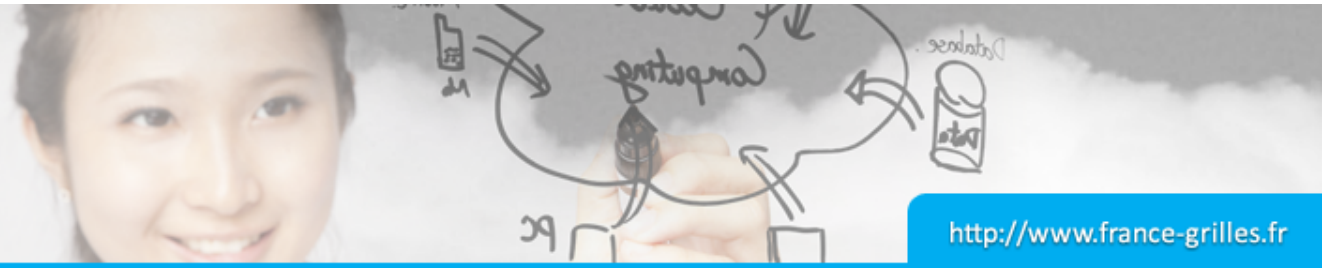
La grandeur des actions humaines se mesure à l'inspiration qui les fait naître.

Louis Pasteur

France Grilles: perspectives

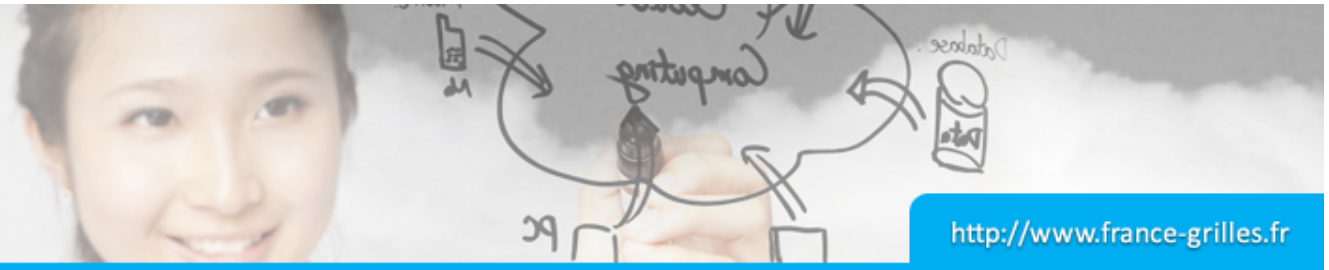
V. Breton

International Advisory Committee Meeting – Paris, April 26-27 2012



France Grilles mandate is to

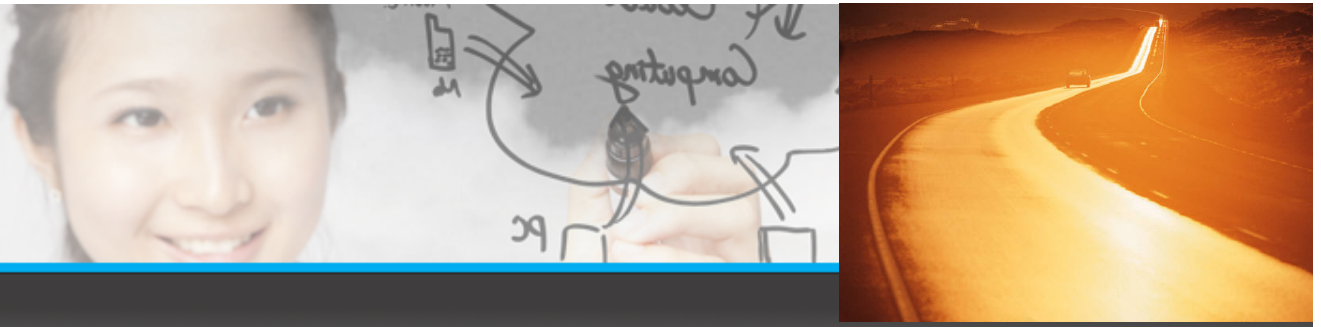
- Establish a national grid infrastructure for storage and analysis of massive scientific data
- Contribute to the operation and activities of EGI together with the other National Grid Initiatives
- Promote the use of grids in all communities
- Favor the development at a national level of a user community through the organization of tutorials, seminars and distribution of information about grids
- Make sure that operational teams oversee the good operation of French production grids in a context of technical innovation
- Identify permanently the needs of users, particularly those coming from new user communities and propose the expected services
- Favor cooperation, whether national or international, whether academic or industrial, using grids and through them the advanced usages of computing, data analysis and innovating services allowed by grids
- Favor, in the field of grids, cooperation and sharing of resources that contribute to the organization and development of research and higher education in Europe
- Favor exchanges and stronger links between teams working on production and research grids
- Ease the setting up of strategies and cooperation with organizations in charge of electronic communication networks for research and higher education, particularly RENATER, GEANT and other research networks in the world



France Grilles role is to

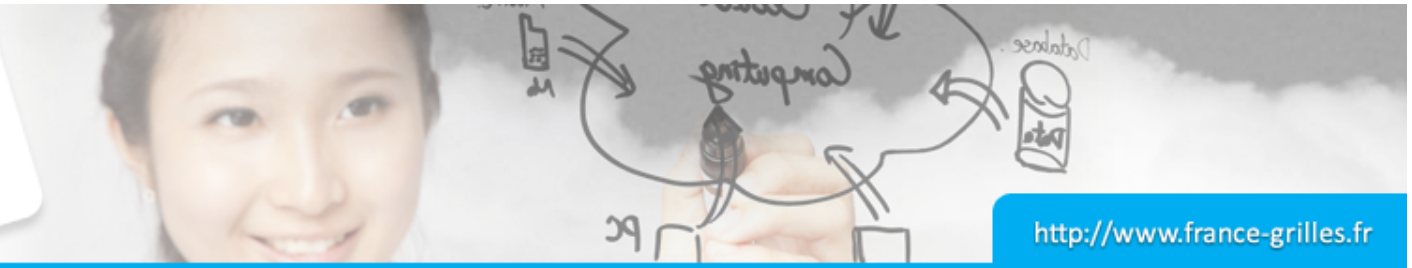
- Define the scientific policy for the use of resources financed by France Grilles
- To collect information on policy from owners of resources that are accessible on the production grids
- To follow yearly the use of resources and to give an annual feedback to the council to check its conformity to the allocation policy

Owner of resources made available on the French production grids remain in charge of their sharing among user communities



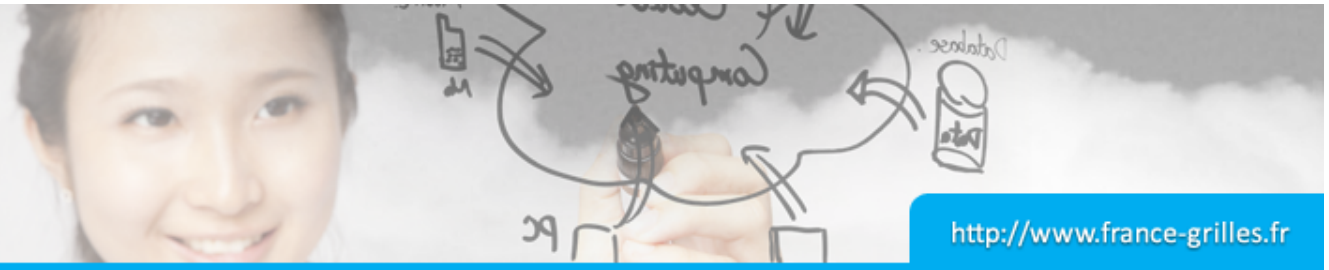
Vision

- Build and operate a Distributed Computing Infrastructure
  - Open to all disciplines
  - Open to developing countries
- Make it a place of exchange and collaboration
  - Within disciplines and organizations
  - Across disciplines and organizations



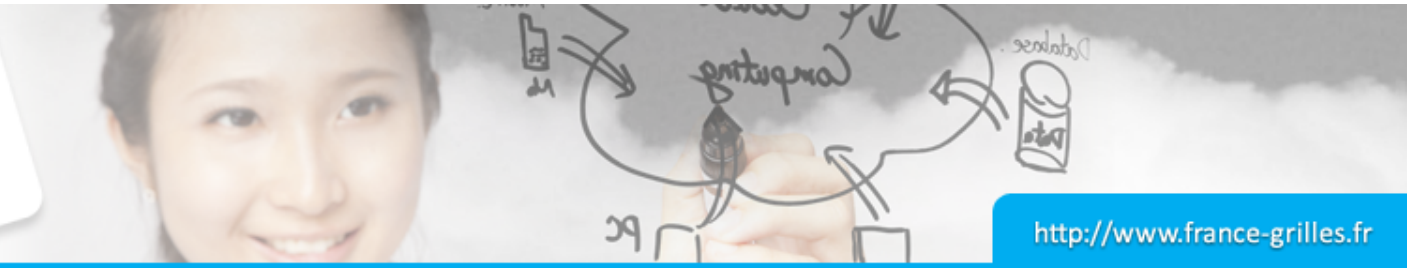
France Grilles strategic priorities in 2012

- Operate a stable infrastructure
- Better support users
- Start a strategic roadmap for cloud computing



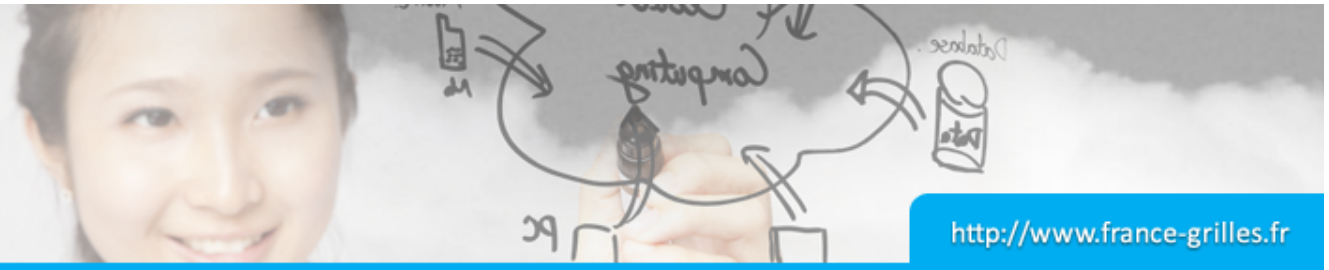
Investment strategy (I/II)

- Support the emergence of academic clouds providing IAAS services
  - Cloud stack: OpenNebula/OpenStack
  - Interoperable with the grid (StratusLab)
  - Integrated in EGI federation of clouds
- N°1 priority: start a Tier-1 cloud at CC-IN2P3
- Support the renewal of critical equipment for grid operation



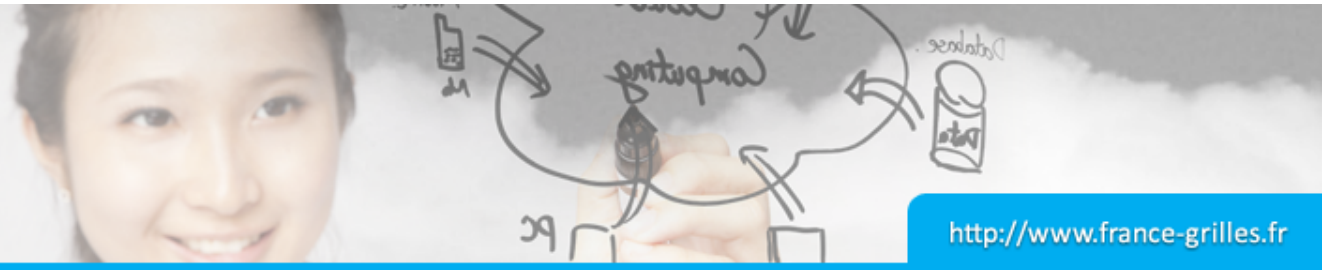
Investment strategy (II/II)

- Support emergence of Tier-2 academic clouds at regional level
  - Very positive experience with previous investments for starting new grid sites (Bordeaux, Grenoble, Lille)
    - FG investment leveraged significant local investment
    - Local administrators integrated into the network of grid site administrators
    - Significant increase of the number of local users
    - All centers have found new funding for further growth
- Method: call for projects
- Problem: insufficient funding in 2012



Investment policy

- 2011: two academic clouds (154 KEuros)
  - CC-IN2P3
  - Toulouse
- 2012: one demonstrator of production cloud (275 KEuros) at CC-IN2P3
- Problem: two years (2011-2012) without funding to upgrade grid equipment
  - Decreasing contribution to EGI resources



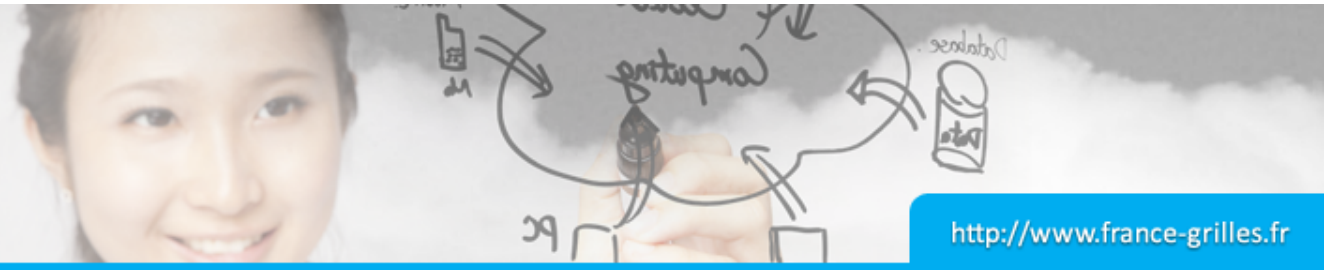
Budget request for 2013

- Total budget requested for 2013 to the Ministry of Research: 1,375 Meuros
  - 375 KEuros for operational costs
  - 50 KEuros for the operation of central services
  - 250 KEuros to renew equipment for the production grid on existing sites
  - 250 KEuros for Tier-1 Academic cloud at CC-IN2P3
  - 250 KEuros for Tier-2 cloud on GRIF (3-year investment)
  - 200 KEuros for a call for projects (support to Tier-2 centres)

Model followed to implement France Grilles vision

- Two models with different strengths a weaknesses

HPC top-down model: resources owned by GENCI	Grid bottom-up model: resources owned by research communities
Resources are easy to optimize at Tier-1 and Tier-0 levels	Higher risk of duplication of efforts and investments in different user communities
Focus on excellence	Everyone can cook !
Purchase of equipment is driven by technology providers	Purchase of equipment is driven by scientific needs
Tier-2 centres have to follow the technological evolution	Tier-2 centers are in the front line of innovative technologies and approaches



Strategy to involve communities

- Collaborative approaches
  - International level: collaboration with EGI and other NGIs
  - National level
    - collaboration with Tier-1/Tier-2 centres in their engagement with user communities
    - Direct engagement with communities through grid day program committee
    - Engagement with all actors: research organizations, lab directors, local administrators, new users, VO managers
- Demonstrate the grid/cloud added value through successful use cases

Strategy to involve mature communities

- Need for coordinated efforts
  - At European level (-> ESFRIs)
  - At national level
- Some communities are now facing a rapid change in the scale of their computing and storage needs
  - Molecular Biology (NGS)
  - Astrophysics – Astroparticles (New generation of telescopes and satellites)
- Dialog established with communities
  - Through governing bodies
  - Through Tier-1/Tier-2 centres (CC-IN2P3, LAPP)
  - Through the French Grid Day program committee
  - Need for a coherent vision for FG role among partners (Molecular Biology)
- Encourage/support French involvement on specific projects (CTA, LSST)

Strategy to involve earth sciences

- One of the two areas (with drug discovery) where collaboration with supercomputer centres is most natural
- Pursue efforts for joint deployment of scientific applications on both infrastructures
  - 1st successful migration of a climate application from IDRIS to France Grilles in 2012

Strategy to involve emerging communities

- Biodiversity and Neurosciences
  - Involvement in key EC projects
    - NeuroSciences (N4U)
    - Biodiversity (Creative-B, ENVRI)
  - Support deployment of use cases at a national level
  - Support emergence of Virtual Research Communities at an european level
- Cultural heritage
  - Existing collaboration with CC-IN2P3
  - New opportunities (New EC project involving french ministry of culture)

Training

- High importance given to training
  - Develop training on cloud (StratusLab, OpenNebula/ OpenStack)
  - Pursue training on platforms (DIRAC)
- Identify ways to encourage CNRS engineers to act as trainees
  - Interest for experience from other countries

Dissemination

- All relevant information in one web site: france-grilles.fr
  - IdGC web site only used for administrative purposes
  - Open an area for a wider audience, using existing resources like Grid Café
  - Develop services for users
- Continue promoting France-Grilles through booths and EC funded projects

Budget prévisionnel 2012

Poste 2012	Keuros (proposition)	Gestionnaire
Fonctionnement	125 (cotisation et missions EGI, IAC, GT cloud, fonct. IdGC)	Vincent Breton (IdGC)
Relation utilisateurs	80 (50 communautés, 20 rencontres, 10 missions G. Romier)	Geneviève Romier (IdGC)
Opérations	120 (missions pour EGI-Inspire, workshops opérations, soutien aux sites)	Hélène Cordier et Gilles Mathieu (CC-IN2P3)
Formation - communication	40	Virginie Dutruel (CC-IN2P3)
Equipements pour un démonstrateur de cloud au CC-IN2P3	275	Vincent Breton (IdGC)
TOTAL	640	

Keys to France Grilles success

- Serving
- Collaborating
- Human networks