

HealthGrid conference 2010

CNRS Grid Institute: overview

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Crédit: Dominique Boutigny

A reminder on the organization of research in France

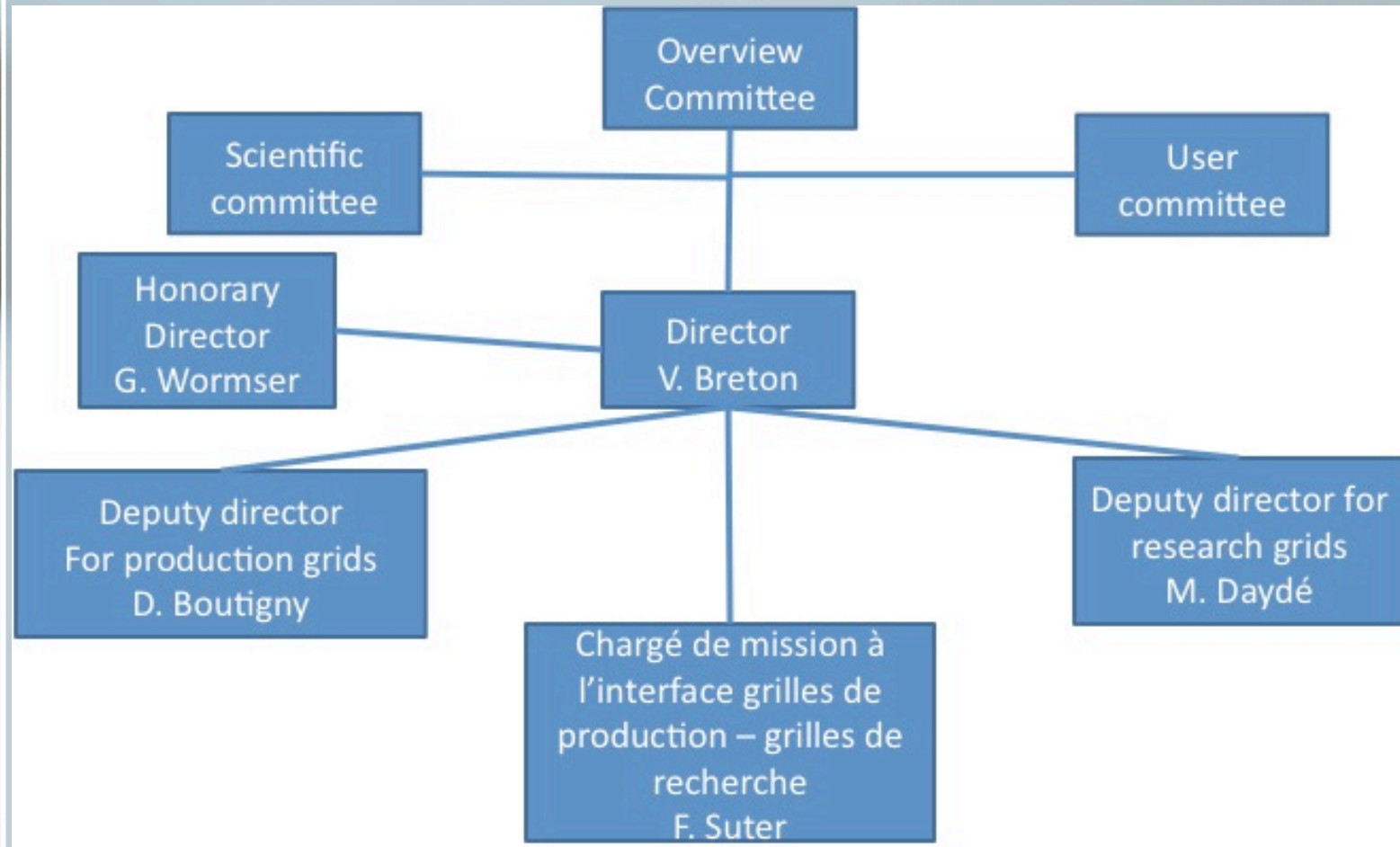
- Most of the scientific research is publicly funded in France
- CNRS is the largest research agency in France
 - About 12.000 researchers in 8 thematic institutes (example: IN2P3)
 - The large majority of CNRS researchers works in laboratories on university campuses
 - Unités Mixtes de Recherche
- CNRS operates a few specific units oriented towards supporting research
 - Example: IN2P3 Computing Center

Institut des Grilles

- « Unité Propre de Service » du CNRS
 - Main attachment: IN2P3
 - Secondary attachment to all CNRS scientific institutes

- Mandate: steer up the activities and foster synergies in the field of grids and clouds
 - Production grids (D. Boutigny, deputy director)
 - Research grids (M. Daydé, deputy director)
 - Interface between production and research grids (F. Suter, « chargé de mission »)

IdG management structure



IdG, a virtual institute

■ Limited staff

- Most of the 350 engineers to operate and use the grids are distributed in 30 laboratories around the country

■ From its creation, IdG has been acting as a

- Mediator between the laboratories and EC for european projects
- Intercessor to support requests for permanent positions in relation to grid activities
- Funding agency (equipment, travel funds)

■ From May 1st 2010, it has the mandate to operate the National Grid Initiative

The French National Grid Initiative: key dates

- August 14th 2007 : Création of CNRS Institut des grilles du CNRS (IdG) under Guy Wormser initiative
- End of 2008: creation of a National Steering Committee to develop a national production grid
 - 8 partners: CNRS, CEA, INRIA, INRA, CPU, RENATER et Ministère
- Beginning of 2009: publication of the Production Grid white paper
 - http://www.idgrilles.fr/IMG/pdf/livre_blan_c_draft1_8FINAL.pdf
- Avril 30th 2010: end of EGEE-III project
- May 31st 2010: technical kick-off of France-Grilles, the French National Grid Initiative

French NGI: legal framework

- G.I.S : Scientific Interest Group
 - Popular schema different from an association
 - Public and private partners can join
 - See GIS creation document on SC web site
- Main limitations
 - No bank account
 - No legal responsibility
- Need for a « mandataire » => CNRS IdG
 - IdG acts on behalf and represents the G.I.S

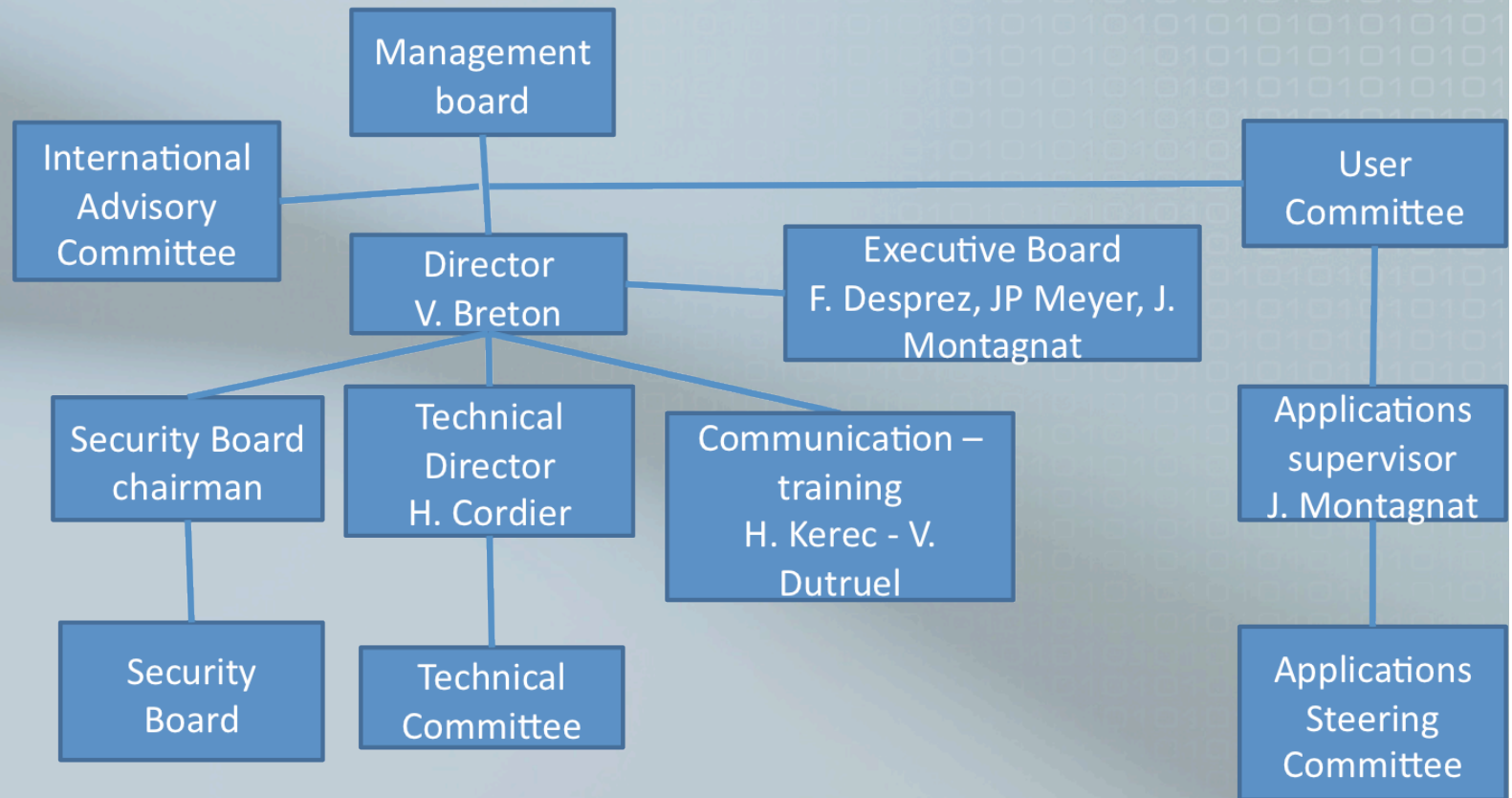
French NGI: mandate

- Set up and operate a national Distributed Computing Infrastructure
- Contribute to the European Distributed Computing Infrastructure EGI
- Steer up and foster the development of user communities nationwide through all relevant means including training
- Foster exchanges between research and production grids

French NGI: budget

- French Ministry of Research has identified the creation and operation of a national production grid as a high level priority
- French NGI selected among the Very Large Research Infrastructures (TGIR)
 - IN2P3 computing center is also a TGIR
 - Multiannual funding started in 2010 (1M€)
- CNRS IdG receives and distributes ministry funding according to G.I.S policy

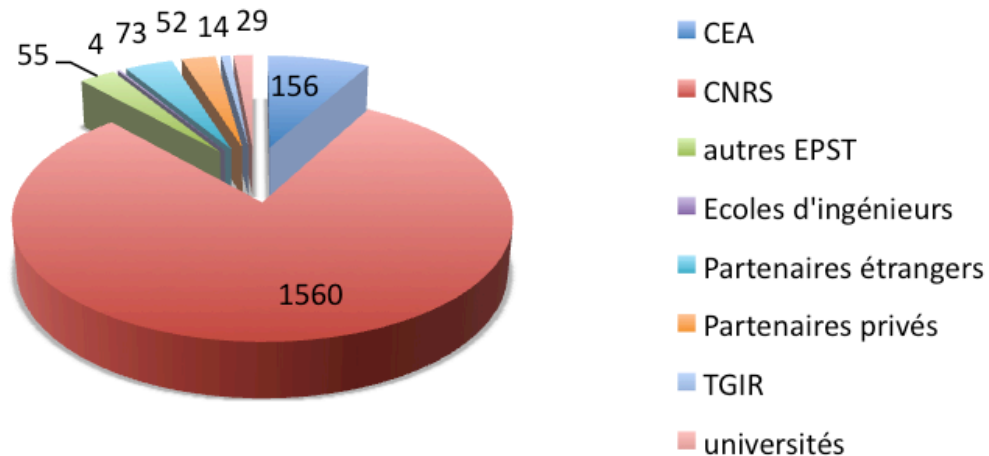
French NGI: management structure



French NGI: a strong user base

- > 2000 certificates delivered by Grid-Fr Certificate Authority in the last year

**Number of active Grid-Fr certificates
on June 15th 2010**



French NGI: computing and storage resources

- Builds upon existing production and research grids
 - « EGEE » (gLite) production grid (>15000 CPUs)
 - Decryphon (DIET) production grid (500GFlops)
 - CIMENT (>2000 CPUs)
 - Grid5000 research grid (>5000 CPUs)
- A significant part of the resources are structured into regional grids

Building bridges between research and production grids

- Very active research community on grids and clouds
 - >300 researchers at CNRS, INRIA and in universities
- Community structured around the national Grid5000 research grid
- Many opportunities for collaboration
 - Joint call for projects (CNRS-INRIA)

French NGI: overview of resources

Regional grid	Location	Number of sites	Starting date
AuverGrid	Auvergne (Clermont-Ferrand)	6	2004
CIMENT	Grenoble	5	2004
GRIF	Ile-de-France	6	2005
TIDRA	Rhone-Alpes (Annecy – Grenoble – Lyon)	5	2008

Most of these resources are integrated in LCG France, backbone of gLite operated production grid

Regional grid or node	Number of cores	Storage in TOctets
Bordeaux	300	2
Clermont-Ferrand (AuverGrid)	1000	300
Ile-de- France (GRIF)	5500	1500
Lille	226	2
Annecy - Lyon - Grenoble (CIMENT - TIDRA)	7000	50
Marseille	500	100
Strasbourg	1000	300
Total	15526	2254

French NGI: users

- HEP users structured in LCG-France
- Active user communities outside HEP
 - CNRS was early involved in application related activities of european projects
 - Leadership of NA4 in EGEE I-III
 - Leadership of life and earth sciences scientific clusters in EGEE-III
 - CNRS very involved in EGI-related projects to set up Virtual Research Communities
 - But the projects failed

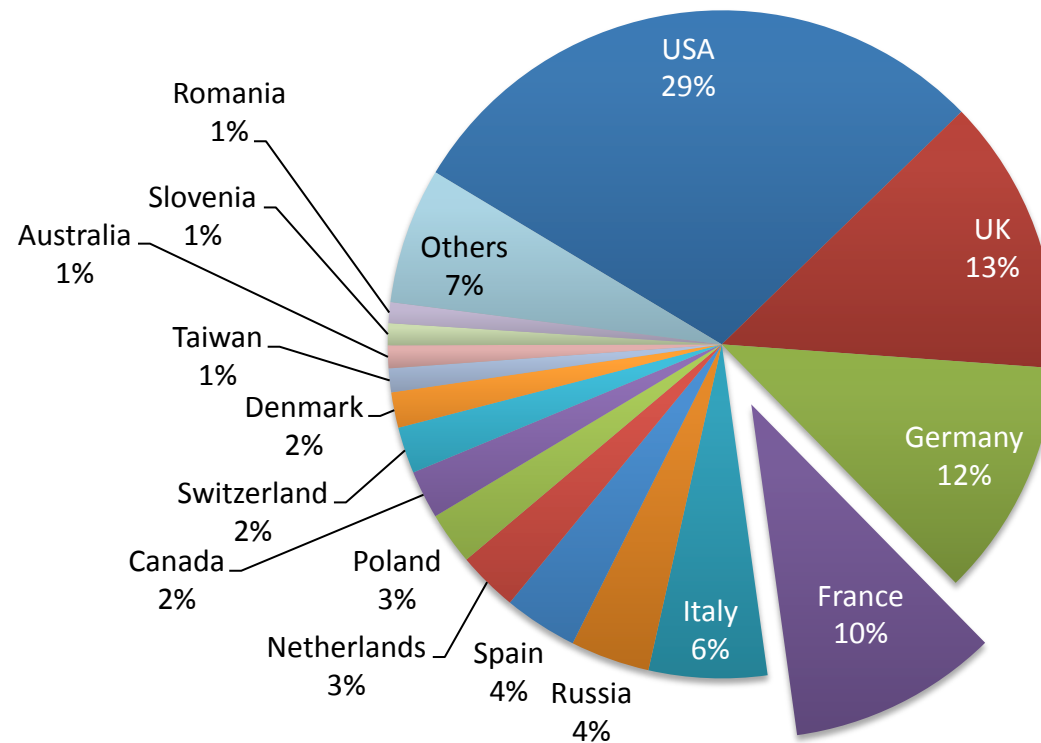
LCG France

■ Backbone of French NGI

CPU contribution per country

Normalised CPU time (HEP-SPEC06)

All LHC experiments - Jan-Dec.2009



French NGI : users outside HEP

- Astronomy-Astrophysics-Astroparticles
- Earth sciences
 - Sismology
 - Hydrology
- Complex systems - environment
 - Ecosystem modeling
- Life Sciences
 - Bioinformatics: Grisbi and Decrypthon
 - Medical imaging
 - Neurosciences

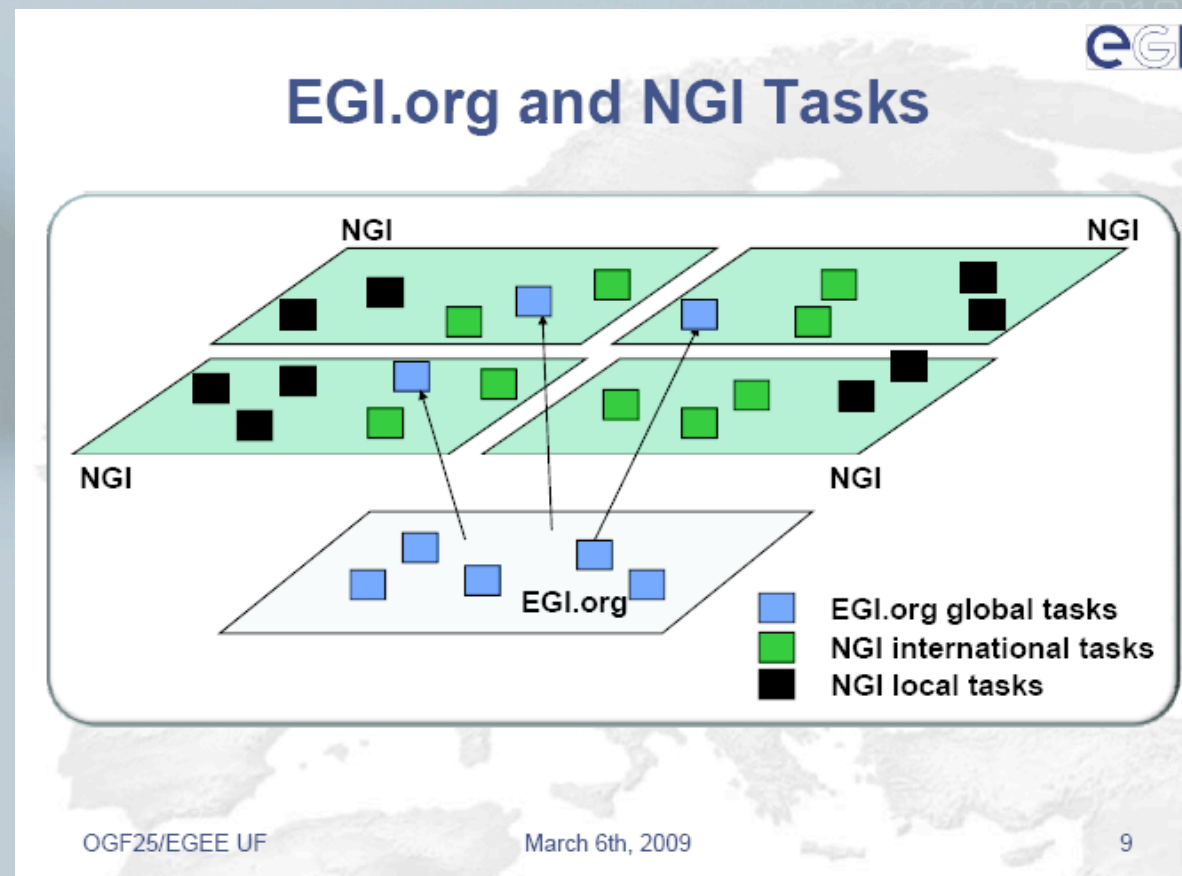
French NGI: contribution to EGI.eu

- Reminder: EGI.eu legal framework is a dutch association
 - Migration to ERIC in a « close » future
- The French NGI contributes to EGI.eu funding
 - 80.000€ in 2010
- The French NGI is represented on EGI council
 - French representative: M. Spiro (alternate: L. Crouzet, CEA)
 - Participation to working groups

French NGI: involvement in EC projects

- IdG acts as French partner for EC projects in the field of grids and clouds
 - To reduce administrative overload (JRU)
 - To increase visibility
- IdG involved in 7 EC Projects starting in 2010
 - Infrastructure projects(EGI-Inspire, EDGI)
 - Middleware (DEGISCO, StratusLab)
 - User (EPIKH, EUMedGrid-Support, SHIWA)
- EC budget: 1Million euros in 2010

Relationship between NGIs and EGI



EGI-Inspire (I/II)

- Duration: 48 months
- Goal: federate NGIs operation in Europe and beyond
- Start day: 1^{er} Mai 2010
- EC contribution to budget: 25 M€
 - EC contribution to French partners: 1,64M€
- French partners:
 - CEA (50PM), HealthGrid (50PM)
 - CNRS (450 PM): CCPM, CC-IN2P3, CREATIS, I3S, IdG, IPSL, LAL, LAPP, LPC, LPNHE, LRI, UREC

EGI-Inspire (II/II)

- Main tasks of the French partners
 - leader of task TJRA1.5 : Cyril L'Orphelin
 - leader of task TSA3.4 (Life sciences): **Johan Montagnat**
- Use of European funding
 - **Exclusively for hiring staff**

SHIWA

- Duration: 24 months (start day: 1/7/2010)
- Main goal: deployment of workflow engines on Distributed Computing Infrastructures
 - Application to medical imaging
- EC contribution to project budget: 1,8M€
 - EC contribution to French partners: 294,5k€
- French partners: CNRS (I3S, CREATIS)
 - Contact: Johan Montagnat

Training

<http://www.france-grilles.fr>

virginie.dutruel@cc.in2p3.fr

- Goal: train users and system administrators
- Significant funding in 2010
 - Institut des Grilles: 40k€
 - Involvement in EPIKH Marie Curie network
- One national contact point: Virginie Dutruel
 - To express needs
 - To find help for organizing tutorials

Bilateral collaborations with Asia

■ Framework

- International Associated Laboratories
- EC projects (EGEE, EUAsiaGrid)

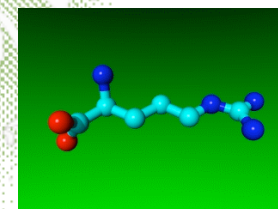
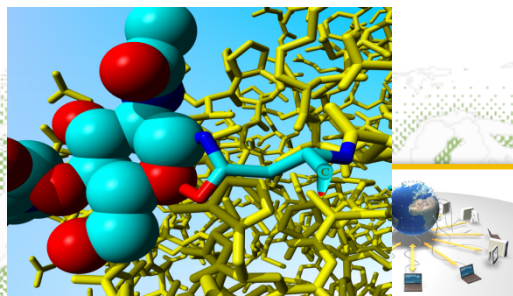
■ Highlights:

- Scientific collaboration with Korea
 - creation of an active VO soon to be extended to Japan
 - Joint patents on potential drugs
- Scientific collaboration with Vietnam
 - Installation of 4 grid nodes in Hanoi
 - Deployment of life sciences applications

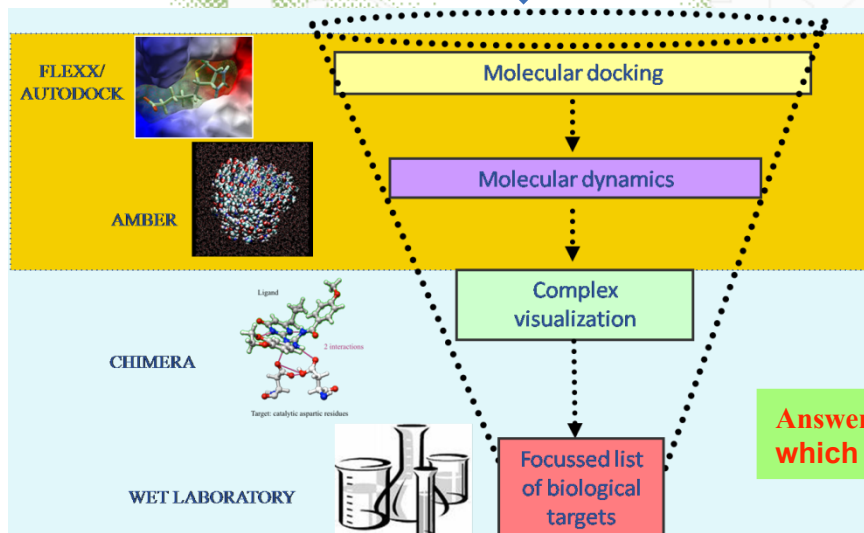
Discovering new drugs in Vietnam

PDB database

> 50.000 3D structures
 including biological targets
 for cancer, malaria, AIDS...



Question: are these products
 potentially
 active against cancer, malaria,
 AIDS ?

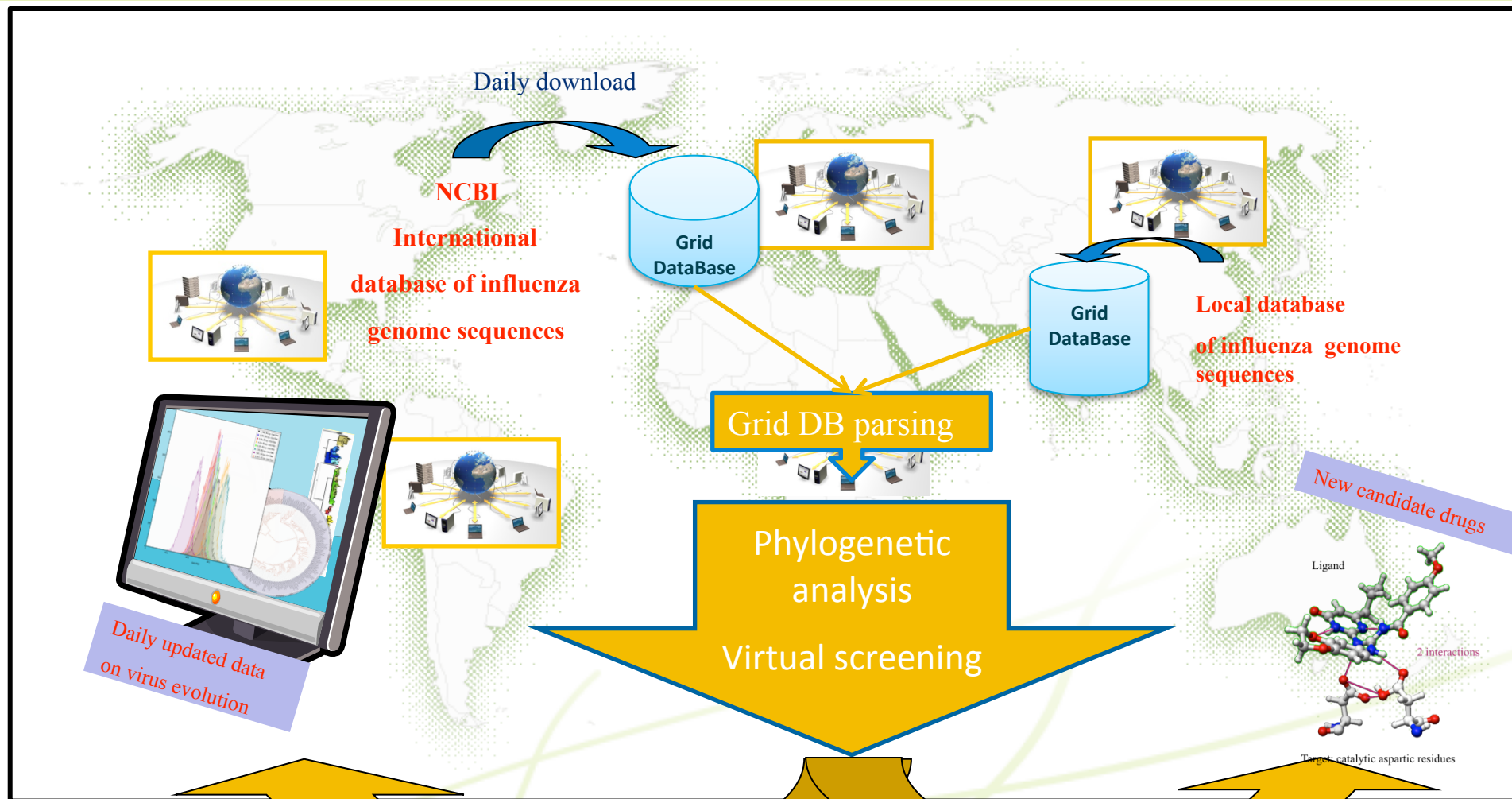


Answer: focussed list of biological targets on
 which the compound is most active *in silico*

Hanoi
 INPC

Local DataBase of
 Natural chemical
 products extracted
 from local
 biodiversity

Monitoring the evolution of influenza viruses



Short term perspectives

- June 2010: signature of the document creating the French NGI
- June – July 2010: response to the National Loan
- September 24th 2010: official kick-off of the French NGI

Future events

- September 24th: official kick-off of the french NGI
- October: technical meeting for site and service administrators
- December: workshop on grids and clouds

Conclusion

- French NGI is already very active
 - > 2.000 user certificates
 - >20.000 processors
- Transition from EGEE-III to EGI is currently under way
 - Technical side : OK
 - Users side: under organization
- The French NGI is very committed to the continuation of international VOs