

# e-Infrastructure: *The European HPC service*

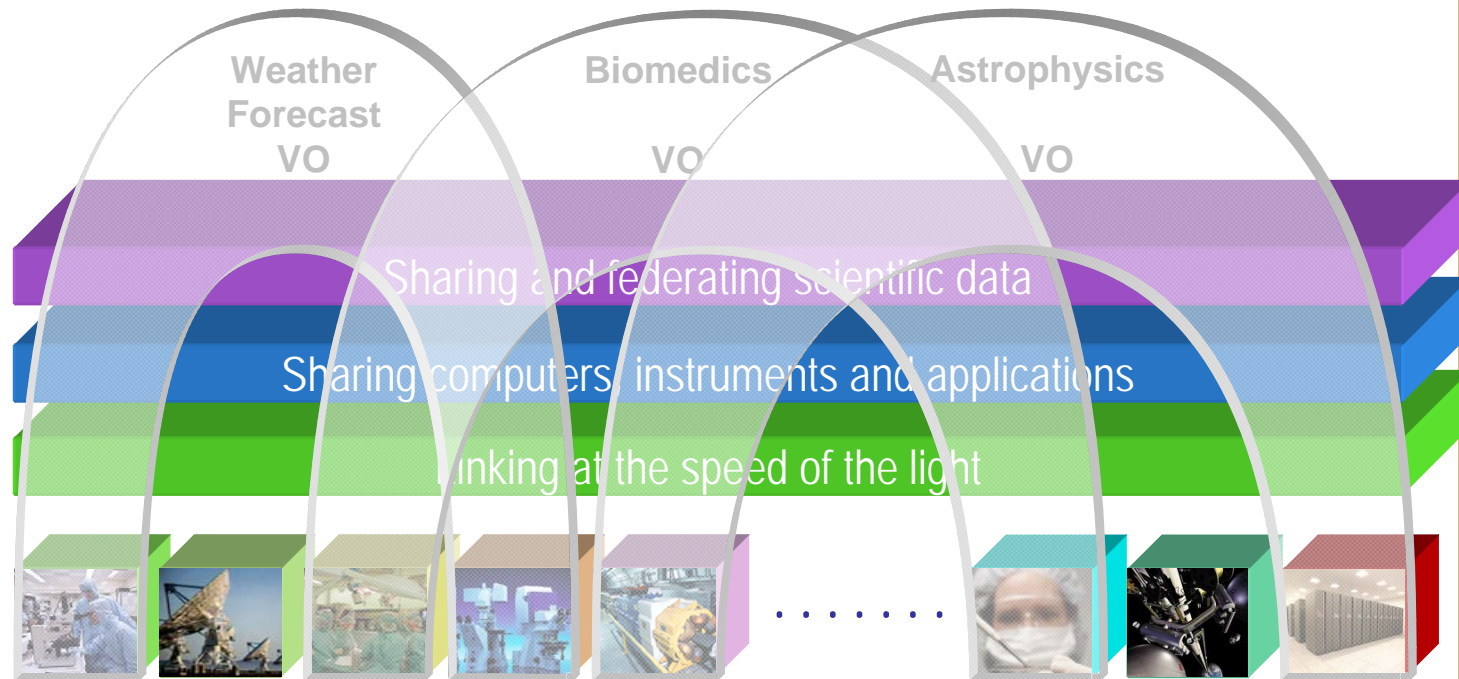
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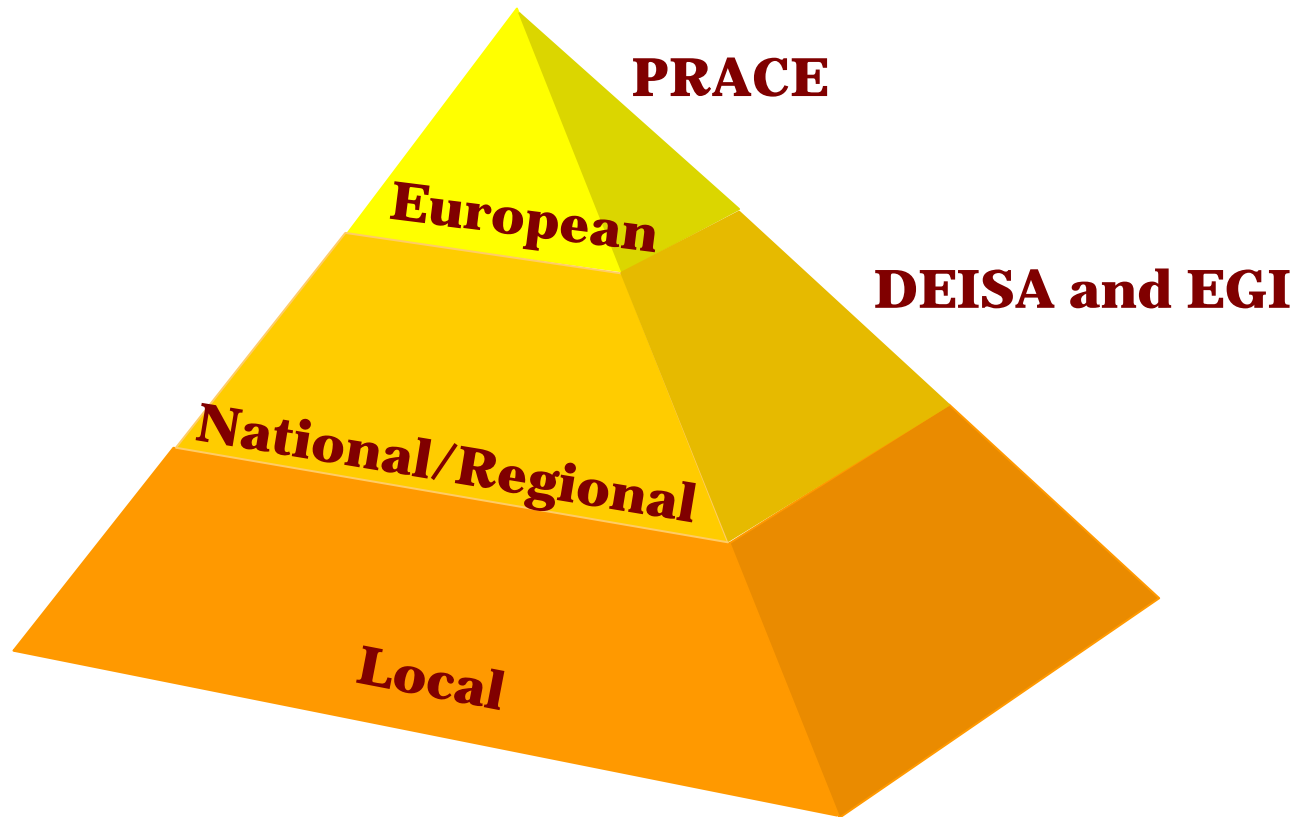
# e-Infrastructure: the vision

**Connecting researchers**  
**Sharing the best scientific resources**  
**Building global virtual research communities**



European Commission  
Information Society and Media

# FP7: the European HPC Service



# DEISA: 'virtual' HPC services



- **12 sites in 7 countries connected at 10 Gb/s**
- **Over 22,000 CPUs with an aggregated peak performance of close to 1 Peta flops**
- **Running larger parallel applications in individual sites**
- **Enabling workflow applications with grid technologies (UNICORE)**
- **Providing a global data management service**
- **Extreme Computing Initiative**



# PRACE: the preparatory phase



- **Late 2009: 1PF in the top 5**
- **Late 2010: 2 PF in the top 5; 1PF in the top 10**
- **2011: over 10PF in the top 5; 2 PF in the top 10**
- **2020: the exaflop in the top 5**



**Draft WP2010 topics:  
RI Call 7: Opens 30.07.09; closes 24.11.09**

- **INFRA-2010-1.2.1: Distributed computing infrastructure (DCI)**
- **INFRA-2010-1.2.2: Simulation software and services**
- **INFRA-2010-1.2.3: Virtual Research Communities**
- **INFRA-2010-2.3.1: First implementation phase of the European HPC service**
- **INFRA-2010-3.3: Coordination actions, conferences and studies supporting policy development, incl. international cooperation**



# INFRA-2010-1.2.1: Distributed computing infrastructure (DCI)



## 1.2.1.1- European Grid Initiative (EGI)

- ♦ **Set up organisation for sustainable grid services provision**
- ♦ **Stakeholders: National Grid Initiatives (NGIs) (*majority*); possibly other entities**
- ♦ **Seamless progressive transition to new scheme**
- ♦ **International collaboration & interoperability, open source/standards policy**

## 1.2.1.2 - Service deployment

- ♦ **Services for user communities that are heavy users of DCIs and have multi-national dimension**

# **INFRA-2010-1.2.1: Distributed computing infrastructure (DCI)**



## **1.2.1.3- Middleware and repositories**

- **Further develop quality middleware**
- **Create SW-component repositories to complement middleware-services; maintenance later by EGI**

## **1.2.1.4 – Access to DCI platforms**

- **Easier access to DCIs through science gateways; support workflows combining capacity & capability computing and access to data & networks**

## **1.2.1.5 – Extension of DCI platforms**

- **Extend existing DCIs to incorporate remote operation of scientific instruments (e.g. in context of ESFRI roadmap projects)**

**International links, education & training, standards**

# INFRA-2010-1.2.2: Simulation software and services



**Overall aim: complex simulation SW to fully & timely exploit HPC & distributed computing capabilities**

**Specifically:**

- **Development, adaptation & maintenance of SW on dynamically evolving platforms for demanding appl.**
- **Deployment of computational science infrastructure: models, tools, algorithms & visualisation to address extreme scale, heterogeneity, performance...**
- **Standards for scalability, evolution, interoperation of SW components in integrated platforms**

**International links, education & training, open standards, open source licensing schemes**



# INFRA-2010-1.2.3: Virtual Research Communities



**Overall aim: enable users from all science & engineering disciplines to access & effectively use e-Infrastructures; ESFRI projects highly encouraged**

**Indicative list of supported activities:**

- **Deployment to enable multidisciplinary collaboration & to address new user group needs**
- **Deployment of new types of services & tools to integrate research efforts across diverse user-fields**
- **Training**
- **Address human, social & economic factors influencing the creation of communities of users (both from academia and/or industry)**

# INFRA-2010-2.3.1: First implementation phase of European HPC service PRACE

## Overall aim:

- **deploy new ecosystem of computational resources (peta-scale by 2010, exa-scale by 2020) to address research needs; build on PRACE and integrate with the distributed resources of DEISA and FCI**

## Supported activities:

- **Set up of the new organisation**
- **Development, adaptation and maintenance of system SW & tools for simulation & visualisation**
- **Technology evaluations of promising technology**
- **Mechanisms for involving industry as partners**
- **Training, sharing of best practises**

**Address long-term sustainability!**



## **INFRA-2010-3.3: Coordination actions, conferences, studies supporting policy, includes international cooperation**

- **Coordination national & European e-Infrastructure initiatives**
- **Actions to strengthen innovation potential (e.g. scenarios for GEANT use as basis of 2020 Internet)**
- **Establish scientific SW strategy in Europe**
- **Coordinate European ecosystem of data repositories for info preservation/sharing (also ERA-NETs)**
- **Studies, conferences to encourage multi-disciplinarity, evaluate impact of e-Infrastructure**
- **International cooperation (joint roadmaps, interoperation of infrastructures)**



# Further information



[www.cordis.europa.eu/fp7/ict/e-infrastructure/](http://www.cordis.europa.eu/fp7/ict/e-infrastructure/)

**Work Programme:**

[http://cordis.europa.eu/fp7/wp\\_en.html#capacities](http://cordis.europa.eu/fp7/wp_en.html#capacities)



# Framework Programme 7 2007-2013

