

Grid Deployment

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Presentation to UK DTI mission
29th June 2004



Overview

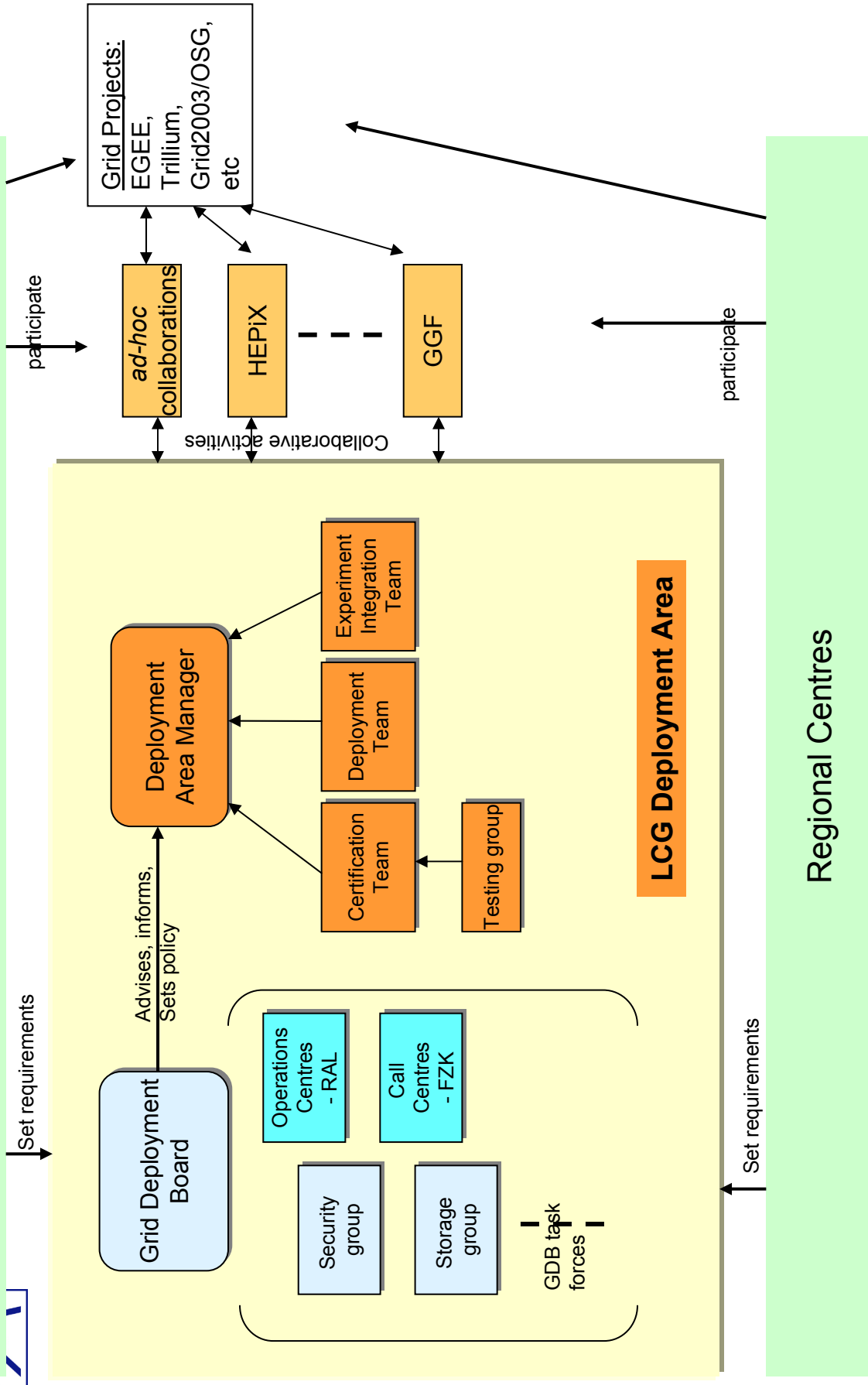
- Grid Deployment
 - Scope and responsibilities
 - Organisation
- Deployment activities
- Deployment in LCG → EGEE



Grid Deployment: Scope of Responsibilities

- **Certification activities**
 - Certification of middleware as a coherent set of services
 - Preparing that package for deploying
- **Operational and support activities**
 - Coordinating and supporting the deployment to collaborating computer centres
 - Coordinating Grid Operations activities
 - Providing Operational support
 - Providing Operational security support
 - Providing User support
 - CA management
 - VO registration and management
- **Policy**
 - CA and user registration policies
 - Operational policy
 - Security policies
 - Resource usage and access policies

LHC Experiments



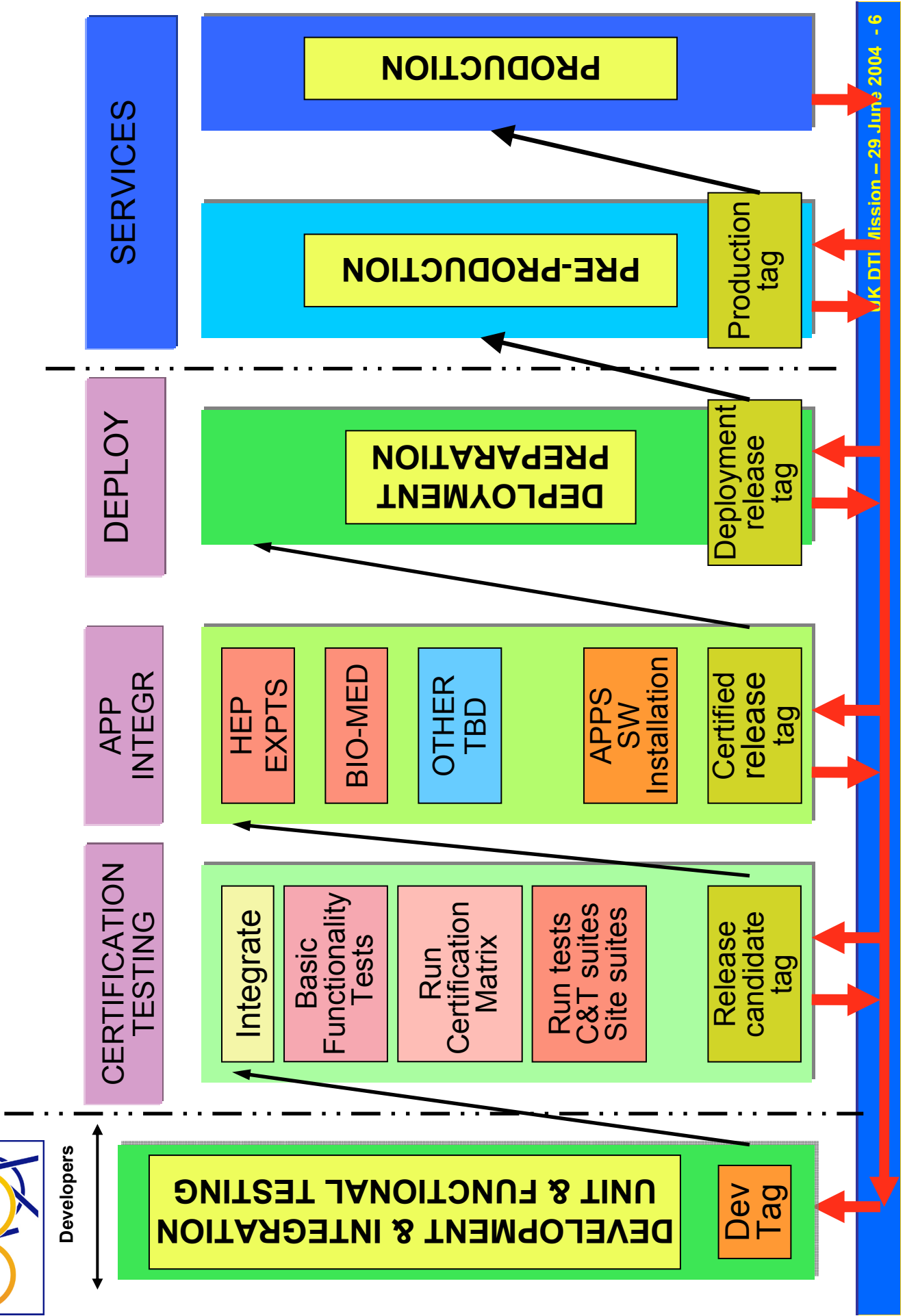
LCG Deployment Organisation and Collaborations



Certification activities



Certification, Testing and Release Cycle





Operational activities



The LCG Deployment Board

- Grid Deployment Board (GDB) set up to address policy issues requiring agreement and negotiation between resource centres
- Members: country representatives, applications, and project managers
- Sets up working groups
 - Short term or ongoing
 - Bring in technical experts to focus on specific issues
- GDB approves recommendations from working groups
- Groups:
 - Several that outlined initial project directions (operations, security, resources, support)
 - Security – standing group – covers many policy issues
 - Grid Operations Centre task force
 - User Support group
 - Storage management and other focused issues
 - Service challenges



Operations services for LCG

- **Operational support**
 - **Hierarchical model**
 - CERN acts as 1st level support for the Tier 1 centres
 - Tier 1 centres provide 1st level support for associated Tier 2s
 - **Grid Operations Centres (GOC)**
 - Provide operational monitoring, troubleshooting, coordination of incident response, etc.
 - RAL (UK) led sub-project to prototype a GOC
 - 2nd GOC in Taipei now in operation
 - Together providing 16hr coverage
 - Expect 3rd centre in Canada/US to help achieve 24hr coverage
- **User support**
 - **Central model**
 - FZK provides user support portal
 - Problem tracking system web-based and available to all LCG participants
 - Experiments provide triage of problems
 - CERN team provide in-depth support and support for integration of experiment sw with grid middleware



Security

- LCG Security Group (led by Dave Kelsey (RAL))
 - LCG usage rules – proposed as general Grid usage guidelines
 - Registration procedures and VO management
 - Agreement to collect only minimal amount of personal data
 - Currently registration is only valid for 6 month (procedures will change)
 - Initial audit requirements are defined
 - Initial incident response procedures
 - Site security contacts etc. are defined
 - Set of trusted CAs (including Fermilab online KCA)
 - Security policy (to be finished by end of year)

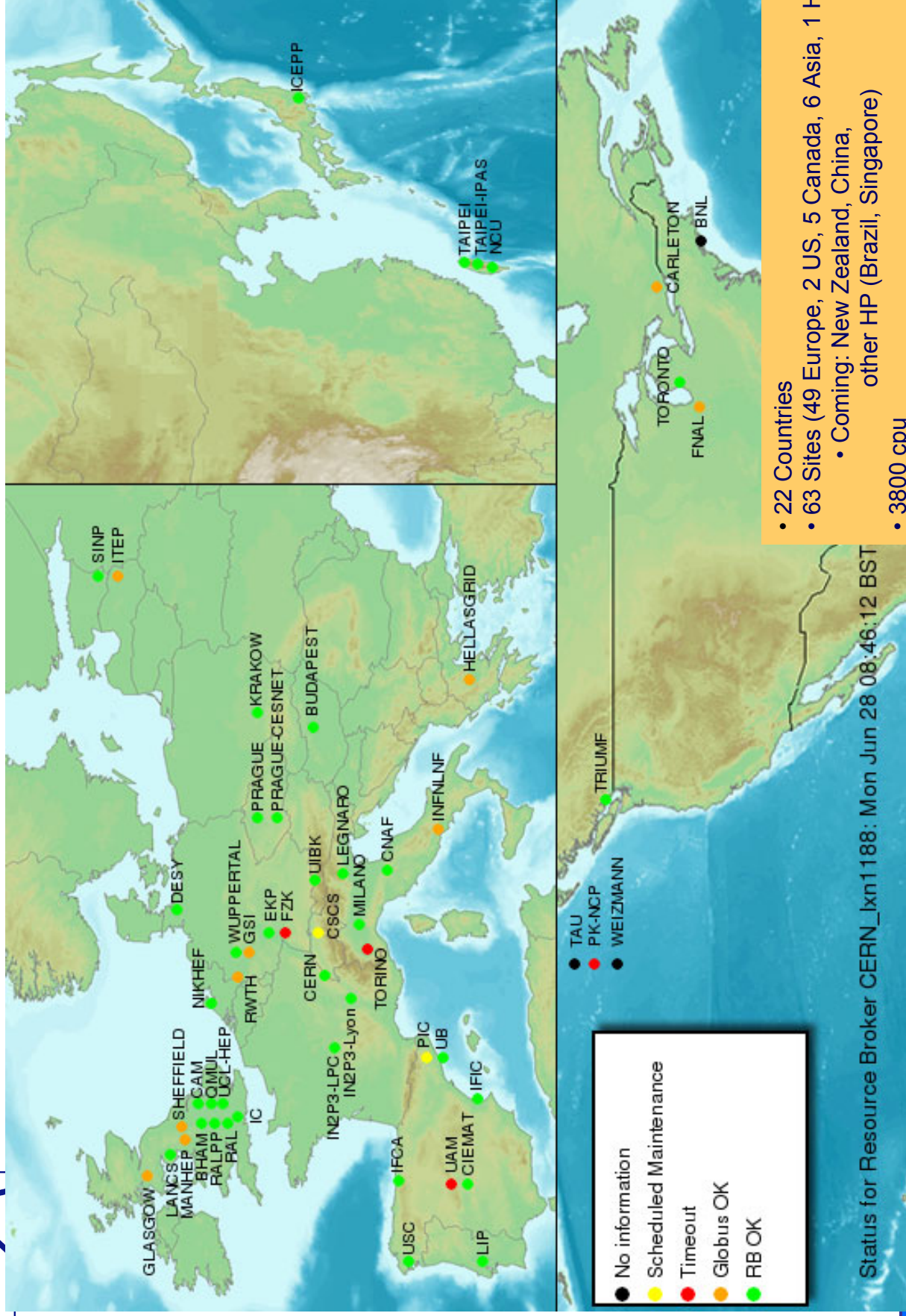
- This group is now a Joint Security group covering several grid projects/infrastructure



Deployment: LCG → EGEE

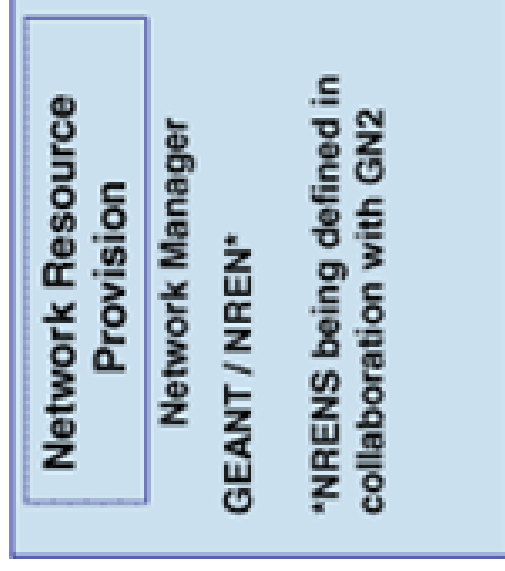
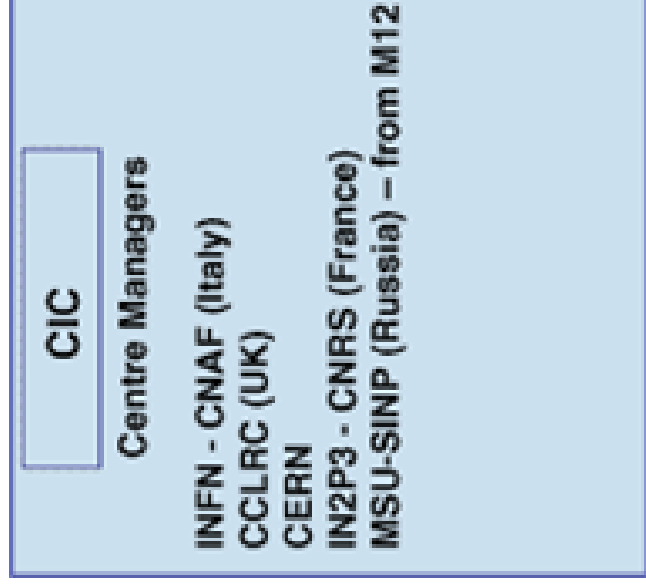
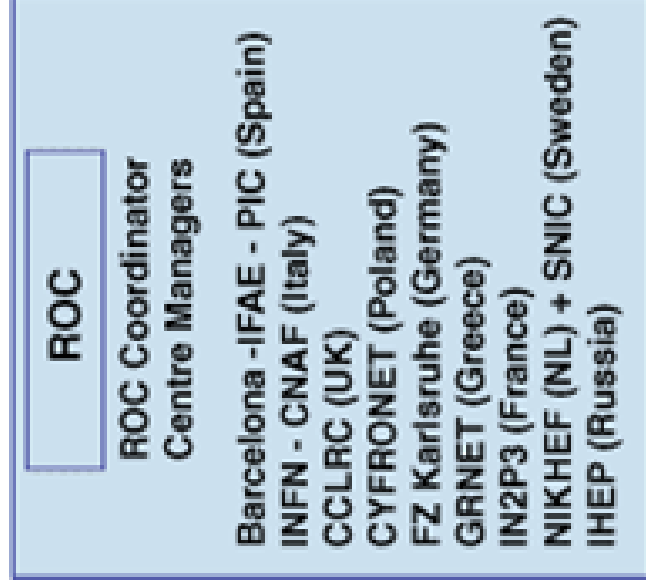
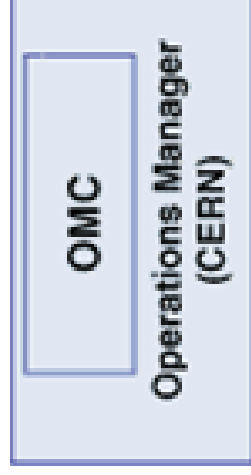


Sites in LCG-2/EGEE-0 : June 28 2004



Status for Resource Broker CERN_lxn1188: Mon Jun 28 08:46:12 BST

Grid Operations Management Structure





LCG and EGEE Operations

- EGEE is funded to operate and support a research grid infrastructure in Europe
- The core infrastructure of the LCG and EGEE grids will be operated as a single service, will grow out of LCG service
 - LCG includes US and Asia, EGEE includes other sciences
 - Substantial part of infrastructure common to both
- LCG Deployment Manager is the EGEE Operations Manager
 - CERN team (Operations Management Centre) provides coordination, management, and 2nd level support
- Support activities are expanded with the provision of
 - Core Infrastructure Centres (CIC) (4)
 - Regional Operations Centres (ROC) (9)
 - ROCs will be coordinated by Italy, outside of CERN (which has no ROC)



LCG → EGEE

- **Operational support:**
 - The LCG GOC is the model for the EGEE CICs
 - CIC's replace the European GOC at RAL
 - Also run essential infrastructure services
 - Provide support for other (non-LHC) applications
 - Provide 2nd level support to ROCs
- **User support:**
 - Becomes hierarchical
 - Through the Regional Operations Centres (ROC)
 - Act as front-line support for user and operations issues
 - Provide local knowledge and adaptations
- **Coordination:**
 - At CERN (Operations Management Centre) and CIC for HEP



Policy



LCG Security and Availability Policy

- Prepared jointly with GOC group
- Objectives
 - Agreed set of statements
 - *Attitude* of the project towards security and availability
 - *Authority* for defined actions
 - *Responsibilities* on individuals and bodies
- Promote the LHC science mission
- Control of resources and protection from abuse
- Minimise disruption to science
- Obligations to other network (inter- and intra- nets) users
- Broad scope: not just hacking
 - **Maximise availability and integrity of services and data**
- Resources, Users, Administrators, Developers (systems and applications), and VOs
- Does NOT override local policies
- Procedures, rules, guides etc
 - contained in separate documents



Resource access policy

- Resource negotiation
 - Each participating site might have constraints – funding policy, levels of support, user communities, etc.
 - Those part of EGEE have committed to provide resources to EGEE applications within those constraints
- The Operations group together with applications groups, and Regional Operations Centres
 - Negotiate access to resources at sites on behalf of application community
 - Each site might have local access policies – users, applications, etc
 - The grid infrastructure should not override local site policies
 - However, in the context of an EU funded project a commitment to the project may change the policy



Approach to SLA's

➤ In LCG:

- Formal MoU will be made between CERN and the Tier 1 centres for services to the LHC experiments
- Countries commit to a certain level of resources to be provided

➤ In EGEE:

- A goal of project is to understand what SLA's mean in a grid framework (we do not know what they are yet):
 - Envisage:
 - SLA between ROC and resource centres in a region
 - Resources, support levels, backup support, access policies, etc.
 - SLA between regions (via ROC)
 - Accumulation of individual SLA's
 - SLAs with network providers
 - Performance against targets will be public information



Interoperability

- Several grid infrastructures for LHC experiments:
 - LCG-2/EGEE, Grid2003/OSG, NorduGrid, other national grids
- LCG/EGEE explicit goals to interoperate
 - One of LCG service challenges
 - Joint projects on storage elements, file catalogues, VO management, etc.
- Most are VDT (or at least Globus-based)
 - Grid2003 & LCG use GLUE schema
- Issues are:
 - File catalogues, information schema, etc at technical level
 - Policy and semantic issues