eGee

Enabling Grids for E-sciencE

SA1: Cookbook (DSA1.7)

Ian Bird

CERN

18 January 2006

www.eu-egee.org

Information Society
and Media

Enabling Grids for E-sciencE

- **Scope and purpose**
- **Overall structure of document**
- **Summary of contents**
- **Future work**

Enabling Grids for E-sciencE

- **Scope & goals**
  - Summary of experience and knowledge gained in building the EGEE infrastructure.
  - Includes pre-EGEE work by LCG because that was part of getting to where we are now
  - Explain why we did it this way
  - Helpful to other grid projects – particularly related infrastructure projects
  - Not a user guide!
- **Intended audience**
  - Service managers, site administrators, site security managers
  - Support staff
  - Developers – hopefully to gain some insight into deployment issues
  - Other projects
  - General audience

Enabling Grids for E-sciencE

- **Executive Summary**

- **Structure of document**

- **Architecture**

- **Certification and Testing**

- **Security**

- **Grid Operations and Support**

- **User Support**

- **Fabric Management**

- **Appendices:**

  - Deploying Additional Software Components

  - Middleware Requirements

Enabling Grids for E-sciencE

- **Introduction**
  - Grid Functionality and Services
  - Interoperability
- **EGEE Middleware**
  - Catalogue of existing and anticipated middleware services:
    - Site Services
    - VO or Global Services
    - VDT
- **Operating System Platforms**

- **Introduction**
  – Overview of process
  – Teams required
- **Integration, Testing & Certification Process**
  – Certification testbed
  – Pre-production service
  – Testing process
  – Certification process
  – Candidate and final release creation
  – Distribution process
- **EGEE Software**
  – Origins
  – Importance of user applications in testing
  – User requirements impact on sw development

- **Evolution of EGEE software**
  – LCG-0: learning
  – LCG-1: making the sw usable
  – LCG-2: the deployment release
- **Evolution of the release process**
  – Adding pps
  – Deployment feedback
- **Lessons learned during LCG**
- **Lessons learned with EGEE**

➢ **Lessons learned should be *learned*!**

eGee

Enabling Grids for E-sciencE

- **Overview**
- **EGEE solution**
  - CAs and PMAs
  - Virtual Organisations
  - Policy framework – trust
  - User registration process
  - Access to resources
  - Authentication and authorisation control points
  - Credential stores – MyProxy
  - Site registration process

- **Lessons learned**
  - Scaling the trust domain
  - Authorisation control
  - Proxy renewal complexity
  - Privacy, legal issues & accounting
  - Operational security issues

- **EGEE Grid Operations – overview**
- **Operations of the grid**
  - The OMC
  - The pre-production service
  - The CICs
  - Operation of CIC on Duty
  - Operation of a ROC:
    - Those part of a CIC
    - Those not part of a CIC
  - Grid Operations Centre
  - Site Functional Tests
  - Incident operation security
  - Monitoring, automation, alarms
  - Support
  - Tools
  - Procedures, escalation
  - Metrics
  - SLAs

- **Lessons learned, from each of:**
  - OMC
  - PPS
  - CIC
  - COD
  - ROCs
  - GOC
- **Ways forward to EGEE-II and beyond**
  - PPS
  - COD

eGee

Enabling Grids for E-sciencE

- **Introduction – problem statement**
- **Solution used in EGEE**
  - Management initiatives
- **Support Model**
  - Central support
  - Regional support
  - CIC user support
  - VO user support
  - Support units
- **Passive support**
  - Documentation
  - Training
- **Management**
  - Procedures and escalations
  - Metrics
  - Support committee
  - SLAs

- **Lessons learned**
  - Document the model
  - SW for helpdesks
  - Need for experienced people as front-line
  - Simple mechanism for problem submission
  - Documentation up to date
  - …

eGee

Enabling Grids for E-sciencE

- **Overview of grid cluster components**
  - For each service – comments on its use and interfaces
- **Planning for a grid cluster**
  - Server requirements
  - Worker node requirements
  - Storage requirements
  - Networking
  - Security
- **Software not included in the grid package**
  - Batch system
  - Cluster monitoring
  - OS Installation and updates

- **Setup, installation, verification**
  - Where to install components
  - Batch system
  - Cron jobs
  - Site verification
- **Monitoring and maintenance**
  - What to watch, and how often
  - Tool recommendations
- **Lessons learned**

Enabling Grids for E-sciencE

- **Deploying Additional components**
  - MPI
    - Deployment documentation
    - Security issues
    - Other considerations
    - Open problems
    - Lessons learned

  - In future revisions this section can be used to describe how we support (or not!) application-level services, other higher-level middleware, etc.

- **Middleware requirements**
  - Overview of outstanding requirements on middleware that are not addressed by most mw suppliers:
    - General requirements
    - Installation & configuration
    - Development requirements

Enabling Grids for E-sciencE

- **EGEE-II has a deliverable:**
  - DSA1.5: An update to the planning guide ("cookbook") published in EGEE.
    - This should show how things have developed in the light of further experience.
    - The scope will be expanded relative to the EGEE version to describe full range of services available through EGEE-II, DEISA, and GEANT2, as well as by the related infrastructure projects. This will be done in collaboration with those projects.

- **GGF**
  - Turn DSA1.7 into a contribution to Production Grids RG
    - Would need some reworking for a non-EGEE audience

- **Fabric management should be a stand-alone document**