OSG Middleware Roadmap

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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

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)

Fig. from R. Pordes

ATLAS Services

CMS Services

Other VO Services
OSG Service Overview

- Compute elements
  - GRAM, GridFTP, information services (GIP), monitoring, worker node client tools (e.g. 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

11/03

2/05

4/05

9/05

12/05

2/06

4/06

7/06

ITB 0.1.2

ITB 0.1.6

ITB 0.3.0

ITB 0.3.4

ITB 0.3.7

ITB 0.5.0

OSG 0.2.1

OSG 0.4.0

OSG 0.4.1

OSG 0.6.0

ITB 0.5.0 Integration

Production

Integration

Open Science Grid

Grid3

Open Science Grid
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 (e.g., 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
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 glexec 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

Fig. from I. Fisk
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