

# CNŞPMU, IMI AŞM, RENAM, eGov



**HP-SEE**  
High-Performance Computing Infrastructure  
for South East Europe's Research Communities

## ***HPC și Grid Computing. Introduction remarks.***



***Dr. Petru Bogatencov***

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## **1. "Utilizarea resurselor GRID și HPC in Medicina"**

Raportor: Alexandr Golubev, Leading Specialist,  
RENAM și IMSP CNȘPMU (15 min.)

## **2. "DICOM Network solutions"**

Raportor: Alexandr Golubev, Leading Specialist,  
RENAM și IMSP CNȘPMU (15 min.)

## **3. "Acces la resurse regionale de calcul performant"**

Raportor: Nicolai Iliuha, Cercetător științific, IMI  
(10 min.)

## **The new research environment in which all**

**researchers** - whether working in the context of their home institutions or in national or multinational scientific initiatives - have shared access to unique or distributed scientific facilities (including data, instruments, computing and communications), regardless of their type and location in the world.

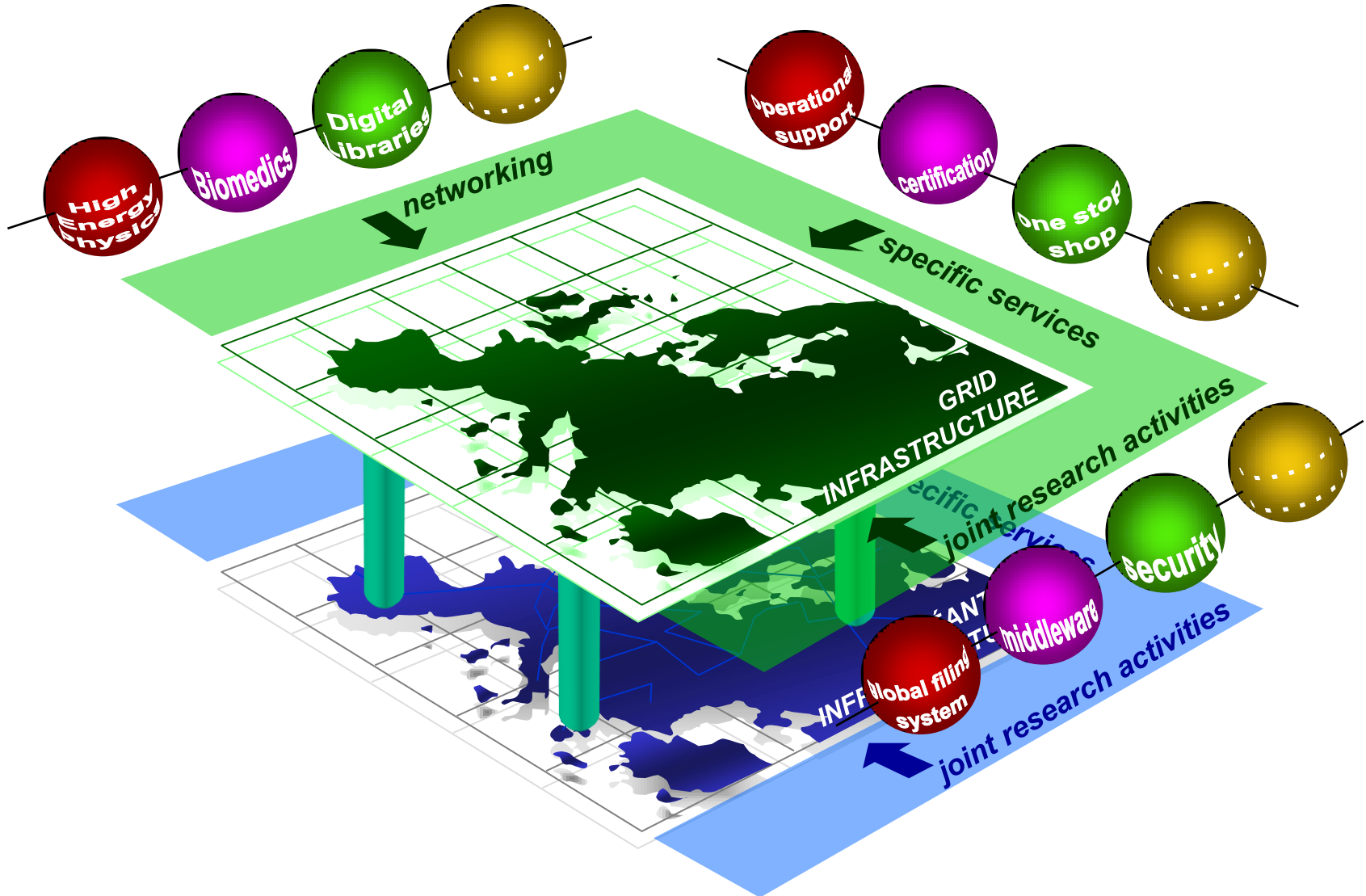
**e-infrastructure** provides remote access to scientific data and instruments located in top level laboratories around the world, and enables worldwide collaboration among researchers who work on similar challenges and are willing to share resources.

**e-infrastructure** offers unique research services to users from different countries, including from the peripheral and outermost regions, and attract young people to science through networking of facilities. Thus, e-infrastructure has a key role in structuring the scientific community and in the construction of an efficient research and innovation environment.

The **e-Infrastructure** layers consist of:

- Communication Networks (the European Research & Education Network GÉANT, National Research & Education Networks - NRENs),
- Scientific Computing (GRID, High Performance Computing, Cloud computing, etc.),
- Middleware (the intermediate software between any local IT resource management system and the applications),
- Specialized applications and software systems,
- Scientific data (data management systems, data repositories, eLibraries, etc.).

# e-Infrastructure - Implementation blocks



## ❑ **Virtual research communities (VRCs):**

VRCs are groups of like-minded individuals organised by discipline or computational model. VRCs typically have an established presence in their field and represent a well-defined scientific or research community.

VRCs are self-organised research communities which give individuals within their community a clear mandate to represent the interests of their research field within the computing ecosystems. They can include one or more virtual organisations and act as the main communication channel between the researchers they represent computing resources providers (EGI, PRICE, etc.).

## ❑ **Virtual organisations (VOs)**

Virtual organisations (VOs) are groups of researchers with similar scientific interests and requirements, who are able to work collaboratively with other members and/or share resources (e.g. data, software, expertise, CPU, storage space), regardless of geographical location.

Researchers must join a VO in order to use European grid computing resources. Each virtual organisation manages its own membership list, according to the VO's requirements and goals.

- ❑ Computing facilities based on Parallel Architectures and used for running complex applications:
  - HPC - Clusters' systems;
  - HPC - Supercomputers;
  - Distributed computing – Grids;
  - Scientific Clouds...
- ❑ Parallel Algorithms Design and Programming
- ❑ Complex Computing Applications Development
- ❑ Scientific Computing architecture is a bridge for building modern virtualized computing systems – scientific clouds

- ❑ PRACE (Partnership for Advance Computing in Europe – [www.prace-project.eu](http://www.prace-project.eu))
- ❑ DEISA (Distributed European Infrastructure for Supercomputing Applications - [www.deisa.eu](http://www.deisa.eu))
- ❑ EGEE I-III projects (Enabling Grids for eScience)
- ❑ EGI-InSPIRE (European Grid Initiative: Integrated Sustainable Pan-European Infrastructure for Researchers in Europe – [www.egi.eu](http://www.egi.eu))
- ❑ Enabling Clouds for e-Science



- ❑ SEE-GRID-1 project (May 2004 - May 2006)
- ❑ SEE-GRID-2 project (May 2006 - May 2008)
- ❑ SEE-GRID-SCI project (May 2008 - May 2010)
- ❑ HP-SEE project (High-Performance Computing Infrastructure for South East Europe's Research Communities – [www.hp-see.eu](http://www.hp-see.eu))

- ❑ **MD-Grid NGI** participates in strategic European Programs for the development of transnational grids and in initiatives for the completion of SEE eInfrastructures. The operation of the MD-Grid NGI implements the general EU policy on the development of national initiatives for the coordination of actions related to eInfrastructures and Grids.
- ❑ **The integration** of Grid actions (infrastructures, middleware and applications) with the broadband research and technology network into a standard e-Infrastructures system. Optimization of exploitation of advanced network resources and services, which can serve the new e-Science generation and will attract the greater users community of the Information Society to the mass adoption of advanced services provided by Grid architectures.
- ❑ **Permanent development** and administration of Grid infrastructure in Moldova
- ❑ **Organization access** for national R&E community to the regional and European computational resources (HPC, Grid, scientific clouds, etc.)
- ❑ **Preparing** (educational, training events organization) and **support** of national users' communities



## **Questions ?**

**IMI ASM,  
RENAM Association,  
CNȘPMU**

**Chisinau, Moldova**

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