MyOSG: A user-centric information resource for OSG infrastructure data sources

Arvind Gopu, Soichi Hayashi, Rob Quick
Open Science Grid Operations Center (GOC)
Indiana University
Outline

- Quick introduction to OSG
  - Explain roles assumed by members
- Objectives of MyOSG
- Technical design
- User interface
  - Demo (if Internet connection is available!)
- Questions
Open Science Grid

- Researchers – usually geographically distributed – from several scientific domains form Virtual Organizations (VOs) that:
  - Contribute hardware and software resources
    - Own hardware; allow one or more VOs to use hardware
  - Develop tools useful to members of the OSG
- Hard for OSG community – users, support staff, site administrators – to keep up w/ tools & accessibility
- OSG trying to expand to other sciences
  - GOC noticed new collaborators/VOs repeatedly complain
    - Most tools on OSG are hard to discover
    - After discovering a tool, the interface is not uniform; Requires one to learn new interface and its data format
Tools/Services in OSG

- As with most Grid Computing projects
  - Status Monitoring (VORS, RSV, Nagios)
  - Accounting Information (Gratia)
  - Queue statistics, etc. (GIP+BDII/ReSS, others)
  - Topology + Human associations (OIM, others)
  - . . . Tons of others . . .
- Separate interfaces via web/ldap/command line
MyOSG addresses these issues

- Highly customizable web portal
  - Allows vastly different categories of users to
    - Access information important to their role
    - Retrieve information in format convenient to them
  - Use authoritative source for OSG topology (OIM), auth/auth
  - Organize data from different tools around topology to create a web portal

- Main design goals
  - Provide ability for users to export / subscribe to a variety of information in formats such as XML, UWA – an industry standard widget format, iCal – for calendar type information, etc.
  - Enable user to construct Individual Information Centers (IIC)
    - Netvibes, iGoogle, mobile devices (iPhone, etc.)
OSG Members and Roles

- End user – VO researcher
- VO Manager
- Support
  - Resource administrator
  - Support Center
  - Central operations group like GOC
- Management
- Integration Test Bed (ITB), Security, etc.
. . . OSG Members and Roles

- Often, one person assumes multiple roles
  - Each role demands different types of information

- For example …
  - End users: resources positive service status, free CPUs, programmatic data
  - VO manager: Usage information and list of resources with negative status for resources they own
  - GOC: list of ALL resources with negative status, other monitoring information
  - Management: Usage information for all resources, contact information, other statistical information
MyOSG Framework – schematic
MyOSG Framework: Components

- Web Interface
  - PHP + Zend framework
    - Typical MVC (Model, View, Control) setup
    - Very light weight MVC – designed so it is easy to add (sub) components
  - jQuery for user-side JavaScripting
- Consolidators
  - RSVProcess (Monitoring)
    - Java. Normalizes incoming RSV status data, computes status, availability metrics, stores in DB
  - GIP Validation (Monitoring)
    - Summarizes XML status output
  - Gratia (Accounting)
    - Interfaces with another summarizing service developed by CMS VO
MyOSG Framework: Components

- **Backbone:** OIM
  - Topology
  - Contacts
  - Downtime information
  - Simple yet powerful x509 cert based auth/auth
    - Certificate from accepted CA authenticates user
    - Role + action matrix provides authorization

- **Data:** MySQL database, files on disk

- **Redundant Server:** VM based installation
MyOSG User Interface

- **http://myosg.grid.iu.edu**
- Customizable UI – for each top menu item:
  - Select - Information to display
  - Use - Data selector based on entity in context
  - Use - Filters
- Most information rich menu item: Resource Group (See OIM topology presentation to learn why!)
- Current data formats: UWA (Netvibes, iGoogle), HTML for Mobile devices, XML, CSV, HTML via permalinks
MyOSG User Interface

- Demo (if Internet connection available!)
  - MyOSG Homepage: [http://myosg.grid.iu.edu](http://myosg.grid.iu.edu)
- iPhone?
- Google Wave?
MyOSG Screenshots – Home page

MyOSG is designed with the primary goal of providing users, administrators, VO managers, and everyone else, a one-stop location for various pieces of OSG-related information. MyOSG allows users to quickly retrieve and filter information they are looking for. Most pages also allow users to export the selected/filtered data in their preferred format (HTML, Matlab, Google, etc.) and XML (for programmatic access).

Quick Links

- Resource Summary: Current status overview from all production OSG resources.
- ATLAS Tier1 Status: Current Tier1 status.
- CNS Tier2 Status: Current Tier2 status.
- Status Map: Status map showing the current overall site status in a Google Maps-based world map.

User Contributed MyOSG Views

Following are the user contributed MyOSG views from a Twiki page. Anyone with Twiki access can add these links:

- ATLAS Tier1 Resources
- CNS Tier2 Resources

Use Cases

The use cases below are provided to give users an idea of how they could potentially use MyOSG.

VO Tier 1 and 2

Let us say, you are a CDF (VO) user who wants to run jobs on the OSG. You probably want a list of production resources that provide a CE and an SSH, support your VO, and are up at the moment. And you want environment variables on those resources. This page will likely help you get that information. If you are unsure about the validity of SSH information, then you will need to do is add an additional filter requiring SSH validation status of OK. Once you have the information you are looking for, click the XML link to get the same information in a machine-readable XML format.

IT/ADMIN

Let us say, you are the admin of these resources: ATLAS Tier1, CNS Tier2, and you want to follow the health of your resources or centralized location. This page will likely help you, and you can subscribe to the feed on your Phedex home page using the Phedex subscription link.
### Resource Group Summary

<table>
<thead>
<tr>
<th>Resource Group</th>
<th>Support Center</th>
<th>Virtual Organization</th>
<th>Status</th>
<th>MCE Enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNL-ATLAS_1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Services**

<table>
<thead>
<tr>
<th>Service</th>
<th>URI</th>
<th>Hidden</th>
<th>GridType Storage Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compute</td>
<td>gridg01.tifr.edu:2219</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Hidden</td>
<td>False</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GridType Storage</td>
<td>gridg01.tifr.edu:2011</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Hidden</td>
<td>False</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FQDN**
gridg01.tifr.edu

**FQDN Alias**

**Environment Parameters**

- GLOBUS_LOCATION: /sp/OSG-1.0/deghes
- OSG_APP: /ncia/OSG/
- OSG_DATA: /ncia/nda/pnd/jb/site!

```xml
<ResourceSummary>
  <ResourceGroup>
    <GridType>OSG Production Resource</GridType>
    <GroupID>235</GroupID>
    <GroupName>BNL-ATLAS</GroupName>
    <Facility>
      <Name>Brookhaven National Laboratory</Name>
      <Site>
        <Name>Brookhaven ATLAS Tier1</Name>
        <Site>
          <Resource>
            <ID>1</ID>
            <Name>BNL-ATLAS_1</Name>
            <Active>True</Active>
            <Disable>False</Disable>
            <Service>
              <ID>1</ID>
              <Name>CE</Name>
              <Description>Compute Element</Description>
              <ServiceURI>gridg01.tifr.edu:2219</ServiceURI>
              <HiddenService>False</HiddenService>
            </Service>
          </Resource>
        </Site>
      </Site>
    </Facility>
  </ResourceGroup>
</ResourceSummary>
```
MyOSG Screenshots – RG Status Map
MyOSG Screenshots – Usage Information
MyOSG Screenshots – Netvibes (Arvind)
MyOSG Screenshots – Netvibes (Admin)
MyOSG Screenshots – Google Wave (Not released yet)
MyEGEE

- EGEE has adopted MyOSG as their future monitoring portal
  - Similar yet different (enough) topology: GOC-DB
  - Have prototyped it successfully
  - Short YouTube video EGEE made about MyEGEE
Future Work

- Main goal: Make user driven additions/updates
- GIP/BDII (CPU/storage availability)
  - Data, graphs, treemaps, etc. (Show LDIF data!)
- VOMS monitoring (to replace existing broken voms-monitor)
- More support via videos, presentations, prezis, etc.
- Continue work with EGEE on MyEGEE
- Provide even simpler interface with user option to enable advanced options
- Other
  - Even more advanced authorization based on VOMS
  - High Availability
Questions?!  

. . .  

Have you heard of DivRep framework?
- [http://divrep.com/node/1](http://divrep.com/node/1)
- Designed and developed by GOC staff member Soichi Hayashi with input from us; used by OIM
- Feel free to inquire about this!