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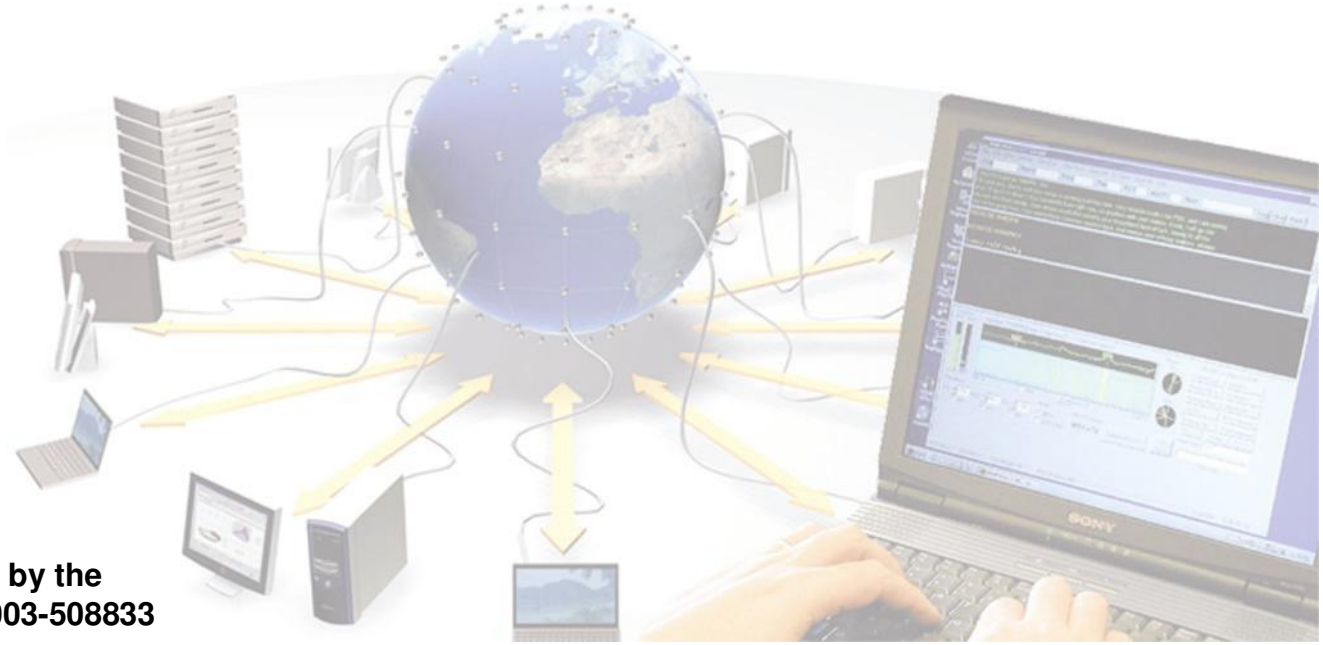
Information Society

European Commission

**EU DataGrid Project Conference - 30 September 2003**

# Technical Overview of EGEE project proposal

Enabling Grids for E-science in Europe



**EGEE is proposed as a project funded by the European Union under contract IST-2003-508833**

# Contents

- EGEE activities
- Project Structure and Management
- Comparison with DataGrid
- Grid operations and network services
- Middleware Re-engineering
- Networking activities
- Summary

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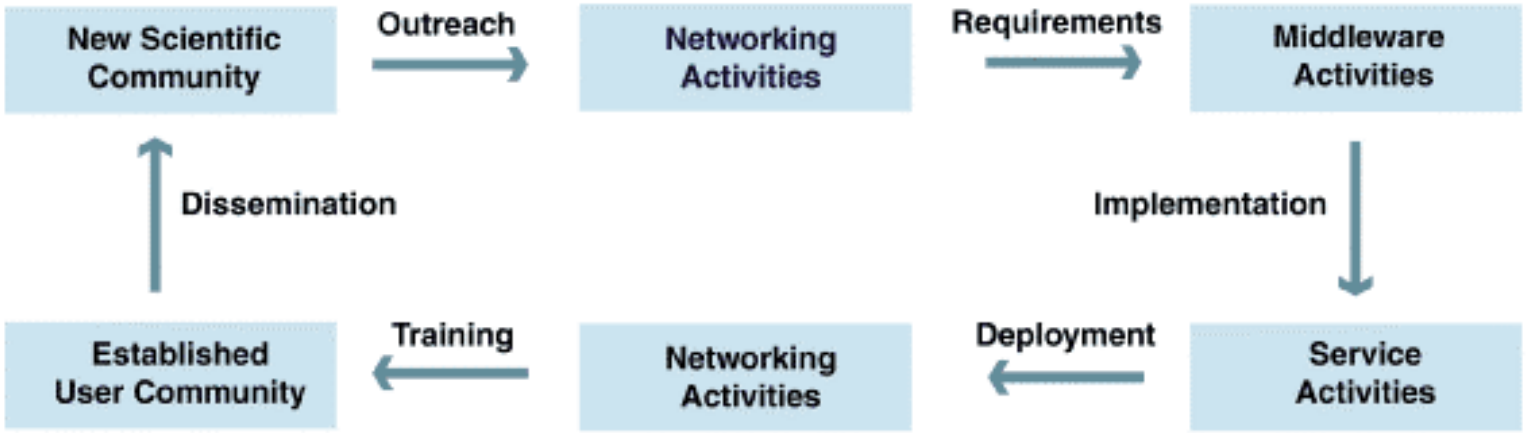
# EGEE Activity Areas

- **Services**
  - Deliver “production level” grid services (manageable, robust, resilient to failure)
- **Middleware**
  - Grid middleware re-engineering activity in support of the production services
- **Networking**
  - Proactively market Grid services to new research communities in academia and industry
  - Provide necessary education



# EGEE Activities

- **EGEE includes 11 activities**
- **Services**
  - **SA1**: Grid Operations, Support and Management
  - **SA2**: Network Resource Provision
- **Joint Research**
  - **JRA1**: Middleware Engineering and Integration
  - **JRA2**: Quality Assurance
  - **JRA3**: Security
  - **JRA4**: Network Services Development
- **Networking**
  - **NA1**: Management
  - **NA2**: Dissemination and Outreach
  - **NA3**: User Training and Education
  - **NA4**: Application Identification and Support
  - **NA5**: Policy and International Cooperation

| Equivalent EDG Work Packages / Groups |
|---|
| WP6 |
| WP7 |
| WP1-5 & 6 |
| QAG |
| Security Group |
| WP7 |
| WP12 |
| WP11 |
| WP11 |
| WP8-10 |
| ? |

# EDG and EGEE in numbers

Enabling Grids for E-science in Europe

| Characteristic | EDG | EGEE | Comparison |
|---|---|---|---|
| EU funding | 10MEuro | 32MEuro | EGEE >3 times more |
| Duration | 3 years | 2 years | EGEE requires more planning before the project start date |
| Partners | 21 | 70 | EGEE >3 times more<br>Organised into federations |
| WPs/Activities | 12 | 11 | Approx. same |
| Total FTEs | 328 | 377 | EGEE FTEs are a general approximation (100KEuros per FTE per year) |
| EU Funded FTEs | 158 | 181 | |
| Deliverables | 74 | 70 | EGEE : 3 per month<br>EDG : 2 per month |

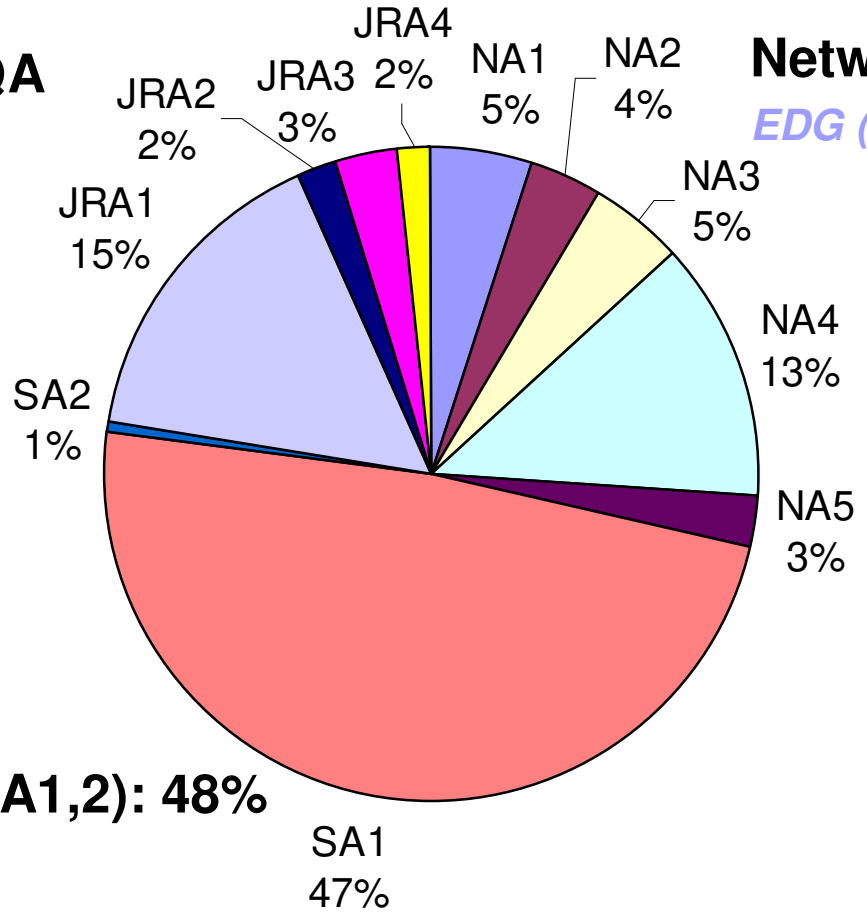
# EGEE activities' relative sizes

**Mware/security/QA (JRA1-4): 22%**

*EDG (WP1-5): 57%*

*EGEE ~8MEuros*

*EDG ~6MEuros*




**Networking (NA1-5): 30%**

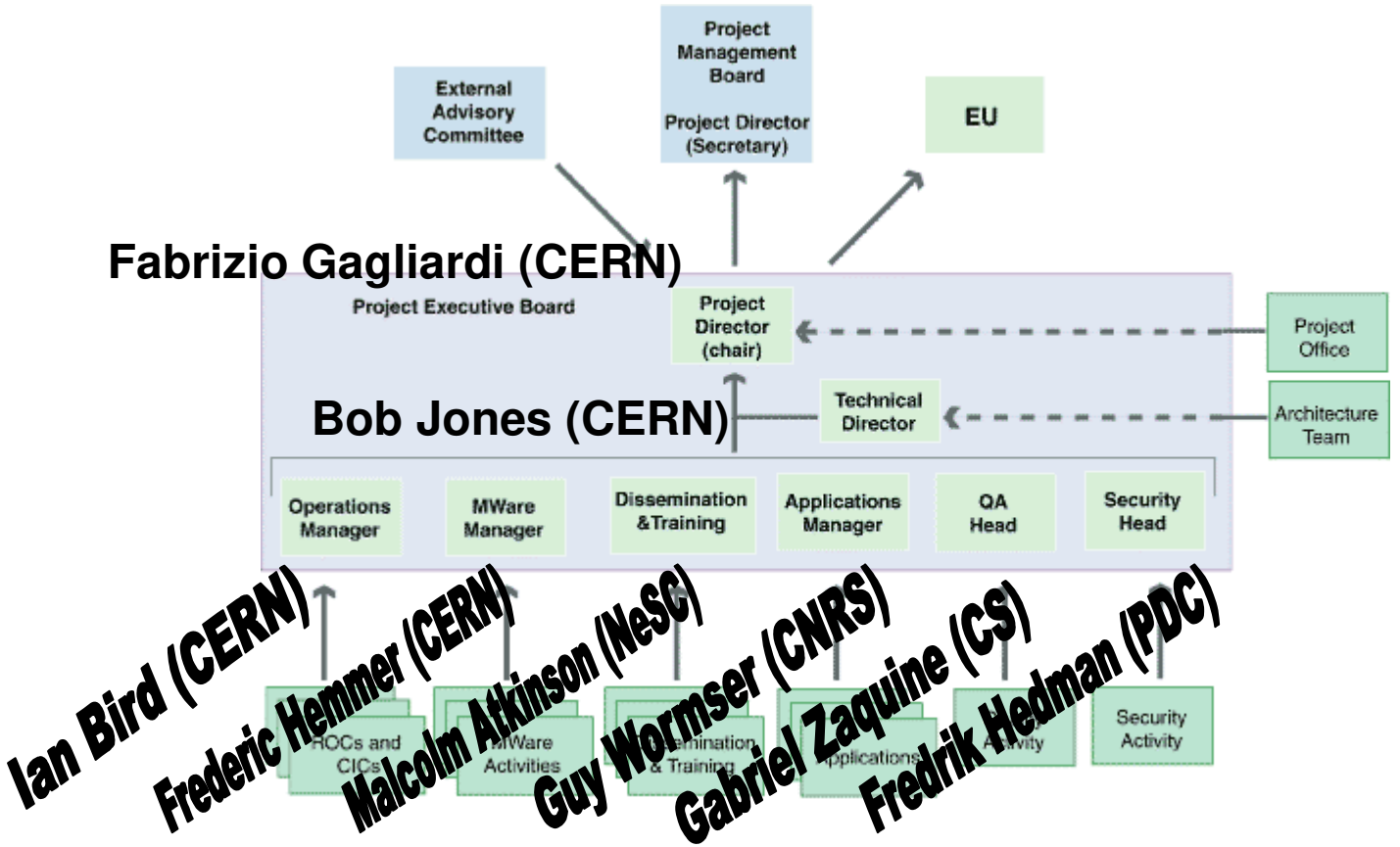
*EDG (WP8-12): 25%*

**Grid operations (SA1,2): 48%**

*EDG (WP6,7): 18%*

**Emphasis in EGEE is on operating a production grid and supporting the end-users**

# Project Management



# EGEE Service Activity (SA1)

- Create, operate, support and manage a production quality infrastructure
- Structure:
  - EGEE Operations Management at CERN
  - EGEE Core Infrastructure Centres in the UK, France, Italy, Germany and CERN (leveraging LCG at the start), responsible for managing the overall Grid infrastructure
  - Regional Operations Centres, responsible for coordinating regional resources, regional deployment and support of services in all other countries
- Offered services:
  - Middleware deployment and installation
  - Software and documentation repository
  - Grid monitoring and problem tracking
  - Bug reporting and knowledge database
  - VO services
  - Grid management services

# EGEE Operations – key objectives

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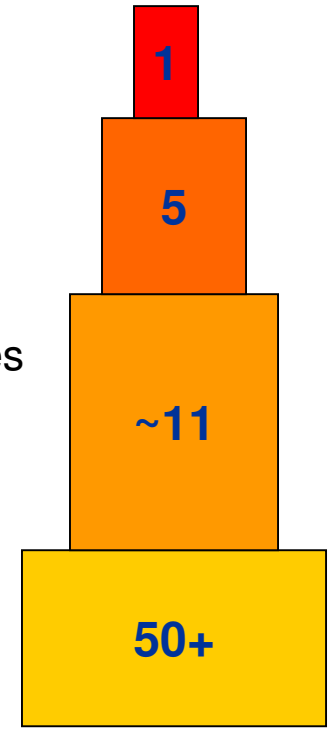
- **Core Infrastructure services:**
  - Operate essential grid services
- **Grid monitoring and control:**
  - Proactively monitor the operational state and performance,
  - Initiate corrective action
- **Middleware deployment and resource induction:**
  - Validate and deploy middleware releases
  - Set up operational procedures for new resources
- **Resource provider and user support:**
  - Coordinate the resolution of problems from both Resource Centres and users
  - Filter and aggregate problems, providing or obtaining solutions
- **Grid management:**
  - Coordinate Regional Operations Centres (ROC) and Core Infrastructure Centres (CIC)
  - Manage the relationships with resource providers via service-level agreements.
- **International collaboration:**
  - Drive collaboration with peer organisations in the U.S. and in Asia-Pacific
  - Ensure interoperability of grid infrastructures and services for cross-domain VO's
  - Participate in liaison and standards bodies in wider grid community

# Operations Structure

- Implement the objectives to provide
  - Access to resources
  - Operation of EGEE as a reliable service
  - Deploy new middleware and resources
  - Support resource providers and users

- With a clear layered structure
  - **Operations Management Centre** (CERN)
    - Overall grid operations coordination
  - **Core Infrastructure Centres**
    - CERN, France, Italy, UK,  Russia (from M12)
    - Operate core grid services
  - **Regional Operations Centres**
    - One in each federation, in some cases these are distributed centres
    - Provide front-line support to users and resource centres
    - Support new resource centres joining EGEE in the regions
    - Support deployment to the resource centres
  - **Resource Centres**
    - Many in each federation of varying sizes and levels of service
    - Not funded by EGEE directly



# Operations Management Centre - OMC

- Manager + deputy
- Coordinator for CICs (at CERN)
- Coordinator for ROCs (Italy)
- Team to oversee operations –
  - problems resolved, performance targets, etc.
- Operations Advisory Group to advise on policy issues, etc.
- Responsibilities include:
  - Resource management
  - Delivery of operational service and its improvement and development
  - Enable cooperation and access agreements with user communities, virtual organisations and existing national and regional Grid infrastructures
  - Approve service level agreements negotiated between the Resource Centres and the ROCs
  - Approve connection of new Resource Centres once they have correctly installed the necessary middleware and operational tools
  - Promote the development of cross-trust agreements between the various existing Certification Authorities (CAs) operating within the EGEE Grid community and encourage the establishment of new CAs where necessary
  - Liaise with user communities and virtual organisations to monitor their developing requirements
  - Interface to international grid efforts: Standards, interoperability, collaborative projects

# Core Infrastructure Centres - CIC

- Originally 4 (5 with Russia after M12)
- Operate core grid services
- Function as a single distributed entity
  - Each may have specialist expertise
- Day-to-day operation – implement operational policies defined by OMC
  - Monitor state – initiate corrective actions
- Eventual 24x7 operation of grid infrastructure
  - Does not imply that RCs must be 24x7 – specify in SLAs with ROCs
- Provide resource and usage accounting
- Provide security incident response coordination
- Ensure recovery procedures
- Operations management, performance tuning, etc. tools
  - build or commission

# Regional Operations Centres – ROC

- Provide front-line support to users and resource centres
- Support new resource centres joining EGEE in the regions
- Support deployment to the resource centres
- Responsibilities include:
  - Middleware validation
  - User and administrator Support:
    - Operate call centres and problem tracking system
    - Refer operational problems to the layer II Core Infrastructure Centres
    - Refer middleware problems to the middleware activity
    - Provide Grid Operations training for staff at Resource Centres
  - Middleware and service deployment
    - Develop deployment procedures and documentation
    - Distribute approved middleware releases to Resource Centres
    - Assist Resource Centres to deploy Grid middleware and to develop the technical and operational procedures to become part of the Grid
    - Distribute operational monitoring, authorisation, accounting tools to Resource Centres;
  - General:
    - Collaborate in producing release notes for the services and middleware
    - Collaborate in producing the cook-books to be used by new participants as part of a strategy of building a long-lasting infrastructure
    - Work with CICs and OMC to improve the Grid infrastructure.

# User Support

- Initial filtering by VO support experts
  - Essential – VO specific knowledge, diverse applications and grid usage
- Report problems to ROC
- May escalate to CIC
- CIC coordinates reporting to external sources
  - Middleware developers, other projects, other grid operators, network operators
- OMC together with CIC, ROC, VOs
  - Develop procedures and policies including response targets, etc
- Support coordinator (oversees problem resolution)
  - Nominated from the CICs

# Implementation plans

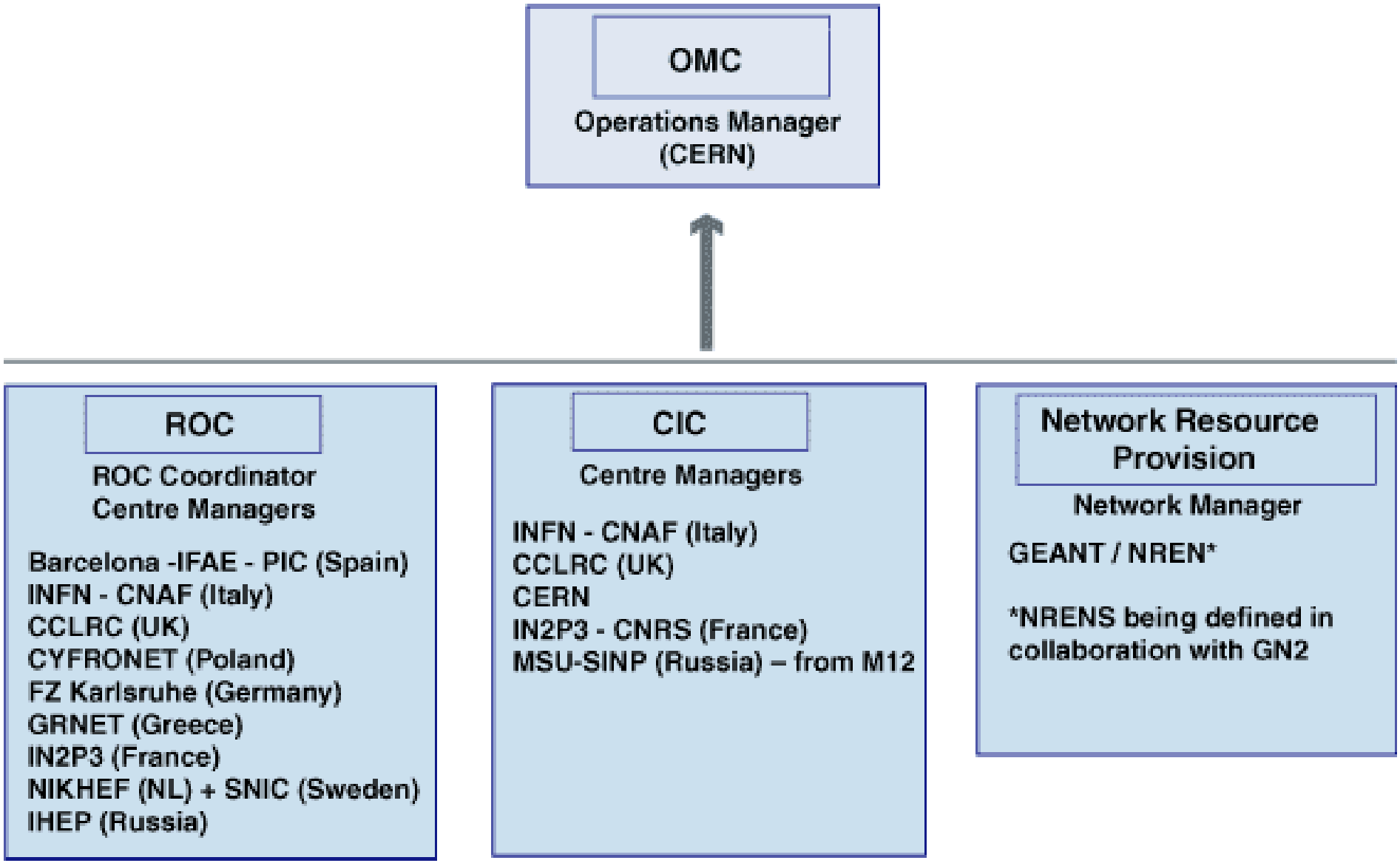
- Initial service will be based on the LCG infrastructure
  - This will be the production service, most resources allocated here
- In parallel must deploy as soon as possible a development service
  - Based on EGEE m/w – even a basic framework
  - This is where functionality is validated before going to production, apps do β-testing, etc.
  - Must be treated as an operational service
  - Needs enough resources – runs at sub-set of production sites, additional resources for scaling tests on request
- Also will need a test-bed system
  - Parallel to production system to debug and resolve problems,
  - Requires sufficient support and resources

- Middleware will be initially deployed on development service
  - Be validated by VOs, operations groups, etc.
- Will move to production service
  - Incremental functional improvements, avoid “big-bang” upgrades

# Roles and staffing

| Federation | Services provided | FTE Requested | FTE Unfunded | Financing Requested |
|---|---|---|---|---|
| CERN | OMC, CIC, Resource Centre | 10 | 10 | 2000 |
| UK+Ireland | CIC, 2 ROCs, 5 Resource Centres | 10.5 | 10.5 | 2064 |
| France | CIC, ROC, 3 Resource Centres | 9.55 | 11 | 1817 |
| Italy | CIC, ROC, ROC Coordinator, 4 Resource Centres | 10.5 | 10.5 | 2059 |
| Northern Europe | 2 ROCs, 7 Resource Centres | 6 | 7 | 1190 |
| Germany + Switzerland | ROC, Support centres, 4 Resource Centres | 6 | 7 | 1186 |
| South East Europe | distributed ROC, 5 Resource Centres | 6 | 6 | 1184.5 |
| Central Europe | distributed ROC, 5 Resource Centres | 6 | 6 | 1184.5 |
| South West Europe | distributed ROC, 5 Resource Centres | 8.85 | 8.85 | 1185 |
| Russia | CIC, distributed ROC, 8 Resource Centres | 7.15 | 22.75 | 551.5 |
| **Totals** | | **80.55** | **99.6** | **14421.5 k€** |

# Grid Operations Management Structure



# LCG and EGEE Operations

- 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
- The ROCs provide local support for Resource Centres and applications
  - Similar to LCG primary sites
  - Some ROCs and LCG primary sites will be merged
- LCG Deployment Manager will be the EGEE Operations Manager
  - Will be member of PEB of both projects
  - ROCs will be coordinated by Italy, outside of CERN (which has no ROC)

# Expected Computing Resources

| Region | CPU nodes Month 1 | Disk (TB) Month 1 | CPU Nodes Month 15 | Disk (TB) Month 15 |
|---|---|---|---|---|
| CERN | 900 | 140 | 1800 | 310 |
| UK + Ireland | 100 | 25 | 2200 | 300 |
| France | 400 | 15 | 895 | 50 |
| Italy | 553 | 60.6 | 679 | 67.2 |
| North | 200 | 20 | 2000 | 50 |
| South West | 250 | 10 | 250 | 10 |
| Germany + Switzerland | 100 | 2 | 400 | 67 |
| South East | 146 | 7 | 322 | 14 |
| Central Europe | 385 | 15 | 730 | 32 |
| Russia | 50 | 7 | 152 | 36 |
| Totals | 3084 | 302 | 8768 | 936 |

| | | | |
|---|---|---|---|
| resource centres | 10 | 20 | 50 |

Month 24

# Resource Allocation Policy

- The EGEE infrastructure is intended to support and provide resources to many virtual organisations
  - Initially HEP (4 LHC experiments) + Biomedical
  - Each RC supports many VOs and several application domains – situation now for centres in LCG, EDG, EDT
- Initially must balance resources contributed by the application domains and those that they consume
  - Maybe specifically funded for one application
  - In 1st 6 months sufficient resources are committed to cover requirements
- Allocation across multiple sites will be made at the VO level.
  - EGEE will establish inter-VO allocation guidelines
    - E.g. High Energy Physics experiments have agreed to make no restrictions on resource usage by physicists from different institutions
- Resource centres may have specific allocation policies
  - E.g. due to funding agency attribution by science or by project
  - Expect a level of peer review within application domains to inform the allocation process

# Resource allocation – 2

- New VOs and Resource centres will be required to satisfy minimum requirements
  - Commit to bring a level of additional resources consistent with their requirements
  - The project must demonstrate that on balance this level of commitment is less than that required for the user community to perform the same work outside the grid
  - The difference will come from the access to idle resources of other VOs and resource centres
  - This is the essence of a grid infrastructure
- All compute resources made available to EGEE will be connected to the grid infrastructure.
  - Significant potential for sites to have additional resources
  - A small number of nodes at each site will be dedicated to operating the grid infrastructure services
- Requirement on JRA1 to provide mechanisms to implement/enforce quotas, etc
- Selection of new VO/RC via NA4
  - In accordance with policies designed and proposed by the Grid Policy forum (NA5)

# Milestones

| Milestones and expected result | | |
|---|---|---|
| MSA1.1 | M6 | Initial pilot Grid infrastructure operational. |
| MSA1.2 | M9 | First review |
| MSA1.3 | M14 | Full production Grid infrastructure (20 Resource Centres) operational. |
| MSA1.4 | M18 | Second review |
| MSA1.5 | M24 | Third review and expanded production Grid infrastructure (50 Resource Centres) operational. |

# Deliverables

| Deliverables | | |
|---|---|---|
| DSA1.1 | M3 | Detailed execution plan for first 15 months of infrastructure operation. |
| DSA1.2 | M6 | Release notes corresponding to MSA1.1 |
| DSA1.3 | M9 | Accounting and reporting web site publicly available |
| DSA1.4 | M12 | Assessment of initial infrastructure operation and plan for next 12 months |
| DSA1.5 | M14 | First release of EGEE Infrastructure Planning Guide (“cook-book”). |
| DSA1.6 | M14 | Release notes corresponding to MSA1.3. |
| DSA1.7 | M24 | Assessment of production infrastructure operation and outline of how sustained operation of EGEE might be addressed. |
| DSA1.8 | M24 | Updated EGEE Infrastructure Planning Guide. |
| DSA1.9 | M24 | Release notes corresponding to MSA1.5 |

DSA1.1 – execution plan – this must be started now, based on use-cases, scenarios, etc. The CIC and ROC managers must contribute to this.

# Network provision (SA2)
# Goals, Objectives and Approach

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- Goals and objectives
  - Define of a scalable methodology for requirements capture, aggregation and modelling, and the generation of service specifications and agreements.
  - Perform operational and management interactions with GEANT and the NRENs for ensuring service provision.
  - Define and build an operational model for interactions between EGEE GOCs (OMC, CICs, ROCs) and NOCs (GEANT, NRENS and local networks used)
- Overall approach of the work
  - Definition of network services through standard modelling process :
    - Filling of SLRs (Service Level Request) by end users and applications
    - Definition of SLSs (Service Level Specification) by SA2, to be implemented by GEANT and the NRENs, in conjunction with JRA4 activity
    - Signature of SLAs (Service Level Agreement) between applications, SA2 and GEANT/NRENs
  - NOC operational procedure study on GEANT and selected NRENS and incremental integration with EGEE GOCs.

# SA2 Milestones and deliverables

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| PM | Deliverable or Milestone | Item |
|---|---|---|
| M3 | **Milestone** MSA2.1 | First meeting of EGEE-GEANT/NRENS Liaison Board |
| M6 | **Deliverable** DSA2.1 | Survey of pilot application requirements on networks, initial SLRs and service classes. |
| M9 | **Milestone** MSA2.2 | Initial requirements aggregation model, specification of services as SLSs on the networks, |
| M12 | **Milestone** MSA2.3 | Operational interface between EGEE and GEANT/NRENs. |
| M12 | **Deliverable** DSA2.2 | Institution of SLAs and appropriate policies. |
| M24 | **Deliverable** DSA2.3 | Revised SLAs and policies. |

# SA2 Management Structure and partners

- UREC will manage SA2 and oversee both SA2 and JRA4 activities, and will be responsible for DANTE and the NRENs liaison

| Participant | Description of Role | FTE (EU funded + unfunded) |
|---|---|---|
| CNRS/UREC | Network Co-ordinator overseeing both service (SA2) and research activities (JRA4); responsible for DANTE and the NRENs liaison.<br>Network resource provision requirements<br>SLR/SLS/SLA definitions<br>Operational model | 1+1 |
| RCC KI | Network resource provision requirements<br>SLR/SLS/SLA definitions<br>Operational interface between RDIG, Russian network providers and EGEE. | 1+1 |
| | **Total (FTEs)** | **2+2** |

# Network research (JRA4)
# Goals, Objectives and Approach

- Goals and objectives
  - Making it possible for Grid middleware to access service levels and bandwidth reservation through an interface to the control plane of the network, in order to create the connections and flows by Grid applications through the dynamic reconfiguration of the network.
  - Creating tools that allow measurements of network characteristics to be presented from a number of perspectives and for various purposes, allowing network performance to act as an input into the way Grid middleware organises and allocates resources to perform a Grid job.
- Overall approach of the work
  - Tight collaboration with DANTE and the NRENs, especially through future GN2 project and potential network oriented FP6 projects (GRANDE, GARDEN, INVITED..), to implement bandwidth allocation and reservation.
  - Definition and deployment of network performance monitoring and diagnostic tools, via standardization of monitoring interfaces (OGSA) and integration of grid monitoring with GEANT and NRENs.

# JRA4 Deliverables

| PM | Deliverable | Item |
|---|---|---|
| **Bandwidth allocation and reservation** | | |
| M6 | DJRA4.1 | Specification of interfaces (to network control plane and to global resource reservation middleware) for bandwidth allocation and reservation. |
| M21 | DJRA4.2 | Implementation of pilot single-domain bandwidth allocation and reservation service in the network core (GEANT and NRENs). |
| M24 | DJRA4.3 | Report on bandwidth allocation and reservation in EGEE. |
| **Monitoring** | | |
| M9 | DJRA4.4 | Definition of standardised network measurement query/response interfaces, with adequate authorization. |
| M21 | DJRA4.5 | Service to supply network performance information to resource brokering middleware. |
| M24 | DJRA4.6 | Report on network monitoring within EGEE. |
| **IPv6** | | |
| M18 | DJRA4.7 | Report on implications of IPv6 usage for the EGEE Grid. |

# JRA4 Management Structure and partners

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UCL will manage JRA4 and report to the SA2 Activity

| Participant | Description of Role | FTE (EU funded + unfunded) |
|---|---|---|
| UCL | Management of the activity<br>Bandwidth Allocation and Reservation task | 1.5+1.5 |
| CNRS/UREC | Network performance monitoring and diagnostic tools | 1+1 |
| DANTE | Bandwidth Allocation and Reservation task<br>Network performance monitoring and diagnostic tools | 0.5+0.5 |
| DFN | Network performance monitoring and diagnostic tools | 0+0.5 |
| | **Total (FTEs)** | **3+3.5** |

# EGEE Middleware Activity

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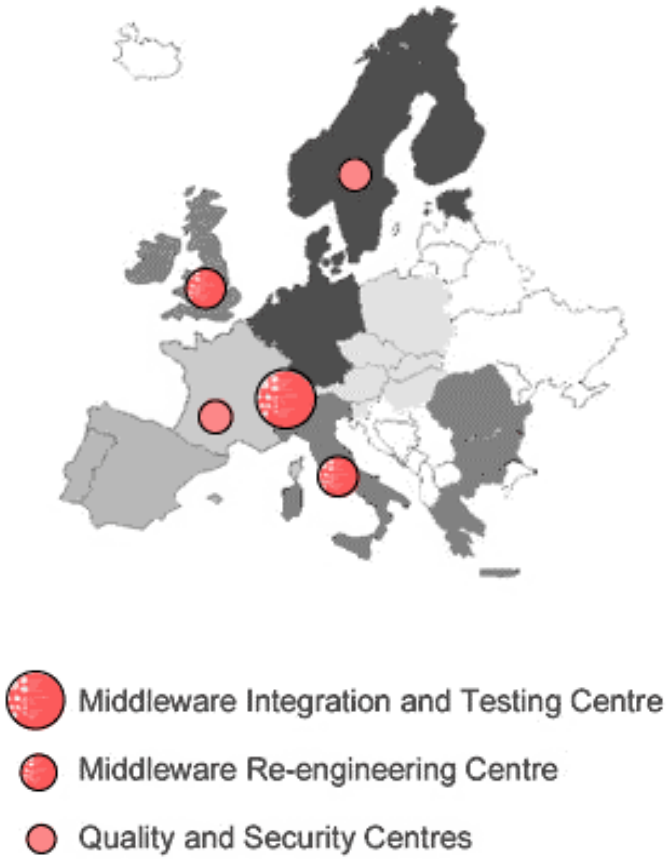
- Hardening and re-engineering of existing middleware functionality, leveraging the experience of partners
- Activity concentrated in few major centers
- Key services: Resource Access
  - Data Management (CERN)
  - Information Collection and Accounting (UK)
  - Resource Brokering (Italy)
  - Quality Assurance (France)
  - Grid Security (Northern Europe)
  - Middleware Integration (CERN)
  - Middleware Testing (CERN)



# Goals and Objectives

- Provide robust, supportable middleware components
  - Select, re-engineer, integrate identified Grid Services
  - Evolve towards Services Oriented Architecture
  - Adopt emerging OGSI standards
  - Multiple platforms
- Selection of Middleware  based on requirements of
  - The applications (Bio & HEP)
    - In particular requirements are expected from LCG's ARDA & HepCALII
  - The Operations
    - E.g. deployment, updates, packaging, etc..
- Support and evolve of the middleware components
  - Evolve towards OGSI
  - Define a re-engineer process
  - Address multiplatform, multiple implementations and interoperability issues
  - Define defect handling processes and responsibilities

# Overall Approach

- Support the components from PM 0
  - Start with LCG-2 code base as used in April'04
  - Evolve towards OGSI
  - Allow for component per component deployment
- Aim at continuous Integration and Testing
  - Avoid big-bang releases
  - Allow for selected components to be deployed and used
- Leverage on SPI Tools
  - Common Tools with LCG
  - Nightly Builds
  - Nightly Tests
- The two major software release deliverables are snapshots
  - Defined base for reviews
- Quality Assurance
  - Use Q&A processes and methods as define by JRA2

# Some issues to be addressed

- Reliability and resilience
  - Allow for failure free operations for long periods
  - Avoiding manually restarts
- Robustness
  - Be able to handle abnormal situations
  - Ensure some level of fault tolerance
- Security
  - Restricted access to resources including data
  - Comply to security infrastructure
- Scalability
  - Scale up to requirements defined by Operations (SA1)
- Maintainability, usability, supportability
  - Documentation, packaging, defect handling processes,….
- Standardization and service orientation
  - Comply to OGSA/OGSI
  - Ensure interoperability with other implementations

# Milestones

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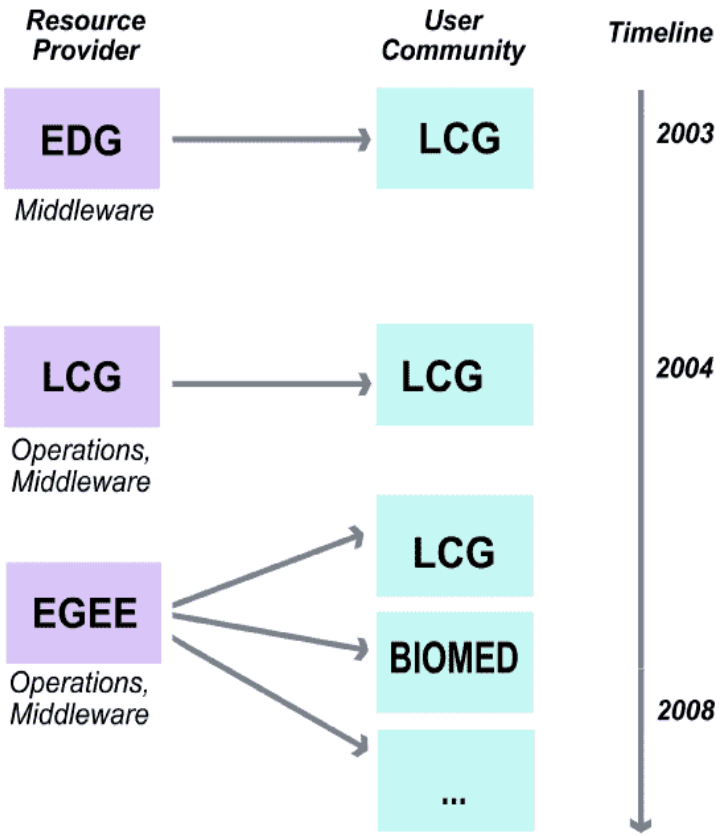
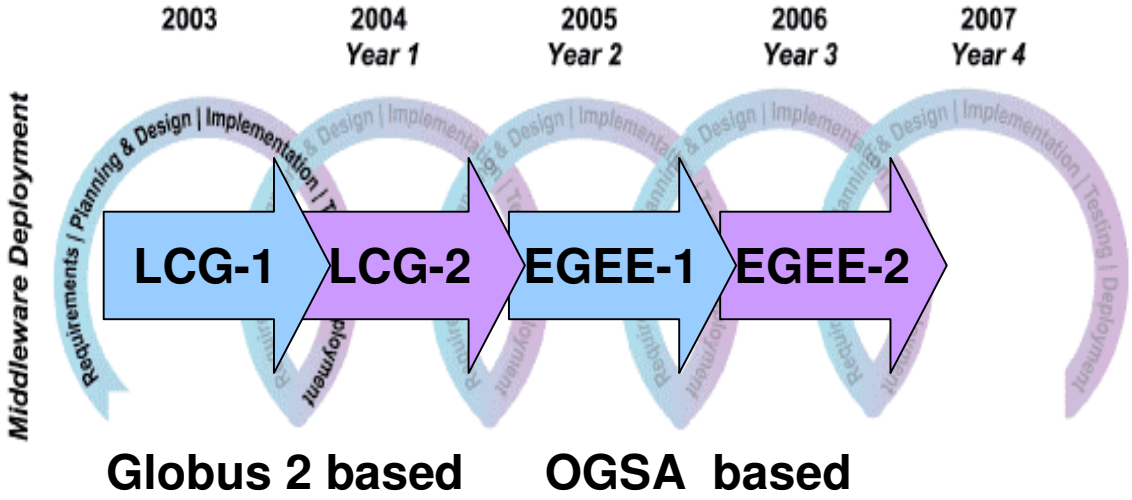
| Milestone | Month | Description |
|---|---|---|
| MJRA1.1 | M3 | Tools for middleware engineering and integration deployed |
| MJRA1.2 | M3 | Software cluster development and testing infrastructure available |
| MJRA1.3 | M5 | Integration and testing infrastructure in place including test plans (Rel 1) |
| MJRA1.4 | M9 | Software for the Release Candidate 1 |
| MJRA1.5 | M10 | Integrated Release Candidate 1 enters testing and validation period (Rel 1) |
| MJRA1.6 | M18 | Test plan for core Grid components and overall Integration (Rel 2) |
| MJRA1.7 | M19 | Software for the second release candidate available |
| MJRA1.8 | M20 | Release Candidate 2 enters testing and validation period (Rel 2) |

# Deliverables

| Deliverable | Month | Nature | Description |
|---|---|---|---|
| DJRA1.1 | M3 | (Document) | Architecture and Planning (Release 1) |
| DJRA1.2 | M5 | (Document) | Design of grid services (Release 1) |
| DJRA1.3 | M12 | (Software) | Software and associated documentation (Release 1) |
| DJRA1.4 | M14 | (Document) | Architecture and Planning (Release 2) |
| DJRA1.5 | M15 | (Document) | Design of grid services (Release 2) |
| DJRA1.6 | M21 | (Software) | Software and associated documentation (Release 2) |
| DJRA1.7 | M24 | (Document) | Final report |

# Middleware deployment in EGEE

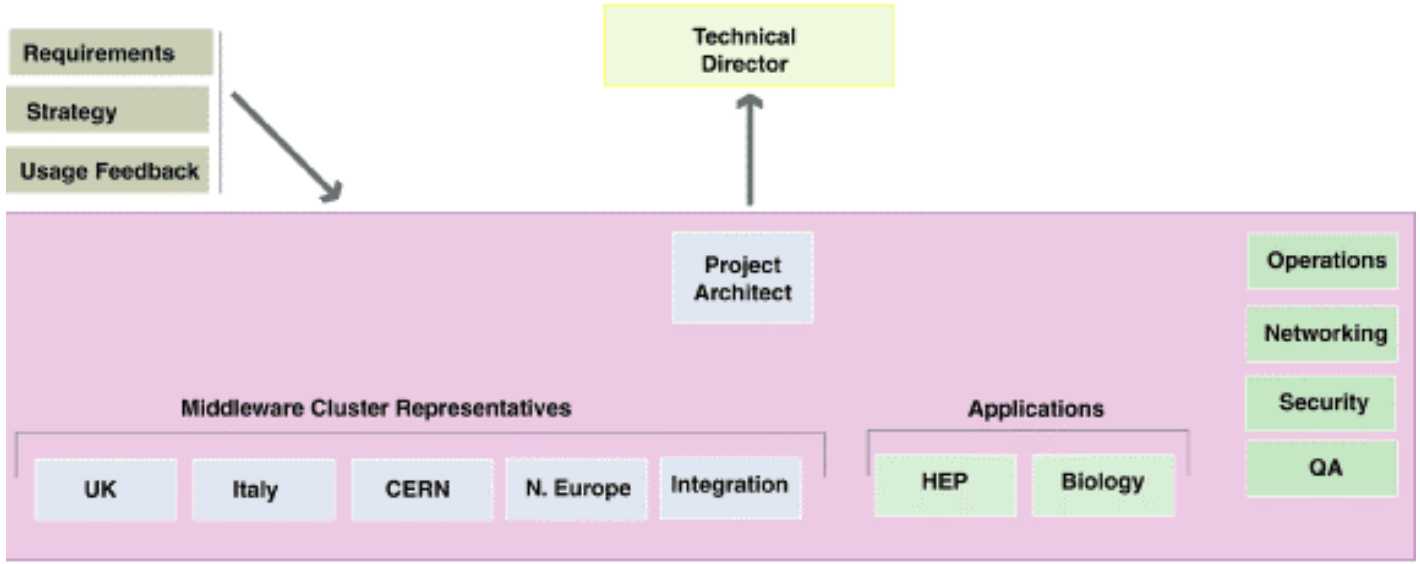



Strong links already established between EDG and LCG and this approach will continue in the scope of EGEE

# Architecture Team

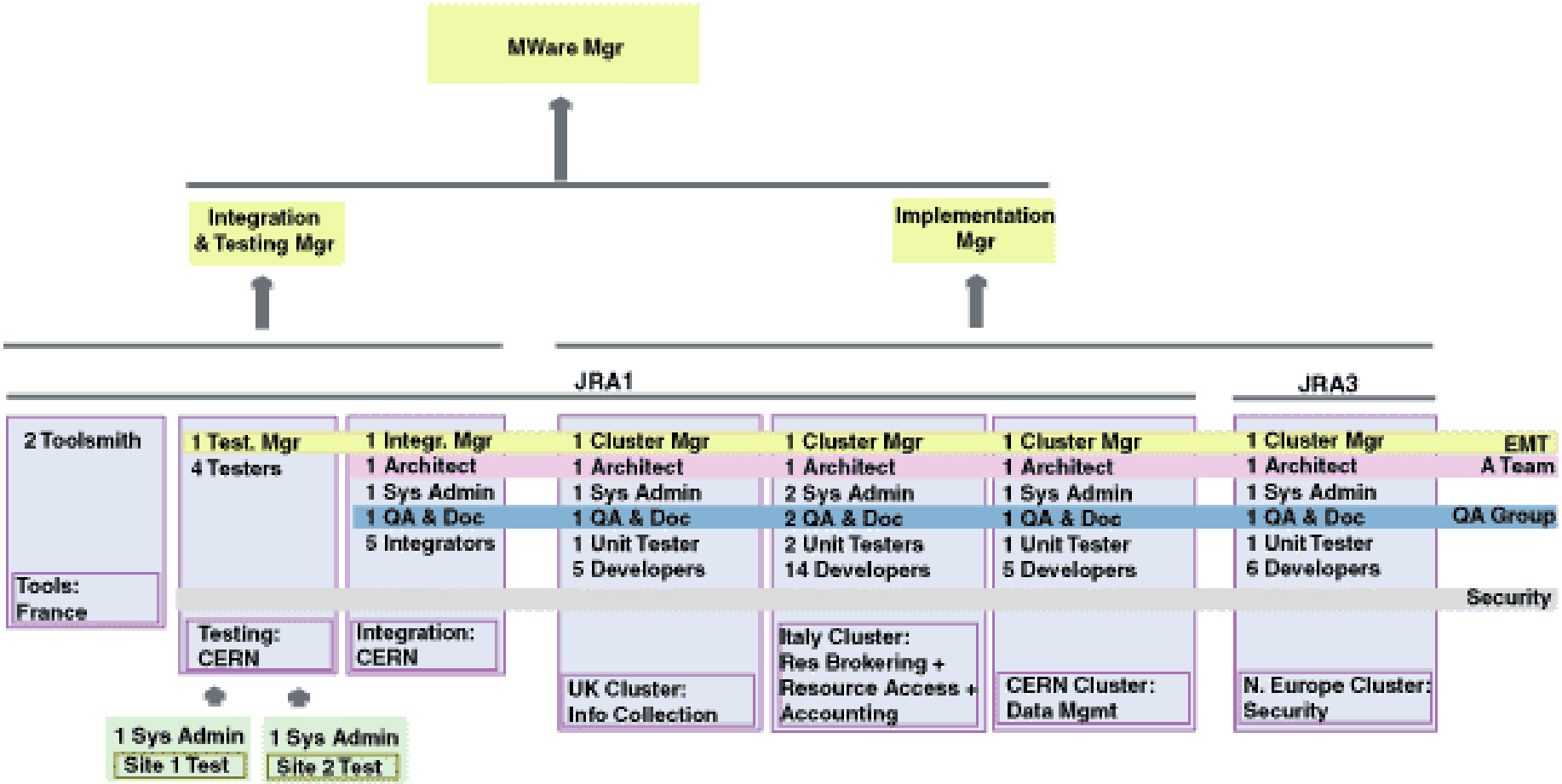
- Defines architecture and planning
- A draft of System Requirements, Architecture, Short list of middleware components should be available shortly after project start
- Takes input from Applications and Operations
- Define the list of components to be re-engineered
- Documents established agreements with providers
- Each software cluster has an architect



# Engineering Management Team

- Middleware Engineering Process Management
  - Ensure Software clusters follow Architecture & Design rules
  - Ensure adherence to Software Engineering Process
  - Composed of
    - Middleware Manager
    - Chief Architect
    - Implementation group Manager
    - Implementation clusters Managers
    - Integration & Testing Manager
    - Quality & Documentation person

# Management Structure



# Partners & efforts requested

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| JRA1 | | |
|---|---|---|
| **Participant** | **Middleware Task/Activity** | **Professional FTE (EU funded + unfunded)** |
| **CERN** | | |
| CERN | Data Management, testing and integration, overall coordination | 16+16 |
| **Italy/Czech Republic** | | |
| INFN | Resource Access, Resource Brokering, Accounting | 6+6 |
| Datamat S.p.A. | Resource Brokering, Accounting | 6+0 |
| CESNET | Logging and Bookkeeping | 2+2 |
| **UK-Ireland** | | |
| CCLRC | Information Collection & Retrieval | 5+5 |
| **USA** | | |
| UChicago | VDT Support | 0+N/A |
| USC | VDT Support | 0+N/A |
| UW-Madison | VDT Support | 0+N/A |
| **France** | | |
| CNRS | Test tools support group | 0+2 |
| **JRA3** | | |
| **Northern** | | |
| KTH/PDC | Security Coordinator | 1 + 2 |
| UvA | Security group for the National VL and Grid project | 2 + 2 |
| UH.HIP | Security Group | 1 + 1 |
| UiB Parallab | Secure software center (Selmer Center). HPC center. | 1 + 1 |

# Objectives of Security Activity (JRA3)

Enable secure operation of a European Grid infrastructure by proposing and developing:

- security architectures
- frameworks and policies

to allow deployment of Grid on a production scale.

# Plan for the first year

- **PM3:**
  - users requirements survey
  - set up of the Policy Management Authority (PMA) for European CA's
- **PM6:**
  - initial recommendations for OGSA SEC reengineering
  - security operational procedures and incident handling
  - Global security architecture document.
- **PM9:**
  - site access control architecture
  - recommendations for secure credential storage
- **PM12:**
  - security operational procedures will be ready
  - framework for the policy evaluation accepted in GridPMA policies and the determination of CA service authorities for EGEE

# Management Structure and Partner Summary

- **Security Head**: Fredrik Hedman, Stockholm
- **Software Development Cycle Team** (4 FTE):
  Cluster Manager and Architecture (Stockholm)
  Sys Admin (Bergen)
  QA and doc (Amsterdam)
  Unit Tester (Helsinki)
- **Security Architecture and Design Team** (7 FTE):
  Basic Security  Policy and Incident Response; CA Trust Establishment and Policy Management (Amsterdam)
  VO Definition, Rights Delegation, and Scalability (Amsterdam)
  OGSA Web services security and site service access, control and auditing (Stockholm, Helsinki)
  Site Usage Control and Budgeting; Secure Credential Storage (Stockholm, Bergen)

# JRA2: Quality objectives

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- Quality assurance in EGEE is the planned and systematic set of activities that ensure that processes, products and operation services conform to EGEE requirements and to the required level of services.
- Quality assurance will be present right from the start in **all activities** within the EGEE project and integrated in each project activity.
- Quality Assurance will be a very practical activity and an iterative process with the continuous improvement of the standards or procedures in order to improve the global quality system.

# QA overall approach to the work

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The QA organisation reflecting the approach to the work is composed of:

- JRA2 Quality Assurance Management team (QAM): The role of the QAM is to define in collaboration with the relevant activities the overall **standards**, **procedures** and **metrics**; to make sure they are applied; to evaluate metrics; to report and to propose progress factors.

- A Quality Assurance Group (QAG): The Quality Group is composed of QA representatives from each activities. The main role of QA representatives is to ensure that quality measures as agreed are applied inside their activity group.

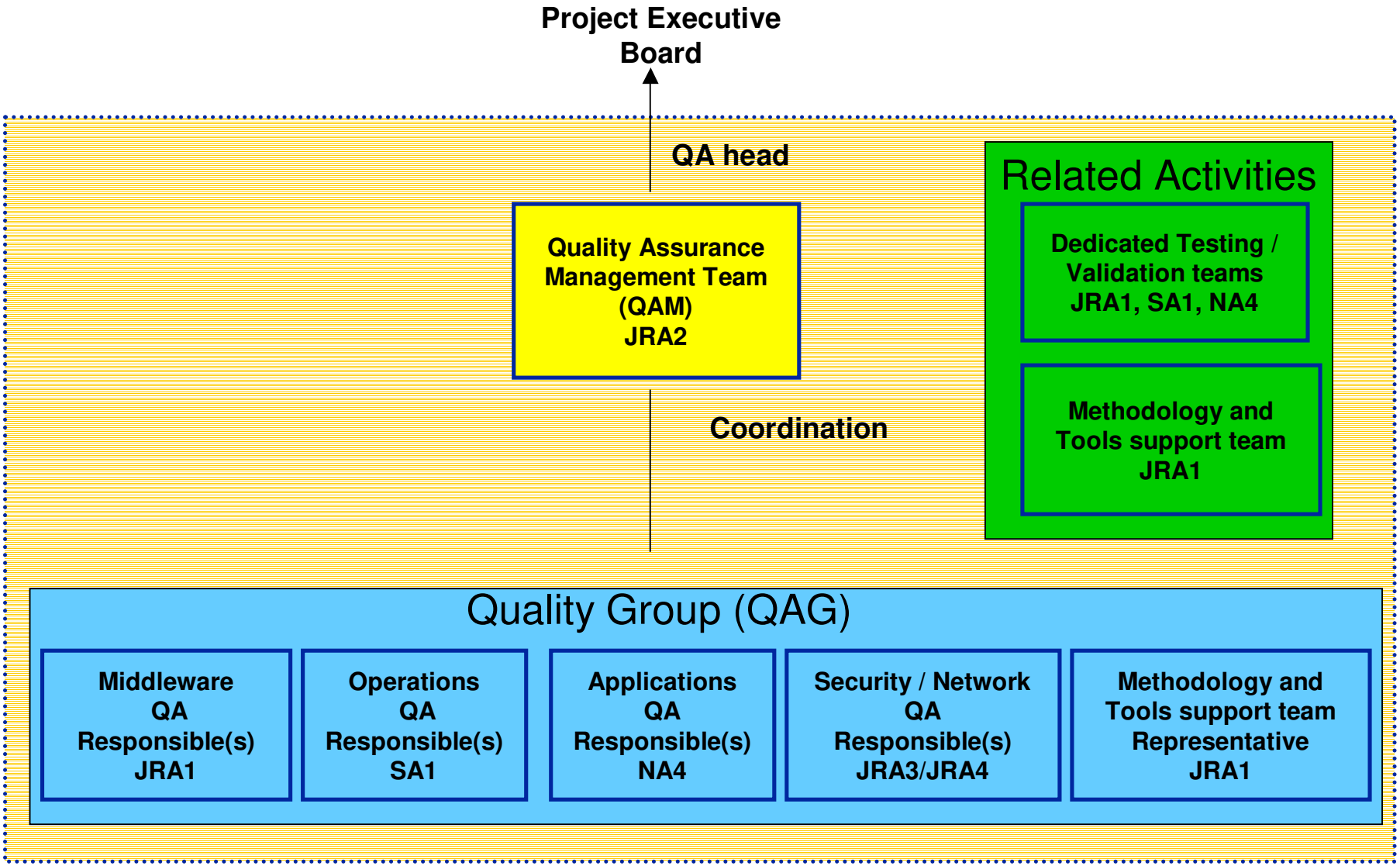
  The **execution of the verification and testing** activities is the responsibility of the individual activities.

  QAM coordinates the Quality Group.

- **Dedicated** testing teams under: JRA1 (middleware tests and integration), NA4 (Applications Validation), SR1 (Operations Grid Validation).

- A **dedicated** Methodology and Tools support team hosted by JRA1.

# QA organisation



# JRA2 Major milestones & deliverables

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| Month | Deliverable | Item |
|---|---|---|
| 4 | DJRA2.1 | Quality Plan for EGEE |
| 5 | MJRA1.1 | Internal QA website deployed |
| 12 | DJRA2.2 | 1st Report on EGEE Quality Status, including software and Grid operations and plans for the second year. |
| 24 | DJRA2.3 | 2nd report on EGEE Quality Status, including software and Grid operations |

# JRA2 structure

JRA2 Quality Assurance Management team

| Partners | Activity | FTE (F+UF) |
|---|---|---|
| CSSI (France) | Quality management and coordination. QA head in the Project Executive Board | 1 |
| CNRS (France) | Quality standards, procedures and verifications | 1+1 |

- CSSI is a service provider company in the development integration and operation of secured IT infrastructures. CSSI is responsible for GEANT network operation, with expertise in deployment, quality, operation and security issues. CSSI is also responsible for the Quality Assurance activity of the EU DataGrid project.
- CNRS played a major role in DataGrid in particular concerning integration, deployment and operation activities.

# EGEE Networking (dissemination) Activity

- Dissemination and outreach
  - Lead by TERENA
- User training and induction
  - Lead by Unv Edin. (NeSC)

- Application identification and support
  - Two pilot application centers (for high energy physics and biomedical grids)
  - One more generic component dealing with longer term recruitment and support of other communities

- Policy and International cooperation

**rely on a supporting network in the partner regions**

# Summary

- EGEE represents a change of emphasis from grid development to grid deployment build on the results of existing projects such as DataGrid and others
- A path for providing a continuously available grid service is established
  - EDG, LCG, EGEE
- Grid middleware will be re-engineered to produce a OGSI based implementation addressing the needs of the applications
- The final deliverables of the DataGrid project are extremely important as input to EGEE