Joint Research Unit Management
Analysis of RoGRID Consortium Experience

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Abstract: This article presents the experience of managing international research projects by using Joint Research Units (JRU). Analyzing its internal organization, management and involvement in research projects, the article presents a SWOT analysis on the consortium activity. The conclusions of this analysis tackle legal and administrative issues and present the consortium most important contribution on GRID development in Romania.

Keywords: Joint Research Unit, Research projects management, National Grid Initiative, research consortium, GRID, GRID infrastructure, SWOT analysis, RoGRID.

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1. Introduction

In the last 10 years, at an international level, the numerous initiatives and projects have proved the necessity of the GRID technology and the feasibility of applications based on this.

Taking into consideration the international trends, in 2001 the European Commission decided to promote WWG - World Wide Grid technology for scientific researches and cooperation in various domains through the development of middleware and test beds; the launching of researches in the infrastructure's domain through GRID initiatives at a national level. Many EU countries (such as Great Britain, France, Spain, Germany, Italy, etc) made efforts to develop a GRID infrastructure by financing research projects in this direction.

Also, the Framework Programme 6 included in its objectives the Grid infrastructure development in Europe and the Grid technologies as support for the approach of specific applicative domain too.

2. RoGRID Experience

In 2002, seven organizations from Romania joined, creating a consortium entitled RoGRID (Romanian Grid). These institutions were: National Institute for R&D in Informatics – (I.C.I.) Bucharest, University "Politehnica" of Bucharest, University of Bucharest, National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH) Bucharest, National Institute for Aerospace Research, Bucharest (INCAS) Bucharest, Institute of Nuclear Researches - Pitesti and Siveco Company Bucharest.

As it is mentioned in Overall strategy for Grid development in Romania, elaborated by the representatives of the above mentioned institutions, "the establishment of GRID consortium was the first step toward establishing a nation-wide scientific community, capable to sustain the professional development of the domain. The accord of establishment mentions clearly the necessity of a permanent enlargement of the consortium's structure by including other representative collectives from research, industry and education".

As a result of national efforts, and the results obtained in different projects, the RoGRID consortium was involved as "Romanian partner" in two research projects entitled Enabling Grids for E-sciencE (EGEE) and South Eastern European GRid-enabled e-Infrastructure Development (SEE-GRID). The projects were financed by the European Union – FP6 and the RoGRID consortium had to act as a "unique voice" in relation to the leader of the projects – CERN.

By unanimous agreement of all consortium members, ICI Bucharest has taken a leadership role.

Both European research projects EGEE and SEE-GRID have been continued with EGEE II and SEE-GRID II, in fact two new projects financed by the EU.

The Enabling Grids for E-sciencE project brings together scientists and engineers from more than 240 institutions in 45 countries world-wide to provide a seamless Grid infrastructure for e-Science that is available to scientists 24 hours-a-day. It provides the world's largest Grid infrastructure of its kind, and is Europe's flagship Research Infrastructures initiative, supporting numerous scientific fields and applications.

The EGEE-II Project is mainly focused on three areas:

- Networking Activities (NA) are the management and coordination of all the communication aspects of the project
- Service Activities (SA) are the support, operation and management of the Grid as well as the provision of network resources
- Research Activities (JRA) concentrate on Grid research and development

The Romanian Consortium participates in the following activities: NA2 (Information Dissemination and Outreach and includes tasks such as running the external website, organizing conferences and managing the distribution of publications.), NA3 (User Training and Induction and includes tasks such as organizing on-site training and producing training and course material.), NA4 (Application Identification and Support and includes tasks such as supporting applications and identifying new users.) and SA1 (European Grid Support, Operation and Management and includes tasks such as grid monitoring and control and resource and user support.)

As it is mentioned on the official site of the project, "SEE-GRID II intends to provide specific support actions to pave the way towards the participation of the SE European countries to the Pan-European and worldwide Grid initiatives. It aims to deliver an eInfrastructure to serve the research and educational needs of the scientific communities and end-users that will be sustainable both at national and regional level in its operation and expansion, will have a multi-disciplinary nature in encouraging and supporting grid applications among diverse technology domains, and will comprise of multiple geographically-distributed resource sites per South Eastern Europe country thus engaging an equally-contributing collaborative group of research and academic groups per country".

The international research activity carried on by RoGRID had to be managed so that all the partners may work in a coherent manner in achieving the objectives of the projects, even if in the contract between ICI as project leader for Romania and CERN as project coordinator there were no references to the obligations of the other members of the consortium.

The only rules implemented at the coordinator level were the requirement that all the work done by each member of the team (including partner's members) should be listed in a report validated by the project manager at ICI.

3. Consortium Organization

This situation was new to the Romanian researchers and institutions, and a new model of organization and management had to be implemented. The RoGRID consortium began to act as a Joint Research Unit (JRU).

In order to act as an "unique voice", the JRU activities had to be thought and organized upon specific procedures, in accordance with the tasks/components of EGEE and SEE-GRID projects. At the basis of the JRU organization and coordination are the following documents:

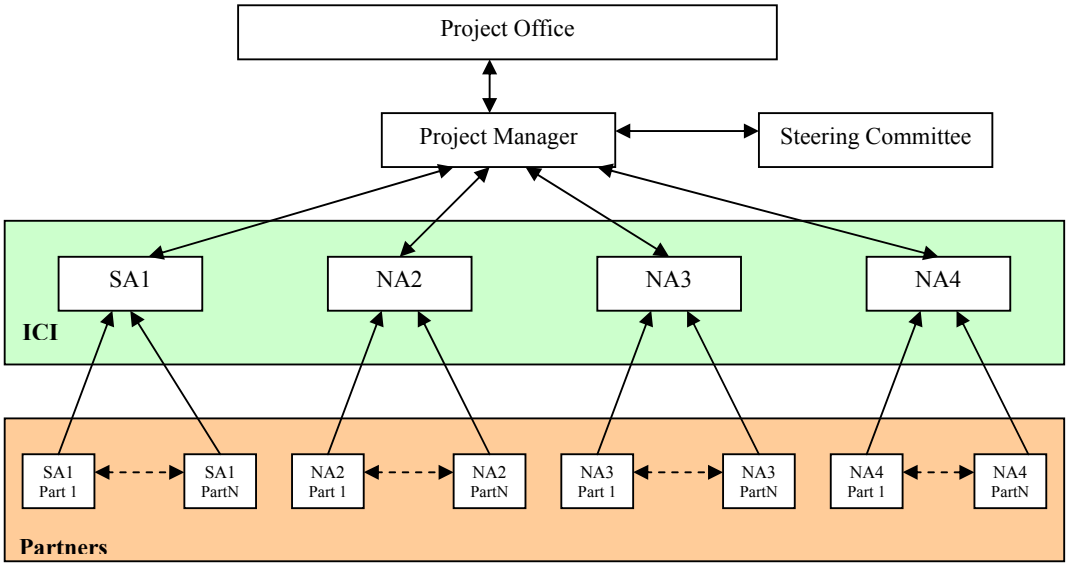
- EGEE contract
- EGEE Consortium Agreement
- RoGrid JRU Consortium Agreement
- Bilateral contracts between ICI and each JRU partner
- Periodic activity and financial reports

The RoGRID JRU has a well established internal organization, as follows:

- A leader for each project component / activity appointed by ICI as the EGEE contractor. From each JRU partner a person is in charge for each project component

All together they form the coordination team for that project component, being in charge with:

– planning and control of the JRU activity for the given component according to project objectives,
– execution of the allocated budget,
– validation of the monthly reported activity by each project team member.



The figure represents the task management inside the consortium.

The communication between the activity coordinators and the rest of the international partners involved in the same components is done through the EGEE mailing lists for their component.

Of course, project team members may participate in more than one project component, if needed.

4. Consortium Coordination

The Romanian JRU is coordinated by a body called JRU Steering Committee (JRU-SC). This committee meets at least quarterly to discuss matters of common interest. The coordinators of the JRU are the project manager from ICI and the activity leaders as members of the JRU technical committee that reports to the JRU coordinator.

All the major decisions regarding JRU participation in the project are made by the Steering Committee:

- Negotiation of the JRU Consortium Agreement and related contracts
- Local infrastructure development strategy
- Common activity planning in training and dissemination areas
- Periodic activity and budget execution assessment
- Any decision making requirement generated by project activity

The responsibilities of the JRU coordinator range from scheduling SC meetings, taking corrective actions based on control information provided by activity leaders, to negotiation procedures at the EGEE II project start (Analysis of tasks allocation and budget repartition, drafting and distributing a proposal among JRU partners, preparing JRU contracting documents according to SC meeting recommendations) and to implementing the SC decisions.

Like in any other organization, communication is a crucial factor that influences the performance of the JRU, its ability to reach the objectives and efficiently carry-on its duties.

So, special attention was paid to this aspect. The JRU appointed a Project assistant with the following responsibilities:

- to receive and distribute messages
- to keep informed the project manager and interested parties on current hot subjects
- to organize JRU-SC meetings and to write minutes of these events

- to keep contact with financing authorities for additional local funding
- to prepare draft contracts at the JRU level
- to keep informed the project manager about reported activity reporting at the JRU level
- to administrate the contact information (e-mail, phone) at the project level
- to disseminate the Steering Committee decisions

5. SWOT Analysis on Consortium Activities

After 4 years of activity, the presented JRU model, its organization, mission and activities, we can analyze it using the SWOT method.

Strengths

- Compliance with the "unique voice" principle in relation with the EGEE coordinator
- Involvement of specialists from different institutions
- Collaborative work level never achieved before
- Joint contribution to Grid infrastructure operation at the national level
- Developing new Grid projects in the JRU consortium framework financed by national research funds
- Active and correlated participation in drafting the National Grid Strategy based on the EGEE project expertise
- Coordinated actions to stimulate new teams on Grid to achieve a critical mass of researchers from large academic centers all over the country (Bucharest, Iasi, Timisoara, Cluj-Napoca)
- Improving interest and willingness of other research institutions and private companies to join the JRU activity

Weaknesses

- Not enough involvement of JRU partners in the consortium work:
- Uneven effort in coordination activities at the JRU level between coordinator and partner institutions
- Overlaps on some activities due to poor communication among JRU partners
- No clear indicators or criteria to support some evaluation / validation and corrective decisions
- Managerial efforts to coordinate very well-known and highly competent research teams distributed in different institutions at the national level
- Negotiation of the Consortium Agreement regarding distribution of project tasks and resources
- Correlation (fitting) among different cost models and execution fees of the participant

Opportunities

- Exploit the potential synergy of research institutions for getting national financed projects based on competition framework
- Better well-known Romanian research community in private market
- Promote the Romanian Grid knowledge and expertise towards regional research communities (e.g. Moldova)
- Improved capability to offer high quality Grid services to the end-users based on joint competences of the JRU team for each activity (SA1, NA2, NA3, NA4)
- Building up of a group of experienced researchers in the field
- Involvement of the consortium specialists in national projects and strategies (National Grid Initiative)

Threats

- Probability to loose coordinating control due to the tendency to develop independent work at JRU partner level
- Loosing some of the activities through their assignment to other institutions (outside the consortium)
- Lack of national financing dedicated to the development of GRID systems
- Little interest of the private and administrative sector in the services provided by

GRID technologies

- Lack of adequate technical support on request
- The development of GRID systems by large IT companies
- Lack of confidence on GRID infrastructure as compared to supercomputers and data/computing centers

6. Conclusion

The efforts of the RoGRID consortium had some noticeable results, such as the drafting of the Strategy for Grid Development in Romania (2003), the successful participation of five member organizations (ICI, UB, UPB, IFIN and INCAS) as a JRU in FP6-FP7 projects EGEE and SEE-GRID and in grid projects funded by National Programmes, the organization of several joint training events at the consortium level, setting up and running 8 sites in EGEE/SEE-GRID infrastructures as a basis for a national grid infrastructure, and participation in the Working Group of the National Grid Initiative, established in July 2006 according the decision of the Ministry for Education and Research, National Authority for Scientific Research.

As a result of this analysis we can conclude that:

- the JRU cannot be an efficient operational unit without a legal framework
- the JRU needs institutional support and a national recognition from central administrative bodies
- it has to promote national level initiatives on behalf of scientific community
- the JRU has to become a "heard voice" in the scientific community by concrete action
- JRU model represents the European model on research activity; this model must be implemented not only in European projects, but also for national research projects financed by national. funds

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