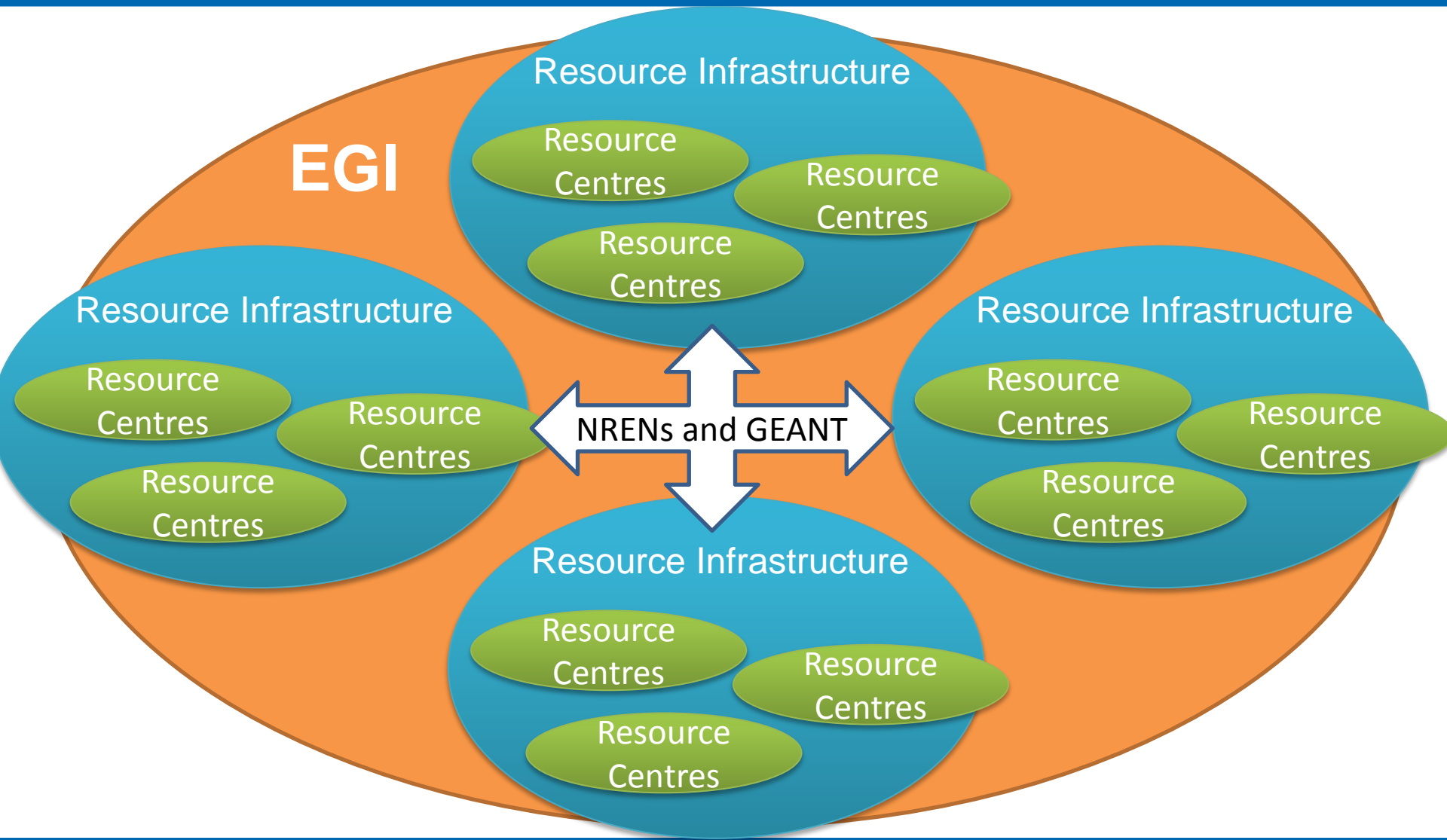


EGI: the European Grid Infrastructure

Tiziana Ferrari

Chief Operations Officer, EGI.eu

- EGI is a federation of **Resource Infrastructures** (typically National Grid Initiatives but not only)
 - Resource infrastructures are a federation of **resource centres** (Universities, national/international Research Institutes, Computing Centres, hospitals, ...)
 - With a **central coordinating body** (EGI.eu, Amsterdam)
- EGI supports
 - **user services**
 - **daily infrastructure operations**
 - **tool development**
- ... and is preparing to **future sustainability**



Status April 2010 (yearly increase)

- 10000 users: +5%
- 243020 LCPUs (cores): +75%
- 40PB disk: +60%
- 61PB tape: +56%
- 15 million jobs/month: +10%
- 317 sites: +18%
- 52 countries: +8%
- 175 VOs: +8%
- 29 active VOs: +32%
- Integrating resources from Africa, Europe, North and South America and the Asia Pacific region and linearly expanding in size

Imperial College
London

GridPP
UK Computing for Particle Physics



10:14:26 UTC (3 minutes ago)

User Applications

Networking

EGI Resources

High
Throughput
Computing

Data
Repositories

Distributed
Instruments

Petascale
HPC

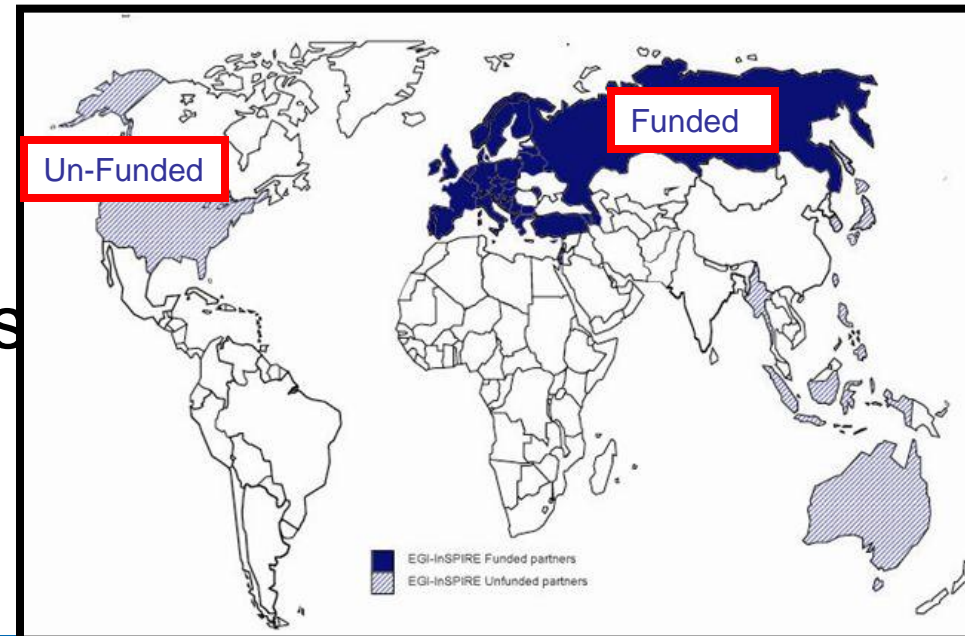
Desktops
Grids

Virtual
Resources

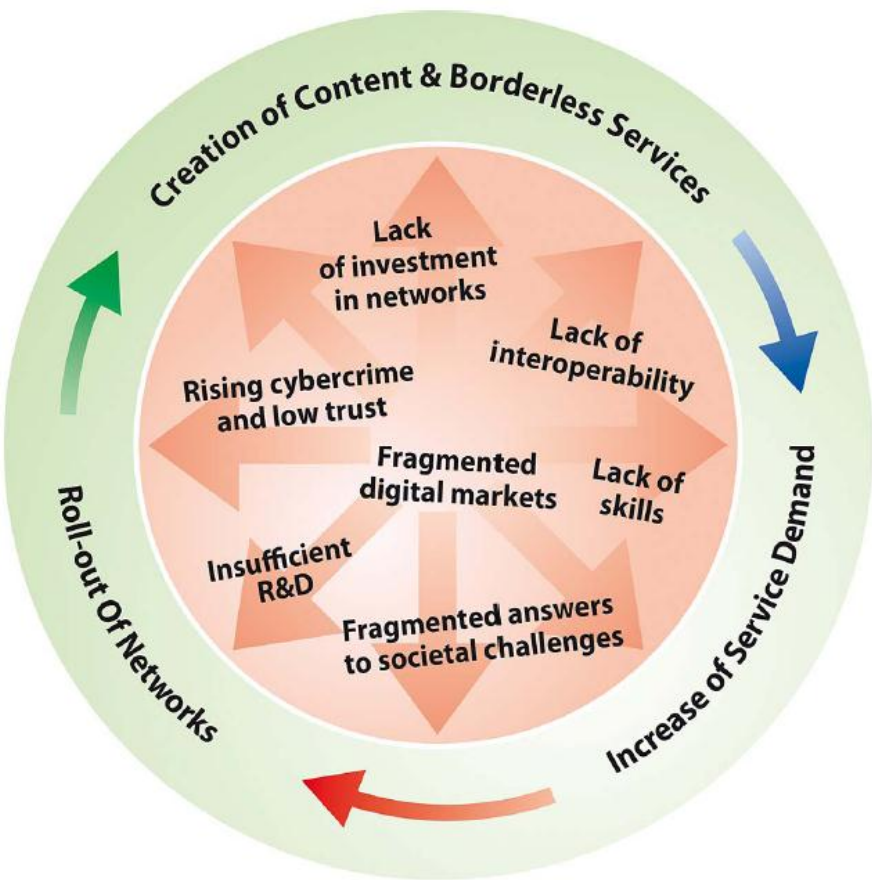
INNOVATION



- EGI-InSPIRE EC project (**I**ntegrated **S**ustainable **P**an-European **I**nfrastructure for **R**esearchers in **E**urope) –
 - Project cost €72M, Total cost ~€330M, Total human effort: 9261PMs
 - EGI.eu, 40 NGIs
 - 2 EIROs
 - 8 Asia Pacific partners
- National funding sources



- From a **project-oriented** structure to a **service-oriented** structure
 - Develop new service-based new **business models**
- **Account** of usage
- National resource providers (**National Grid Initiatives – NGIs**) evolving from Joint Research Units to legal entities for ICT resource service provisioning within the country



- **Borderless Services** → allow EGI international research communities to store, process and move data, and access distributed ICT resources
- **Interoperability** → resources are heterogeneous and are transparently accessed via the Grid middleware layer
- **Supporting Innovation** → advance the EGI infrastructure according to the user needs

- Deploy Technology Innovation
 - Distributed Computing
 - Includes services such as: data analysis facilities and services, [Digital catalogues and repositories](#), [data transfer services](#), user authentication and authorization
 - And will evolve to extend to Desktops, Virtualisation, Clouds, ...
- Enable Software Innovation
 - Provide reliable persistent technology platform
 - Tools built on gLite/UNICORE/ARC/Globus
 - Requirements gathering that are collected to drive software [evolution](#), [integration](#) and [interoperability](#)
- Support Research Innovation
 - Infrastructure for data driven research
 - Support for international research (e.g. ESFRI)

- **Operation** of a world-wide computing and data infrastructure that needs to be reliable and highly available
 - Core services need to be available 24x7
- **Support to users, operations centres and resource centres** involved in the management of the infrastructure
 - 1st and 2nd line support
 - 3rd line support about deployed middleware is provided by the relevant Technology Providers
- **Security** incident response
- Service **monitoring** and **accounting** services
- Testing of **prototype middleware** and new releases
- User **authentication** by running Certification Authorities
- **Requirements** gathering

- Astronomy, astrophysics, astro-particle physics
 - Fusion
 - Computational chemistry
 - Earth sciences
 - High Energy Physics
 - Life sciences
- ... to name a few.

- Which EGI services DCH could benefit from?
 - from a **resource point of view**
 - Hosting of ICT services for DCH at existing EGI resource centres
 - Integration of new DCH resource centres
 - from a **software point of view**
 - Software **testing and rolling out services** in a large distributed infrastructure
 - **Integration of DCH software** with EGI deployed middlewares
 - **Requirements gathering processes**
 - Running of **software repositories**
 - ...

- Scale out to **many** communities with diverse needs
- **Software environment** defined & selected by the end-user
- Deployment of innovative ICT developed within Europe
- Joint **sustainability** plan?

- EGI is an **expanding resource infrastructure** today providing access to compute and data resources
- EGI is **evolving** to include new types of resources, has a process to collect **requirements** from a multi-disciplinary user community
- EGI can **exchange services** with the Digital Cultural Heritage community

Questions?

EGI User Forum 2011

11-15 April

Vilnius, Lithuania



Hosts: NGI LitGrid, presented by
Vilnius University and Baltic Amadeus
infrastruktūros paslaugos (BAIP)

Organisers: AIM Group Baltic UAB

- The user communities will meet at the EGI User Forum and you are welcome to join!
 - See uf2011.egi.eu
 - EGI Contact:
 - Steven Newhouse at director@egi.eu