e-IRG
e-Infrastructure
Reflection Group

Proposed
e-IRG recommendations
& decisions

Finnish Presidency

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Final version

Contents

Recommendations proposed for e-IRG endorsement

Usage policies

Background:

> *Usage Policies try to regulate the use of the e-infrastructure and to address legal and operational concerns by means of a 'contract' to which the user must agree before she or he is allowed to use any service or facilities. The aim is to enable interoperability between the infrastructure and other national/international infrastructures, to define the activities of the virtual organisations, to inform users and to protect the operators of services and owners of resources.*

> *The Joint Security Policy Group referred to in the recommendation started out as the LCG Security Group in 2003 advising and making recommendations on matters related to the security of the LHC (Large Hadron Collider) Computing Grid. In May 2004 the EGEE project joined, and the group continued under the name Joint Security Policy Group. More recently there has been increased involvement and collaboration with the Open Science Grid in the United States.*

Proposed text for recommendation:

> **The e-IRG recognises the work of the Joint Security Policy Group (JSPG) in their search for a widely deployable common Grid Acceptable Use Policy (AUP). The EC and the member states are encouraged to direct relevant national or EC projects towards participation in this process (of developing a common Grid AUP) to achieve increased compatibility among infrastructure islands, which may facilitate future convergence. The JSPG is encouraged to manage this process and facilitate the resolution of any outstanding issues.**

e-IRG commitment required

- *Maintaining regular contact with JSPG*
- *Offer support e.g. by including AUP topic in workshops and White Papers.*

Education and Training

Background:

> *The purpose of developing Education and Training policy is to increase significantly the rate, quality, efficiency and extent of education and training. This should accelerate the exploitation of e-infrastructure and increase the benefits for EU citizens. Awareness raising, management and user introductions, technical training and the development of concepts and culture through education are all necessary. They will equip the citizen to appreciate the potential of e-infrastructure and to understand and develop new advances in all disciplines. They will also increase the capacity to develop and deliver e-infrastructure and its applications.*

> *Investment in education and training is urgently required to reap the benefits from the EU lead in e-infrastructure. We need to disseminate rapidly the knowledge that has already been built about the exploitation of e-infrastructure to a much wider workforce and potential user community. We need to enable EU citizens to make good judgements about the value of e-infrastructure for their education, businesses and their personal well-being.*

Proposed text for recommendation:

> **The e-IRG recommends that the EC support the launch of an ERA–wide activity to coordinate education and training efforts, with an emphasis on the efficient exploitation of e-Infrastructures by EU citizens. It is recommended that investments in education and training be adjusted in accord with the findings of this coordination activity.**

e-IRG commitment required

- *Define a clear role for the e-IRG Task Force on Training and Education – and its relationship with regard to the proposed ERA-wide activity*
- *Volunteer to act as a contributor in the planning and running of this coordination activity*
- *Advise member states and EC on budgets to be allocated - and if necessary coordinate the proposed ERA-wide activity*

Grid economy – Allocation and accounting

Background:

The existence of suitable incentives for resources to be shared with others is essential for the sustainable growth of e-infrastructures. Although this may be thought of as a 'business model', monetary rewards will in some cases not be the right choice. These incentives should not be limited to single administrative domains, scientific applications or virtual organisations. Much more knowledge is needed, and therefore knowledge needs to be actively shared across Europe.

The basic assumption behind the recommendation is that a single global e-infrastructure-wide accounting implementation is unlikely to emerge soon due to the wide variety of accounting methods used on various levels and which may be dictated by funding agencies, regulators or internal (accounting) policies of the organisation owning the resources. Thus the pragmatic road taken is to make sure that best practices are shared and potential interoperability can be investigated wherever possible. A first step is to help people exchange information about the methods they use and encourage groups seeking funding for activities in related fields to document factors related to interoperability.

Proposed text for recommendation:

> **The e-IRG deems it important that current fragmented efforts (projects, facilities, initiatives) evolve into a rich service-oriented e-infrastructure economy that is both attractive and sustainable and can support a wide variety of applications, services and user communities of all sizes. The e-IRG recommends that member states and the EC promote and actively facilitate sharing of information and best practices related to allocation, accounting and economic models for e-infrastructure resources and services.**

e-IRG commitment required

- *Being ready to issue further recommendations, based on monitoring the activities in the area, for example related to funding and support of such initiatives on European level.*

HPC in Europe Task Force (HET)

Background:

> *The High Performance Computing in Europe Taskforce is formed by representatives of European countries interested in shaping the European High Performance Computing Infrastructure. Currently HET is setting the framework of a European policy in the area of High Performance Computing. HET reports to the countries represented in the current Taskforce.*

Proposed text for recommendation:

> **The e-IRG acknowledges the formation of the HPC in Europe Taskforce (HET) and the important role assigned to it in the ESFRI roadmap. e-IRG invites HET to exchange its views with the e-IRG, especially on the long-term perspective for the policy framework on the European Supercomputer Infrastructure.**

e-IRG commitment required

Being prepared to include HET-related issues in the agendas of future workshops and meetings.

Supercomputing

Background:

The present organisation of High Performance Computing (HPC) in Europe is based on the integration of leading national supercomputing services. Typically, national supercomputing infrastructures operate leading systems that are in the tens of teraflops range, and the natural evolution of peak performance at constant price will lead to a few systems in the hundreds of teraflops range emerging in the next few years. This context does not look sufficient to meet grand computational challenges in research and technology in a way that could match the strong drive of the USA and Japan, where petascale computational systems are planned for as early as 2008.

In the previous white paper a 'two-tier' architecture for the global European HPC services was already proposed: a Tier One (T1) of a few petascale systems strongly integrated with the Tier Two (T2) of leading national terascale systems in a unique supercomputing environment, with a unique and precise global operational model.

Proposed text for recommendation 5a:

a. The e-IRG recommends that the EC and countries represented in the e-IRG institute a policy and funding framework allowing the creation of a number of world-class HPC systems (petascale and beyond) to become available for European research and development.

As scientific computing use grows in complexity (number of processors, number of cores, memory, interconnection network), special efforts are needed to optimise and tune the applications for efficient operation, with the understanding that not all applications are adapted to run on one specific platform. It is not always possible or reasonable to port existing software to new platforms. In many cases, requirements for specific and special development may become very important. Development of new models and computational methods should go together with the deployment of new, leading petascale systems.

Proposed text for recommendation 5b:

b. The e-IRG strongly encourages the EC to fund the necessary software and middleware development to work towards a tight integration of European HPC systems, national computing infrastructures and existing Grid projects into a European HPC service.

e-IRG commitment required

- *Being prepared to actively participate in the discussions with the related stakeholders (HET, ESFRI, EC, Member States, etc.):*
- *On the one hand, bringing in aspects related to the organisations representing the "lower tier" of this infrastructure;*
- *And on the other, facilitate the search for ways to finance and manage the "top tier" of this infrastructure (petascale systems), for example through a co-funding mechanism.*

Legal issues

Background:

> *Ever since the 1980s, legal scholars and practitioners have been paying significant attention to the current and potential legal aspects of information technology. Starting with issues such as privacy and the legal protection of computer software, the debate and the statutory state of the art has grown to include topics such as electronic commerce, domain names, telecommunications, identity, security, liability, computer crime and legal protection of databases.*

> *So far, e-infrastructures have not been discussed as a separate subject in the legal debate. This will have to change, given the growing size and societal importance of e-infrastructures.*

Proposed text for recommendation:

> **In recognition of the importance of addressing the legal issues specific to e-infrastructures the e-IRG will launch a task force to identify legal issues that need to be resolved to promote further use and development of the e-infrastructures. The e-IRG underlines that some of the problems in this domain may be blocking factors for the development of e-Infrastructures. The e-IRG invites the EC and member states to suggest individuals and organisations that have relevant knowledge in the area.**

e-IRG commitment required

- *Launching the task force and setting its mandate and working methods in a way that supports involvement of individuals and organisations that may not have previous contact with the e-IRG domain*
- *Support the work of the task force, e.g. through the use of the e-IRG secretariat resources*

Networking

Background:

> *The strategy for the development and operation of the Research Networks should be based on principles stemming from an RN policy -- this is why a clear RN policy is needed. From the strategy, the best way to fulfill the diverse needs for networking services should follow. Obviously, adequate policy should allow perfect service both for less demanding everyday users and the most demanding Grid users. Agreed RN usage policy is not possible without well-matched service demand and supply scenarios. However, both overestimated demands/requests and over-cautious supply/offers may sometimes result in a mismatch between service demand and supply. RN policy should take user demands into serious consideration, provided that user requests take into account (1) realistic user needs and (2) the realities of both network development and provision of services.*

During the last meeting, further discussion on the recommendation on networking was postponed because of both time constraints and comments that the candidate recommendation needed trimming and editing. Work on this specific recommendation is still unfinished. Below you will find the original text that was put forward at the previous meeting, minus the part on training and education which as has been concluded falls under a different heading. The part of the text in italics was debated on before discussion was postponed. Any comments in order to improve the maturity of this recommendation are very much welcomed.

Original proposed text for recommendation:

> *Balance the needs of everyday and high-end (e.g. Grid) users when defining RN policies as well as development and provision plans.* **The balancing method, governance and duties of RN users and providers should be based on shared responsibilities, permanent service provision, and realistic user demands. The proven governance model of the pan-European RN development and operation is available also for network-based applications, especially for European scale high-end e-Infrastructure solutions.**
>
> **Base the RN development policy on emerging solutions that enable maintaining leading edge position on global scale, user input (e.g. EARNEST activities) and other e-IRG goals (AAI, business/economy etc). In order to enable this, develop, in collaboration with the EC, a flexible, continuous, sustainable funding structure that is not dependent on the periodicity of the EU framework programmes, and provides financial resources for both introducing the most advanced technologies and easing the digital divide in the pan-European RN.**

Candidate decision 1/1

Realtime applications within the e-infrastructure *(formerly: Responsive jobs)*

Background:

> *Grid infrastructures provide ill-adapted support for on-demand computing and interactive usage. These two features are critical for ensuring that the full set of e-infrastructure applications can emerge.*

Proposed text for decision:

> **The e-IRG recognises the need for further research into the novel middleware and policy requirements of emerging classes of e-Infrastructure applications with (near) real-time requirements. The e-IRG will set up a task force to advise the e-IRG on the scale and scope of actions it should undertake, and invites the EC and member states to suggest individuals and organisations that have relevant knowledge in the area.**

e-IRG commitment required

- *A task force should be set up to advise the e-IRG on scale and scope of actions it should undertake*
- *Support the work of the task force, e.g. through the use of the e-IRG secretariat resources*

Endorsed recommendations

Endorsed in the delegates meeting 4th of October 2006

Authentication and Authorisation (AA)

Background:

Authentication and Authorisation (AA) systems are critical resources in current e-science infrastructures, and great progress has already been made in formulating policies and providing sound and secure methods for establishing and exchanging identities and rights.

It is also worth noting that during the process of preparing the Austrian white paper, the issue of the multiple meanings of the term 'security' has risen. Traditionally, security has been considered in the e-science arena as being related to user identity and rights assessment which is well covered by this section. But there is another meaning for 'security' that has been typically used in the National Research and Education Network (NREN) arena, which is that dealing with security incident handling. As e-science infrastructures grow and use become more mature, security incident handling coordination becomes critical.

The emergence of the concept that local identities, either within the context of institutional identity systems or national AA systems, can and should be linked to global identities (such as user certificates in the Grid environment). First steps in that regard have been undertaken by investigating short-lived credential services within the EUGRIDPMA / IGTF .

> **Encourage forming a seamless AA-infrastructure for e-science applications by systematically taking AA-interoperability into account in national funding and policy decisions. Specifically ask relevant proposals to define their relationships with IGTF and TERENA task forces.**