France Grilles – Resource Allocation Strategy

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# Identified needs and goals

## Improve service delivery to the French Community

Current situation is not good enough. The distribution of resources is not necessarily fair, which is detrimental to many communities. There is a need to re-equilibrate the distribution of resources between different communities. This is a prerequisite for delivering a high Quality of Service to our users.

## Measure what is done

There has been no clear policy so far: the model is still under construction. France-Grilles needs to demonstrate that a policy to allocate resources exists, and that the situation is under control. Beyond that, there is a clear need of accountability. Especially, France-Grilles needs to be able to:

* Assess how much of its resources are delivered to the French community;
* Justify that resources delivered to international communities are not wasted, and that there is a return on investment.

# Definition of the strategy

## Key principles

* Decisions on how to allocate resources are made on both *a priori* and *a posteriori* analyses, the former allowing to agree on estimated needs and the latter focusing on measuring how much has been used
* New communities can join in and use resources without necessarily being filtered, provided their needs are reasonable (filtering is done above a given threshold in terms of how much the user asks)
* Established user communities provide the scientific expertise needed to validate resource allocation above this threshold
* France-Grilles defines a unique point of contact for all users in demand of resources
* The complexity of the model is not visible to users
* The whole model allows to measure and report on resource usage for both new and established communities, either French or international

Our identified needs and our key principles lead to two clearly different use cases:

* Resource allocation to **new users** (not using the grid yet) and **French scientific communities**
* Resource allocation to **established international communities** (e.g. international VOs)

## Allocating resources to new users and French communities

### “A priori” analysis

In the overall scenario described on figure 1, a new user with a predefined project asks for resources. The request is handled by a “broker”, which acts as a single point of contact. The 3 basic questions to answer at this stage are:

1. Is there an existing community on the Grid that could integrate this project to its activities?
2. Is the user “grid aware”, e.g. is the project ready for grids, are all applications ported etc.?
3. Is the requested amount of resources above a given threshold?

User

Broker

Scientific committee

Established VO

NGI Operations

NGI/VO Training

Ask resources

**PROJECT**

Resources request

Matching community?

Transfer request

yes

no

Is user "grid aware"?

Send user to

Resources > threshold?

no

yes

Transfer request

Ask for validation

Request agreed?

Transfer request

**VO based resources allocation**

**NGI based resources allocation**

Project redirection or rejection

yes

yes

no

no

*Fig.1 – A priori analysis for resource allocation requests from new users*

As shown on Fig.1, the result of the analysis can either be:

* **Rejection of the project** if it is considered non valid by the scientific committee
* **Redirection of the user:**
	+ **to the training activity** if it is felt the project has potential but is not grid-enabled or grid-focused
	+ **to a better frame** (e.g. HPC) if it is felt the project is not a good use case for grids
* **A VO based resource allocation agreement**. In this case, an existing VO accepts the new user as one of its members and applies its own policies with regards to how much resources this user can get from what is already available to the VO. Example: a new user with a project in biology will probably be redirected to biomed, who will then decide what place to give to this project within their activities.
* **An NGI based resource allocation agreement**. This is the case we present in details below.

The exact composition of the scientific committee deciding on demands above defined threshold remains to define, but this should certainly involve scientific coordinators from the user communities, under the NGI umbrella.

The scientific committee also decides on the values for this threshold.

### NGI based resource allocation agreement

Depending on the scope of the resource allocation, each involved body should be able to decide at its own level. Agreements on “physical” resources (e.g. CPU) should be decided by sites, while agreements on services (e.g. support) should be made by the NGI. This is because the final decision should be taken by who controls the resources. Each site, as resource provider, has a different funding schema and is the best placed entity to commit to provide resources. At a higher level, the NGI doesn’t have to control these resources but could just act as a relay.

A process proposal is described on figure 2.

**Project support**

NGI Operations

Resource Providers

**Site based support agreements**

**Site based support agreements**

Resources proposals

Scientific committee

"Catch all" community

**PROJECT**

Resources request

New community

recommandations

**Resource allocation**

Needs for

Resources

Needs for Services

Service Providers

**Site based support agreements**

**Site based support agreements**

Services proposals

negotiations

*Fig.2 – Establishment of an NGI based resource allocation agreement*

The result of the process is the establishment of a resource allocation agreement between the resource providers (sites), service providers (sites and/or NGI) and the user.

###  “A posteriori” analysis

Resource usage verification for supported projects/communities leads to an *a posteriori* analysis of the initial application and possible review of new requests by projects.

The goal of this analysis is to:

* Assess the validity of the initial request
* Monitor the possible growth of the project, and take into account new resulting needs

At this stage, there is a need to define a second threshold in the amount of used resources above which the user/project which have been integrated to the catch-all community need to “emancipate” and start a new community.

In the case of a “VO based resource allocation” (see fig.1), this a posteriori analysis should allow to assess new needs for the considered VO. This will then be taken into account as part of the process of allocating resources to established communities.

## Allocating resources to established international communities

### Un-answered questions

There are still unanswered questions at this stage of the definition of the strategy:

* Can (and should) an international VO negotiate its resources with all NGIs individually, or more globally (e.g. through EGI)?
* How do we deal with communities belonging to an externally driven project that generally bypasses the NGI and focuses on sites (e.g. WLCG and LHC VOs)?
* How do we report on resource usage for those communities, as a percentage of “French usage” versus “international usage”?

*More discussion is needed to define a strategy in this context. To be continued at EGI User Forum in April.*