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Enabling Grids for E-sciencE

SA1 - All Activity Meeting

6th July 2005

Information Society

Enabling Grids for E-sciencE

- **Scope an purpose of the activity**

- **Organisation**

- **Major tasks**

- **Interaction points**

- **Open**

Enabling Grids for E-sciencE

- **Provide access to and operate a production grid infrastructure**

  - Different user communities -> multiple Vos
  - Facilities in Europe and other collaborating sites
  - Make best use of existing grid initiatives
 - Build upon EGEE 1 experience

- **What is needed to achieve this?**

1. **Core Infrastructure Services**
   1. IS, data management, VO, (driven by Vos)
2. **Monitoring and Control**
   1. Performance, operational state
   2. Initiate corrective actions
3. **Middleware Deployment**
   1. Integrate, certify, package middleware components
   2. Support for new resources, setup and operation
   3. Feedback with middleware activities in and outside of EGEE
4. **User and resource support**
   1. Receive problem reports
   2. Coordinate operational problem resolution
5. **Grid management**
   1. Co-ordination of the implementation with the ROCs
   2. Negotiation of SLAs
   3. Keep in contact with the wider Grid community
      1. Liaison, participate in standard bodies
6. **International Collaboration**
   1. Interoperability with large scale grids in the US and Asia-Pacific region
   2. Seamless access for the EGEE user community to resources
7. **Capture and provide requirements**
   1. Relevant for operations, deployment and (some aspects of) security
   2. Follow-up

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Enabling Grids for E-sciencE

- **Simplification**
  - EGEE 1 structure
    - OMC, CICs, ROCs, RCs
  - EGEE 2
    - Operations Coordination Centre
    - Regional Operations Centres
    - Resource Centers
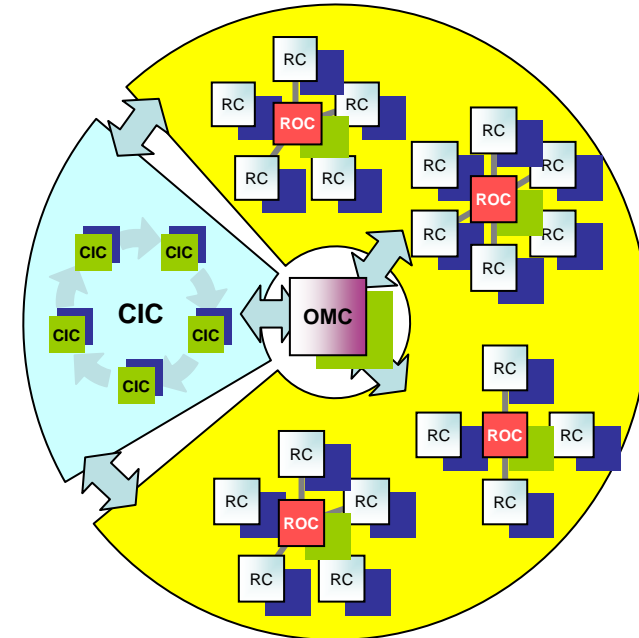
- **What happened to the CICs?**
  - All CICs are co-located with ROCs
  - Some ROCs provide CIC services

- **===> Adjust the structure to current practice**
  - Basic ROCs and ROCs with CIC functions
  - Easy transition, different set of services

- **Core responsibilities**
  - Middleware integration, certification, distribution packs
  - Coordinate:
    - Deployment and support
    - Grid operation and support
    - User support activity
    - Operational security activity
    - SLAs (negotiate & monitor)
    - Interoperability
      - *Non EGEE regions*
      - *ROCs more focussed on national/regional grids*
  - Act as a ROC
    - Current CIC functions (10+ RBs….)
    - ROC for RCs in non EGEE regions

  - Located at CERN

- **Support ALL sites in their region**
  - EGEE partners and friends

- **Core Responsibilities (incomplete) ------> ALL ROCs**
  - 1st line user support (Call centre, regional training..)
  - 1st line operational support (ROC "owns" operational problems)
  - Coordination
    - Deployment of middleware releases to its RCs
    - With national and regional grid projects
    - Regional Grid security (Incident responds teams (with RCs))
  - Negotiate resources for new VOs
  - Manage SLAs
  - Run infrastructure services
  - Support EGEE production AND pre-production services

- **Additional Roles**
  - Who?
    - Current CICs & ROCs with sufficient resources and expertise
  - Operations management
    - Operations Center on duty shifts
    - Monitoring, management, troubleshooting
      - *Improve, develop and run tools*
  - User support management
  - Coordinate Joint Security Policy Group (now @ RAL)
  - Run additional grid services (including VO specific)
  - Collaborate in the release process
    - Specific aspects of certification, porting, …
  - Security vulnerability and risk analysis (NEW)
    - Coordinate (partial) code reviews, best practice,…

- **ROC concept can serve in non EGEE regions as an operation model**

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- **Overall:**
  - **Operate Production <u>and</u> Pre-Production Service**
  - **Some tasks implicit described with ROCs and OCC roles**
- **Middleware testing and certification**
  - Where?
    - Central coordination, some external contribution
  - Expected Results
    - Middleware distributions for production
    - Select components from within <u>and</u> external sources
      - *Negotiate support*
    - Integration and testing could be a joint activity with JRA1
      - *Testing needs to start from day 1 (sufficiently staffed)*
    - Certification
      - *Integrated system*
      - *Co-existence/Interoperability*
      - *Deployability, functionality, configuration, management of components*
      - *Extended set of OSs*
      - *Optional integration with Virtual Data Toolkit (VDT) --> ensures US interop.*

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- **Testbeds**
  - Set of testbeds at CERN for rapid setup
  - Regions contribute to well defined aspects
    - Deployment tests
    - MPI support
    - Batch systems
    - Ports to different architectures

Enabling Grids for E-sciencE

- **Middleware deployment and support**
  - OCC coordination, ROCs coordinate and support their RCs
  - Expected Results
    - Deploy agreed set to all sites
      - *Region can support supersets (but NOT subsets)*
    - Stick to agreed schedule
  - Service Layers (new)
    - Core services (CE, SE, Local Catalogues…)
      - *Long update cycles (1--> 2 times a year + security driven updates)*
      - *At all sites*
    - Additional Services (Central Catalogues, IS, Monitoring, RBs)
      - *Not present at all sites (mainly some ROCs)*
      - *Shorter update cycles (on demand?)*
    - Client tools on WNs
      - *Installed in user space*
      - *New version made available by a central team*
      - *VOs select preferred version*
  - Ongoing work on simplification of installation and configuration

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- **Grid Operations and Support**
  - OCC & ROCs
  - Expected Results
    - Manage the grid operation
    - Has been included in the description of the ROCs and OCC's roles

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- **Grid security and incident responds**
  - Security Coordination Group
  - Central coordination of incident response

  - Security Coordination Group
    - Lead by:
      - *EGEE Security Head (PEB member)* +
      - *Middleware Security Architect*
      - *Chair of the Joint Security Policy Group (SA1)*
      - *Chair of the EUGridPMA*
    - Expected Results
      - *Coordination of security related aspects of:*
        - Architecture
        - Deployment
        - Operation
        - Include standardization work

Enabling Grids for E-sciencE

- **Grid security and incident responds**
  - Security Coordination Group
  - Central coordination of incident response

  - Central coordination of incident response
    - Coordinated at the OCC
    - ROCs coordinate the incident responds in their region
    - Requires resources at all RCs and ROCs
    - Needs a strong mandate

    - Expected Results
      - *Minimize security risks by fast responds*
      - *Ensure best practice*
      - *EGEE wide team to react on security incidents*
        - o Members from ROCs/RCs

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- **Support: Virtual Organizations, Applications, Users**
  - Central coordination at OCC and all ROCs

- **Expected Results**
  - User support
    - Distributed
    - Each ROC provides front-line support for local users
    - Each ROC contributes to the overall user support (experts)
    - VOs provide user support
      - *VO filters problems*
    - Existing help desks at major centres should be integrated into the support structure
      - *Filter and inject problems into the grid support*

  - User Support
    - Call centers and helpdesks
      - *ROCs*
    - Training
      - *ROCs*
    - VO support and integration
      - *NA4 with teams like the LCG-EIS*

- **We have currently not a good model for user support**
  - Some experience from LCG (can this be mapped???)
  - Needs resources from ROCs, OCC and VOs

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- **Grid Management**
  - See OCC and ROCs roles
  - ROC coordinator must have a strong presence at the OCC
- **Interoperation**
  - See OCC and ROCs roles
    - ROCs focus on national/regional grids
    - OCC non EGEE regions
    - Coexistence and common policies have to be clarified
    - NA4 has to participate in the definition of "seamless"
- **Application <----> Resource Provider Coordination**
  - See OCC and ROCs roles
    - Some resources should be made available to (most) all applications
    - This could become part of the SLAs (opportunistic usage?)
    - Needs clarification
- **Application <-> RC <-> Middleware Coordination**
  - SA1 needs to be part of this
  - ROCs aggregate regional feedback
  - Coordination ?

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- **JRA1**
  - Integration and testing
  - Security
  - Deployment and operational requirements
  - Training
- **JRA2**
  - Work on QA metrics for operations
  - Link of QA and monitoring
- **NA4**
  - Resource negotiation
  - Security
  - Production Middleware Stack definition
  - User Support
  - Training
- **NA3**
  - Receiving and providing training (SA1 has provided significant training)
- **SA2**
  - Link between network operation center and grid operations

Enabling Grids for E-sciencE

- **User support model**

- **Application <-> Resource Provider Coordination**

- **Application <-> RC <-> Middleware Coordination**

- **Mandate for the Incident Responds Team**

- **Joint integration and testing with JRA1**
  - Clearly needed
  - Complex

- **How we ensure seamless interoperation between major grids**
  - Concurrent development
    - What has been interoperating might not continue to interoperate