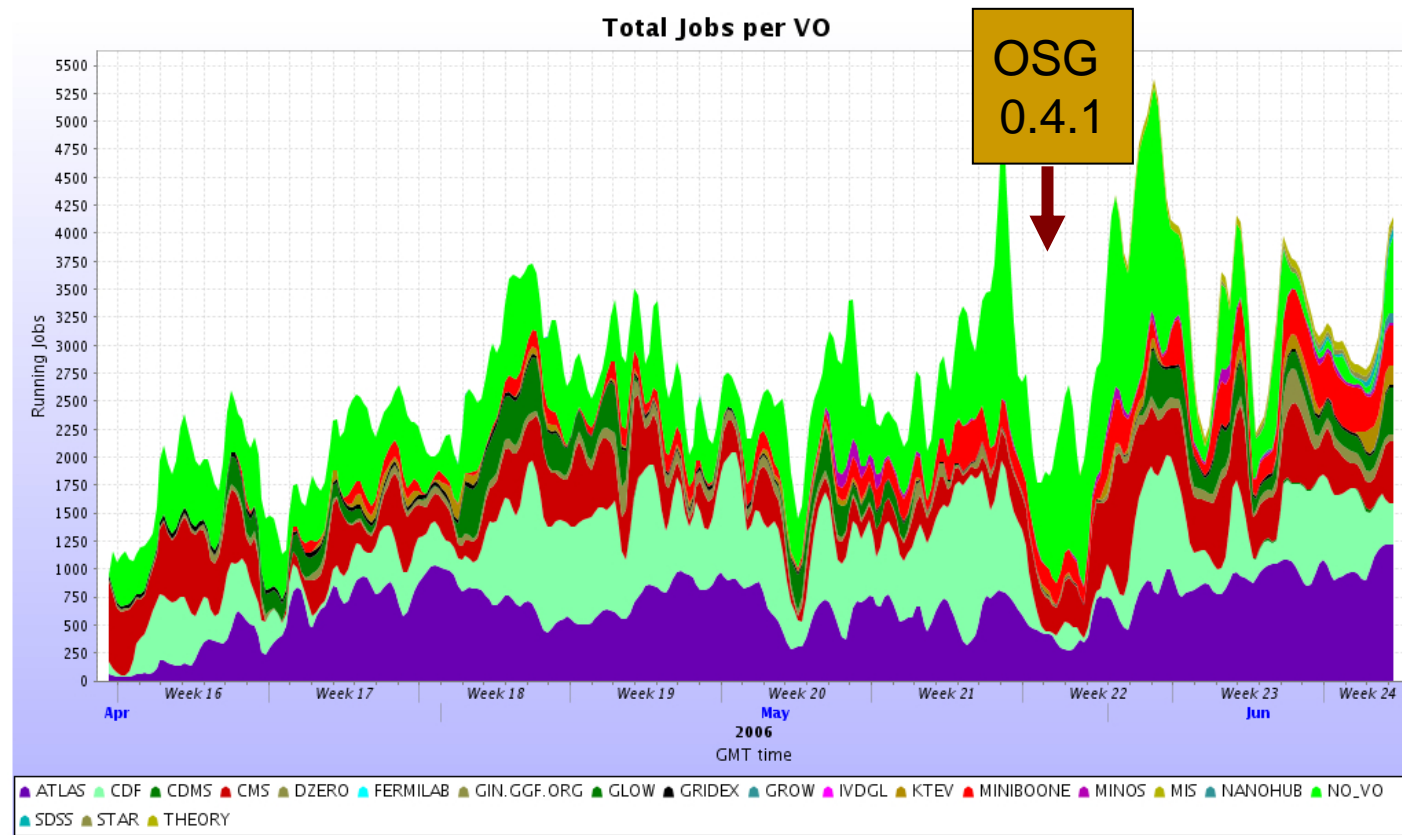
Last run: 2/12/2006 20:00:25

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BNL_ITB_Test1:srm_v1	dcsrm.usatlas.bnl.gov								
CERN-CIC	lxn1184.cern.ch			[i]	[i]	[i]	[i]	[i]	[i]
CIT_CMS_OPT	tier2d.cacr.caltech.edu								
CIT_CMS_OSG	citgrid3.cacr.caltech.edu			[i]	[i]	[i]	[i]	[i]	[i]
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FNAL_CMST1_TEST	cmsitbsrv01.fnal.gov								
FNAL_CMST1_TEST_SE:srm_v1	cmssrm.fnal.gov								
FNAL_FERMIGRID_SE:srm_v1	fnfca.fnal.gov								
FNAL_GPFARM_TEST	fnpcg.fnal.gov			[i]	[i]	[i]	[i]	[i]	[i]
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IPAS_OSG	gk.phys.sinica.edu.tw								
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osg-ew-1-12.ucsd.edu	osg-ew-1-12.ucsd.edu								



Monitoring and Accounting

- Monalisa, site level accounting services (native tools), site verify checks & report, GridExerciser



Middleware Release Roadmap

OSG 0.6.0 Fall 2006

- Accounting;
- Squid (Web caching in support of s/w distribution + database information);
- SRM V2+AuthZ;
- CEMON-ClassAd based Resource Selection.
- Support for MDS-4.
- Possible requirement to use WS-GRAM.
- Edge Services.

OSG 0.8.0 Spring 2007

- Just in time job scheduling, Pull-Mode Condor-C,
- Support for sites to run Pilot jobs and/or Glide-ins using glxexec for identity changes.

OSG1.0 End of 2007



Edge Services Framework

- Goal is to support deployment of VO services.
- Based on XEN virtual machines and service images
- Site supports a XEN server and VO loads images.
- US-ATLAS has done a proof of concept.
- FNAL recently implemented their LCG CE using a virtual machine



Accounting

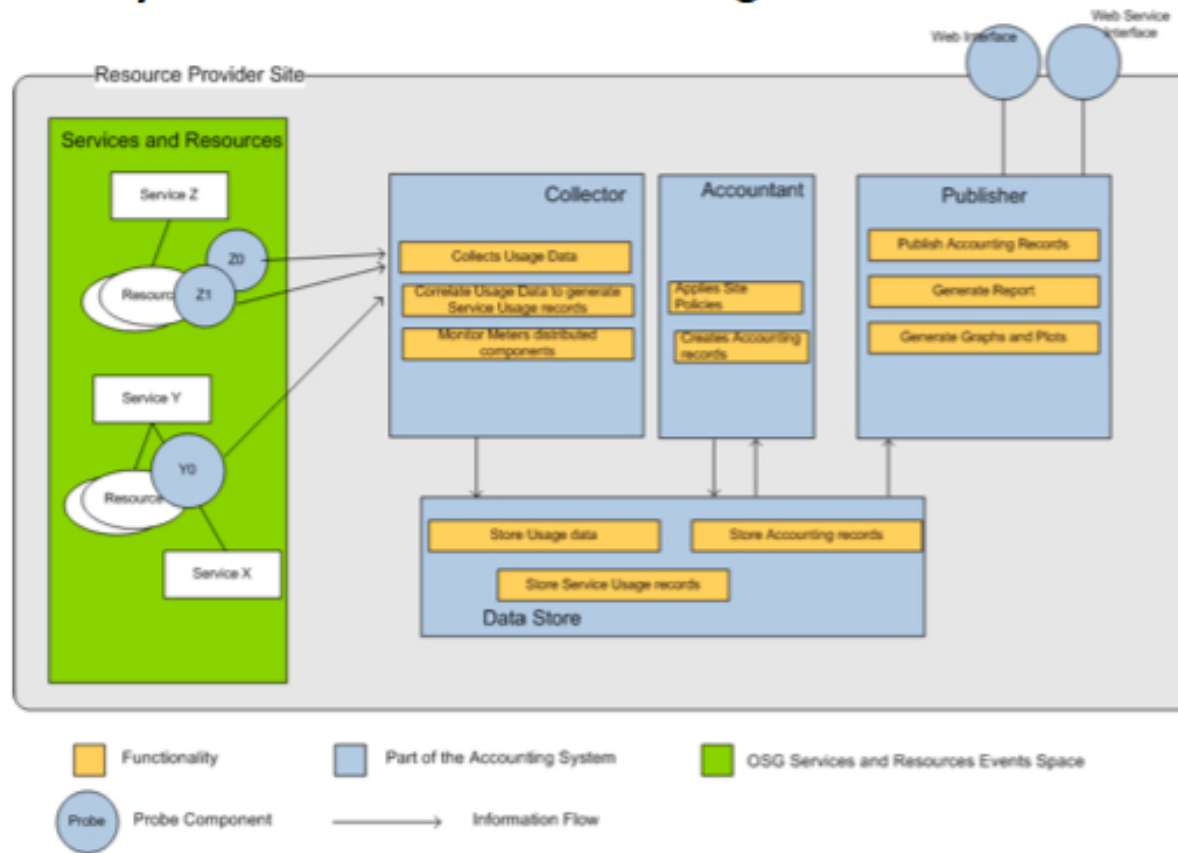
- Probes produce GGF Usage Record information.
- Collectors on sites or grid-wide.
- Publishers for reports and querying.
- Will include data protection and integrity of information - include information of “what has been missed”.
- Currently in test on several OSG sites.



Accounting Architecture

Bases on probes, collectors, and publishers

- ➔ They have thought about data integrity and information protection because they are interested in accounting



Storage Authorization

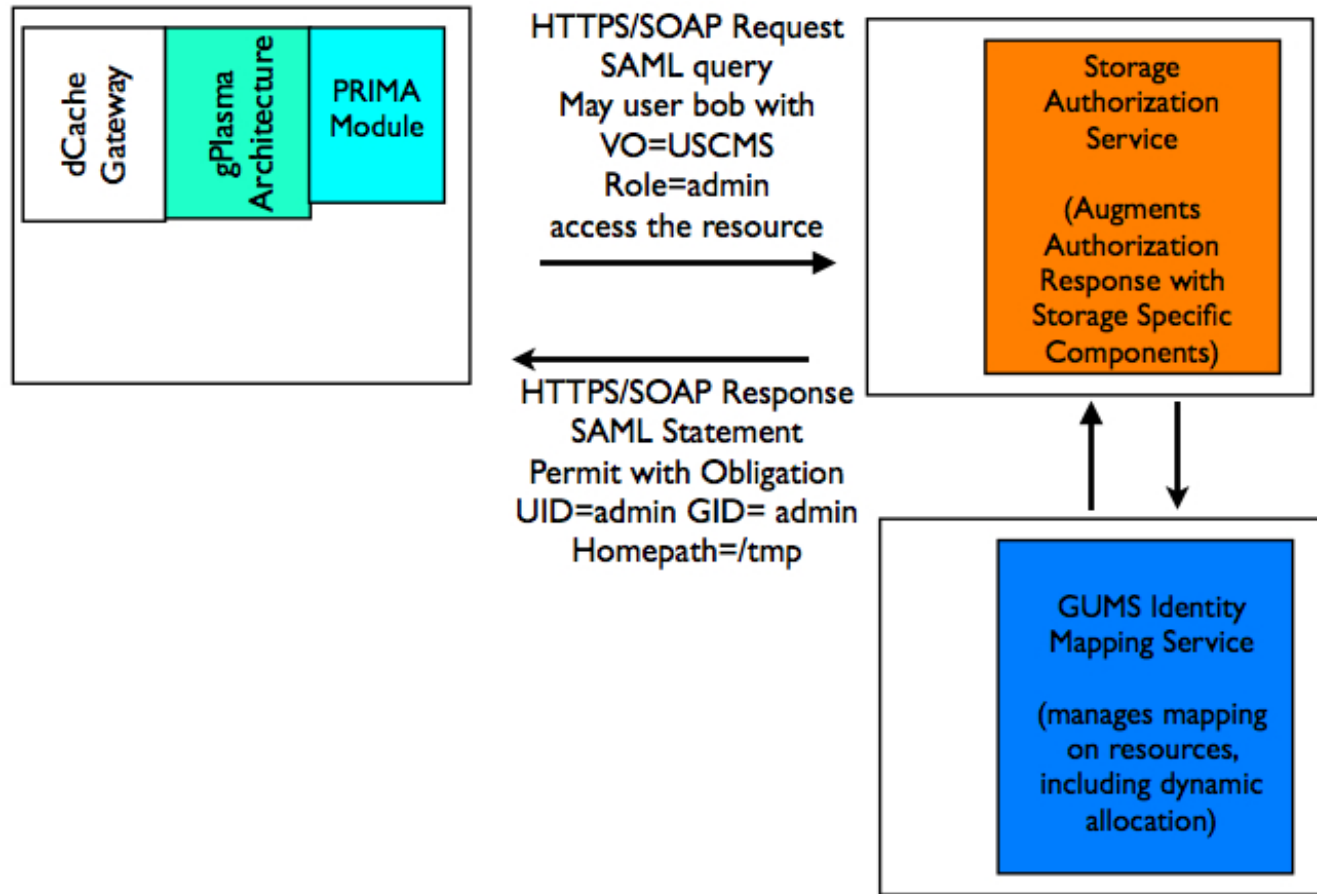


Fig. from I. Fisk



Resource Selection Service

- Information Gatherer collecting distributed information and match making using ClassAds.
- The distributed collection implemented using CEMon service from gLite.



Conclusions

- OSG middleware will evolve so managing incremental upgrades will be key.
- VDT releases provide integration of web (service) containers, check compatibility of dependent libraries, comprehensive build and test.
- OSG releases add configuration and validation software.
- OSG 0.6.0

