



Open Science Grid

OSG Operations Model A Perspective for WLCG Tier2s

Doug Olson, LBNL
WLCG Tier2 Workshop
CERN, 14 June 2006

Contents

- Terms
- View from 10K km
- Operations functions in OSG
- Example view inside US-CMS Support Center
- Resource Provider details
- Interactions (?) between non-OSG Tier2s and OSG

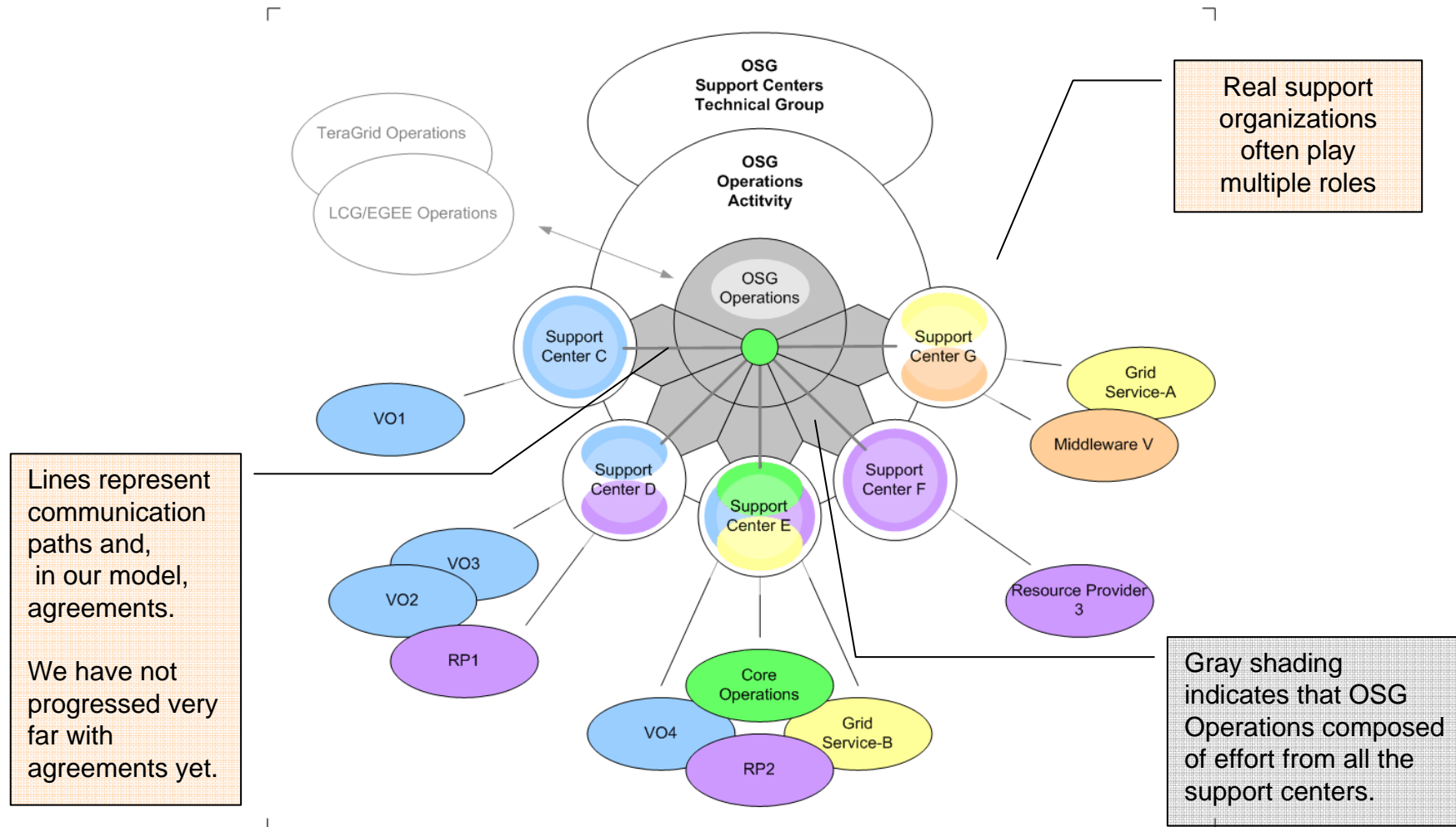
OSG Terms

- Virtual Organization (VO) - nearly same as EGEE definition of VO
- Resource provider (RP) - operates Compute Elements and Storage Elements
- Support Center (SC) - like EGEE Support Unit
 - SC provides support for one or more VO and/or RP
- Community Support - volunteer effort to provide SC for RP without their own SC, and general help discussion mail list
- OSG does not have ROCs but some SC can act like a ROC
 - US-CMS & US-ATLAS Tier1s each provide some support for several Tier2s
- VO support centers provide end user support including triage of user-related trouble tickets

View from 10K km



Ops Model at 10K km





21 Support Centers, covering 23 VOs and 57 CE & SE resources

OpenScienceGrid.org - Support Centers - Mozilla Firefox

File Edit View Go Bookmarks Yahoo! Tools Help

http://www.opensciencegrid.org/index.php?option=com_content&task=view&id=37&Itemid=Grid%20Support

Getting Started Latest Headlines Directories OSG EGEE LBL LLNL CHEP

Open Science Grid

OSG Home

About OSG

News and Media
How to Participate
Activities
Executive Board
Council
Mailing Lists
Meetings & Events

Using OSG

Production Grid
Integration Grid
OSG Services
Service AUP
User AUP

Grid Support

Users
Administrators
Support Centers
VOs

Security

Monitoring

Documentation

Current Installation
Getting Started
How-to Guides
Logos & Templates
OSG TWiki
Glossary
Knowledge Base

Support Centers

The [Operations Model](#) for Open Science Grid involves a distributed structure of Support Centers each providing support for one or more of the Virtual Organizations (VO), Resource Providers (RP), Grid Service and Technology Providers, and the OSG Grid Operations Center.

Support Center	Operations Name	Operations Email	Operations Phone	Community
CSC	OSG Community Support	osg-general@opensciencegrid.org	N/A	Serves any OSG user whose support needs exceed the services of their local Support Center (if one exists).
DOSAR	Patrick McGuigan	dosar@fnal.gov	(817)272-7610	DOSAR is a 'grassroots' grid organization centered around the Regional Analysis Center UTA, including institutions from the Southwest US as well as Mexico and Brazil, who also provide the resources. Other supported VOs would be ATLAS, CMS, LIGO, DZERO, ...
DZero	Joel Snow	snow@fnal.gov	405 466 3328	DZero is one of the two collider experiments at Fermilab. The community consists mainly of physicists, using resources for data intensive jobs.
Fermilab	Fermilab CD Helpdesk	helpdesk-admin@fnal.gov	630-840-2345	Fermilab Virtual Organization (VO), Fermilab User VOs (non-CMS and non-SDSS), FermiGrid Sites, Fermilab OSG Services (DNS, Mailists and Web Portal)
fGOC	Jorge L. Rodriguez	jorge@phys.ufl.edu	352.392.3232	UFlorida-iHEPA, UFL-HPC, FSU, FIU
GADU	Veronika Nefedova	nefedova@mcs.anl.gov	630-252-7150	This project proposes to develop and support the infrastructure needed to permit wide-scale use of the Open Science Grid (OSG) by the computational biology community through the integrated database maintained by the Argonne Computational Biology Group and the user facilities which continue to grow around that database. The work focuses on the creation and support of a Virtual Organization, or VO, within which to provide these services. The broader impacts of this work include the enhancement of the scientific productivity of the worldwide computational biology community, the refinement and enhanced usability of cyber-infrastructure by arbitrary application communities, and the enabling of significant, computationally intensive tasks by communities previously lacking in the access to data and computing resources.

Done

GOC Services

- *GOC at Indiana University runs many infrastructure services for OSG*
 - Registration for support centers (SC), virtual organizations (VO), and resource providers (RP)
 - Periodic testing of resources
 - Publication of status monitoring
 - Trouble ticket system & first level ticket processing
 - Coordinates weekly operations phone meeting
 - Engineering support for software integration testing and release
 - ...

RP Support Center services

- RP support center
 - interface to OSG Operations for it's CEs & SEs
 - Monitors status published by GOC
 - Provides security contact and participates in incident handling
 - Reports resource usage accounting
 - Publishes site policies



VO Support Center services

- VO support center
 - Interface to OSG operations for VO technical issues
 - Manages VOMS for the VO
 - Provides end user support for all members of VO
 - Provides security contact and participates in incident handling
 - Reports resource usage accounting for VO usage
 - Publishes VO policies

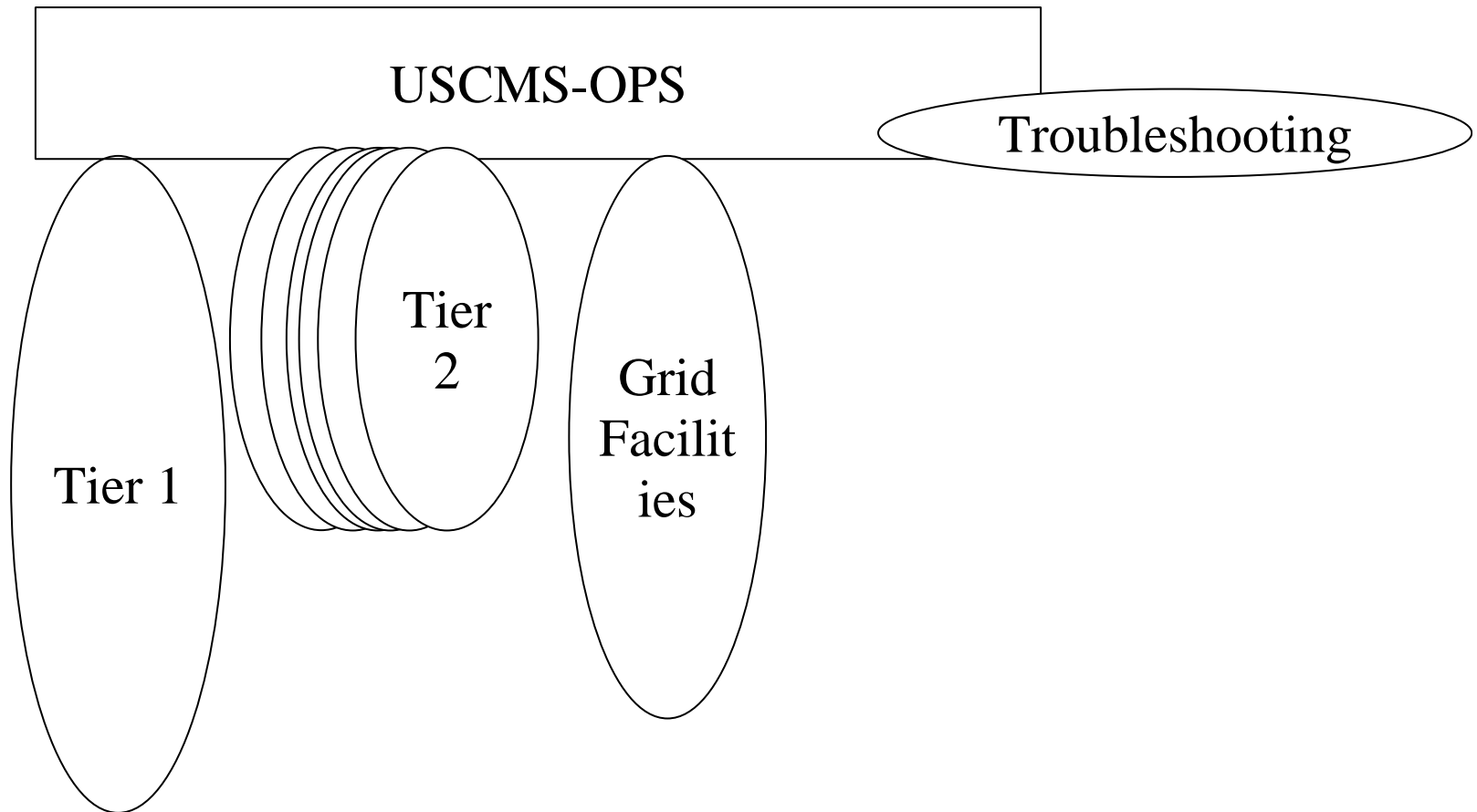
Other OSG Ops services

- VDT provides middleware distribution point
- FNAL provides mail lists, and leads security effort
- UC and IU lead integration testbed, many sites participate
- LBNL provides X509 CA service and leads OSG RA functions
- IU provides VORS catalog of VO and RP registered with OSG

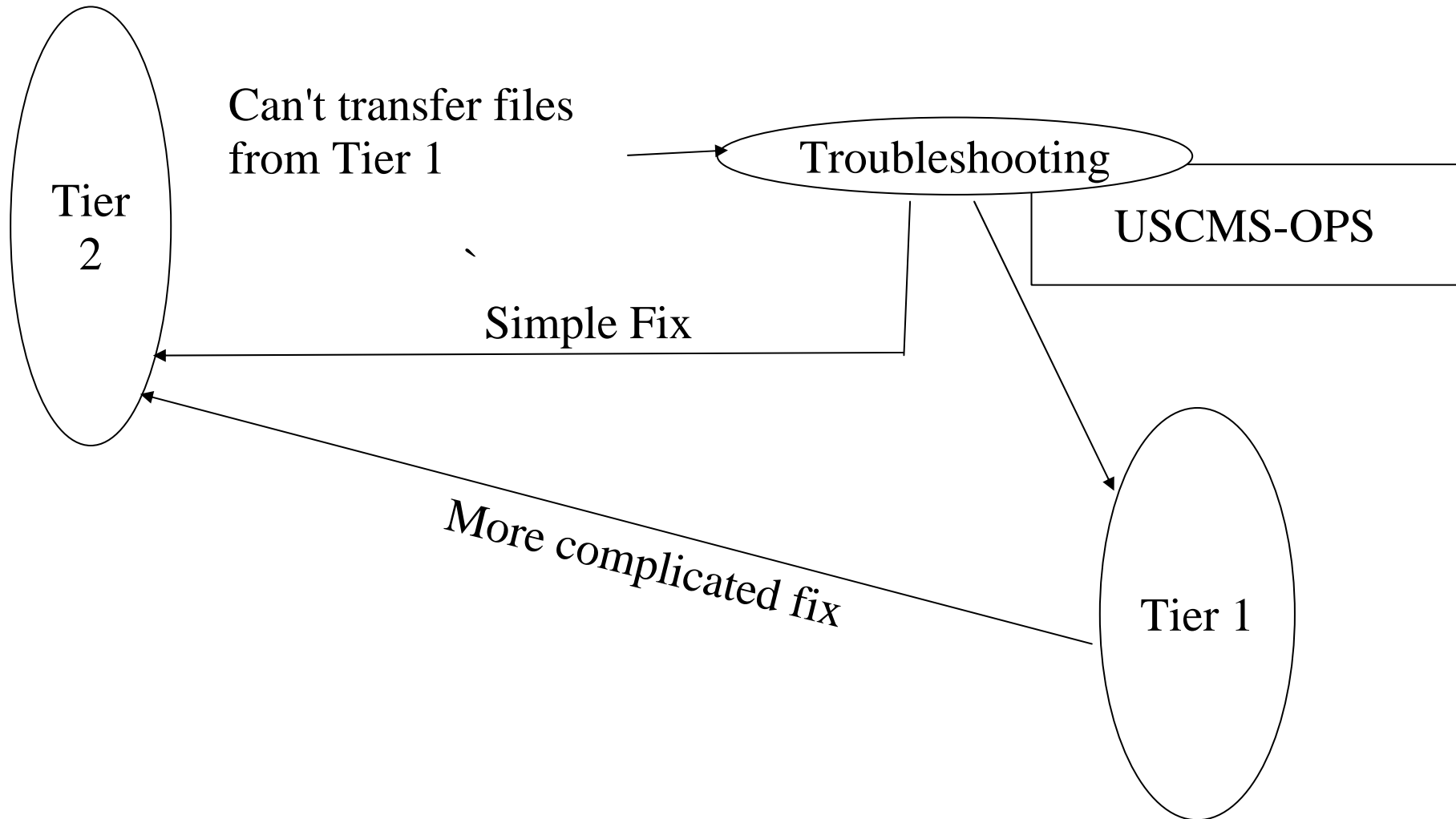
Perspective on Problem Ownership

- Promoting point of view that problems are “owned” by someone from creation through to resolution.
- If a user has a problem then the VO SC for that user owns the problem & ticket, even if fixing the problem gets assigned to a resource provider, or software providers, etc.
- If a problem is detected by the monitoring infrastructure then the problem & ticket are owned by the SC for the affected resource or service.

Looking Inside US-CMS Support Center (US-ATLAS is ~similar)



US-CMS SC, Typical Use Case





Open Science Grid

VORS (VO Resource Selector)

<http://vors.grid.iu.edu>

VO Resource Selector - Mozilla Firefox

File Edit View Go Bookmarks Yahoo! Tools Help

http://vors.grid.iu.edu/cgi-bin/index.cgi?region=0&VO=0&res=0&grid=1

Getting Started Latest Headlines Directories OSG EGEE LBL LLNL CHEP

Virtual Organization Resource Selector

Grid
OSG

All

Virtual Organization Selection

All	CDF	CMS	DES	DOSAR	DZero	Fermilab	fMRI
GADU	geant4	GLOW	GRASE	GridChem	GridEx	GROW	i2u2
iVDGL	LIGO	mariachi	MIS	nanoHUB	SDSS	STAR	USATLAS

Detailed Information for the OSG Grid

Grid Name	Long Name	Description
OSG	Open Science Grid	The Open Science Grid is a US grid computing infrastructure that supports scientific computing via an open collaboration of science researchers, software developers and computing,

Done

RP Registration

Resource Provider Registration

[Registration Instructions](#)

Resource or Service Registration

Resource URL	<input type="text"/>
Resource Name	Short Name: <input type="text"/>
Distinguished Name of the Admin:	<input type="text"/> Example: /DC=org/DC=doegrids/OU=People/CN=Joe Somebody 123456
Resource Type:	Compute Element <input type="button" value="v"/>
Resource FQHN: (Fully Qualified Host Name)	<input type="text"/>
Choose Grid Catalog:	<input checked="" type="radio"/> OSG Production Grid <input type="radio"/> OSG ITB Grid
Security Contact	Name: <input type="text"/> Email: <input type="text"/> Phone: <input type="text"/>
Support Center Name	Short Name: <input type="text"/>
Mail List Subscription	The OSG-SITES email list is used to send notices to resource and service providers regarding changes and issues with the OSG infrastructure. You should subscribe an appropriate address to this list in order to receive these notices. (See mail lists .)
IMPORTANT:	By submitting this form you are assuring OSG that the administrators of this resource or service agree to abide by the OSG User AUP and OSG Service Agreement .
Date Submitted	<input type="text" value="2006-06-13"/>
Submitted by	Name: <input type="text"/> Email: <input type="text"/>
<input type="button" value="submit"/>	

VORS details for a site

- Look at NERSC-PDSF [site info](#)
- Look at Site Verify [results](#)



Open Science Grid

Site Policy Template (Draft)

1. Facility
2. Terms of Use
3. Security Requirements
4. Identity Management (AuthN, AuthZ)
5. Technical
6. Support

OSG requires each site to publish its policies. Standardizing the format and content is a work in progress.

Site Policy Template (1)

1. Facility

1.1 Site identification

** Site/resource name*

1.2 Site owner

** This is a pointer to the OSG site registration document*

Site Policy Template (2)

2. Terms of Use

2.1 Site expectation of users

** You cannot process data of types not allowed at site XYZ; this includes copyrighted data without documented permission of copyright holder, classified, HIPPA, or personally identifiable information., etc., etc., etc.*

** You cannot perform activities inconsistent with the site AUP*

2.2 User expectations of site

** Systems are furnished to serve HEP experiments; there can be no reliance that data or computations are private.*

** Site administrators may look at your jobs in arbitrary ways, consistent with local site policy.*

Site Policy Template (3)

3. Security Requirements

3.1 Accounting Requirements

** Jobs must be submitted in a manner supporting accounting, e.g. via Condor Grid Monitor*

** Information on which specific user submits the jobs must be maintained by the submitting site in order to support accounting. e.g. user traceability*

3.2 Auditing and forensics

** Statement on where the auditing information may be published and who may access the audit logs with the description on the following components:*

- Logging software, collection sub-systems, repository, forensic tools

** Site Incident reporting contact point*

** Site Incident Response page (if applicable)*

3.3 Secure middleware

** Statement on services which are deployed to find and fix software vulnerabilities to assurance deployed security software are current and correctly configured.*

3.4 Network and Firewall

3.4.1 Ingress, Egress policies

3.4.2 Firewall ports

** Statement on high level approach of the tools and services deployed to dynamically open and close ports needed by application and middleware based on authentication and authorization.*

Site Policy Template (4)

4. Identity management

4.1 Allowed VO's

** Statement of which VO's are allowed (e.g. all OSG)*

4.2 Required VO commitment

** VO promises to implement controls at least as strict as site*

** Site reserves the right to audit compliance*

4.3 Privilege management policies (accounts and rules)

** List supported accounts and roles*

** Statement on which subjects are authoritative for specific resources.*

** Statement on which subjects may never gain access to these resources (blacklisted).*

** Statement on which subjects are allowed to combine delegated privileges (for example, a member of two competing experiments may not be allowed to combine (privileges to) resources from these two experiments).*

** Specific privileges that may never be granted or have to be overruled for a specific resource.*

Site Policy Template (5)

5. Technical

5.1 Compute Elements (CE)

5.1.1 CE Resource priorities

* *Statement of VO priorities e.g. CMS, other use opportunistic*

5.1.2 CE Resource limitations

* *Statement of processing limits e.g. wall clock time limits*

5.1.3 CE Resource management

* *Corrective actions that may be taken*

* *Punitive actions that may be taken*

5.2 Storage Elements (SE)

5.2.1 SE Access mechanism

* *SRM, jobmanager fork, etc*

5.2.2 SE Storage areas

* *Statement on providing user storage on shared file systems as part of the OSG.*

* *Statement on providing the core \$APP, \$DATA, \$TMP and \$WN_TMP areas and their sizes as part of the OSG.*

* *Redundancy (e.g. RAID, resilient dcache)*

5.2.3 SE Storage quotas

5.2.4 SE Retention and Purge policies

5.2.5 SE Resource management

* *Corrective actions that may be taken e.g. Full file system*

* *Punitive actions that may be taken e.g. Misuse of storage resources*

Site Policy Template (6)

6. Support

6.1 What user can expect from site

** Notification of downtimes*

** Job recovery procedures*

** Storage element recovery procedures*

e.g. backup policy, redundancy (e.g. RAID, resilient dcache)

Some open issues about RP

- Standardizing policy statements & publication
- Resource accounting
- Encouraging sites to upgrade to new release of OSG software stack



WLCG Tier2 interactions with OSG

- Does a non-OSG Tier2 have any interaction with OSG?
- Perhaps trouble with US user running misbehaving jobs
 - Could lead to a GGUS ticket assigned to OSG, creates a related OSG ticket and will get routed to VO SC