OSG WG2 Engineering and Operations

Open Science Grid Meeting

Fermilab, January 12 2004

Engineering and Operations

- Technical Challenges discussed
  - “Federation of Grids”
  - Multi-protocol management
  - End-user access points
  - Policy and resource allocation issues
  - Operations issues
- Approach
  - standards
  - coordination
  - new work to be done (and proposed)

Discussion points

- Definition of ‘Grid’ – so we know what is being federated – really could be difficult
- Possible different track:
  - look at from a consumer’s perspective rather than a development and resource providing project
  - Pragmatic approach would be to look at the issue of providing a single point of access to resources
    - to submit to multiple grids, for example
    - D0 aspires to provide this for D0Grid
- What would be the procedure for establishing the infrastructure?

Some Key topics

- Protocols – handling non uniformity of services
- Policy tools and mechanisms for sharing resources
- Operations – service level agreements, do they work
  - best metaphor?
  - see OSGI service level agreement document, development of contracts
  - Perhaps this can be handled as a QoS attribute of the service

Engineering the infrastructure

- Identifying core services, and perhaps build up?
  - core service types (eg., multiple protocols) and implied requirements on resources
    - eg. root access
    - role for providers – not necessarily system administrators
    - concerns about proper use of the resource (local policies)
    - need long term policy shifts at DOE and NSF
  - role of rigorous accounting grid-wide (for policy)
  - need multi-protocol ‘adapter’ to access services (eg. info) for different grids

More on User's view

- Peer-to-peer approach
  - advertise resources, and information about that info
  - when you submit a job, you 'shop' for what is there and custom the submission accordingly
  - Need to have a good information about the services/resources offered
  - Leads to more autonomous model
- More approaches to job submission, eg., a JDL (or more generally accessing Grid services)
  - must be extensible
  - there are possible architectural conflicts (eg. client-side planning versus centralized resource broker)

Policy Issues

- Mitigation of short-coming of “imperfect” policy in the short term: for example, turning off a VO if one cannot track at the user level
- This is a difficult area to get a common open standard – hence the importance of finding interim solutions
- Possible technical solutions are to ‘enclave’ resources into different networked security zones

More on Policy

- What policy research is needed to:
  - express needs for a given VO for resources(t)
  - issues of ‘pooling’ resources and sharing among other programs
- Planning uncertainties issues
  - difficult to make projections based on bottoms up
  - know costs
  - and make guarantees

Operations issues

- Troubleshooting and restoring services (application versus system wide)
- Direct problem reports to the right places (problem management)
- Empower users and site administrators with their own diagnostic tools
- Tiered support, support authorization models should be researched
- How do users debug application on the grid? (solve through monitoring? steering access?)
- Discussion about having point of contact for problem coordination and resolution
  - understanding who is responsible for what is very hard problem

Approaches

- How to get more experiments into an existing project
- Maintaining development and production environments
- Getting the work done – bigger than any group
  - Divide and conquer – example is collaboration between DOE SG and iVDGL iGOC on a common trouble-ticket system
- Value of common denominator of VDT, eg.
- De-scoping the set of services, start simple