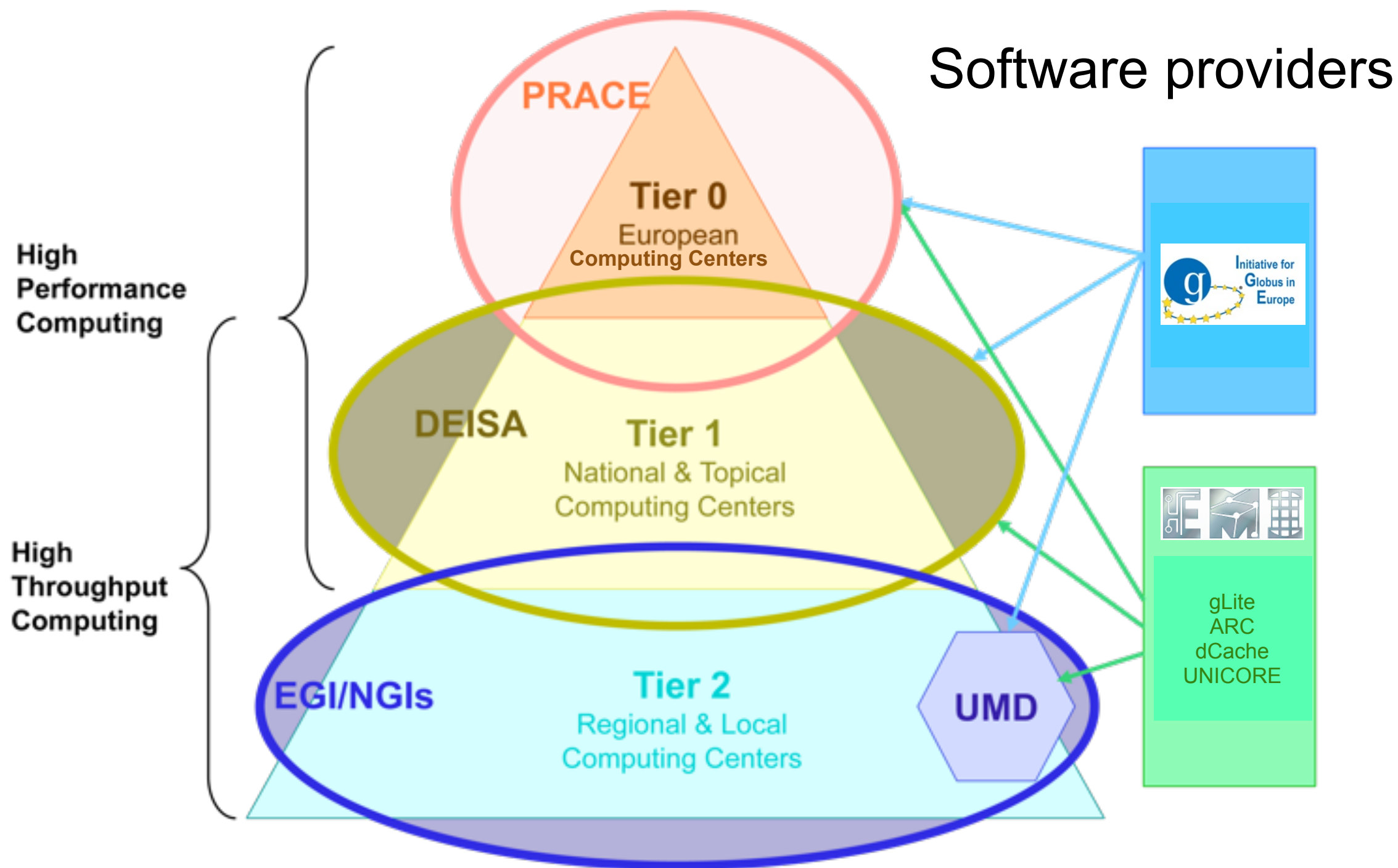Dr. Helmut Heller (heller@lrz.de)

Leibniz Supercomputing Centre (LRZ)
Munich, Germany

IGE Project Coordinator

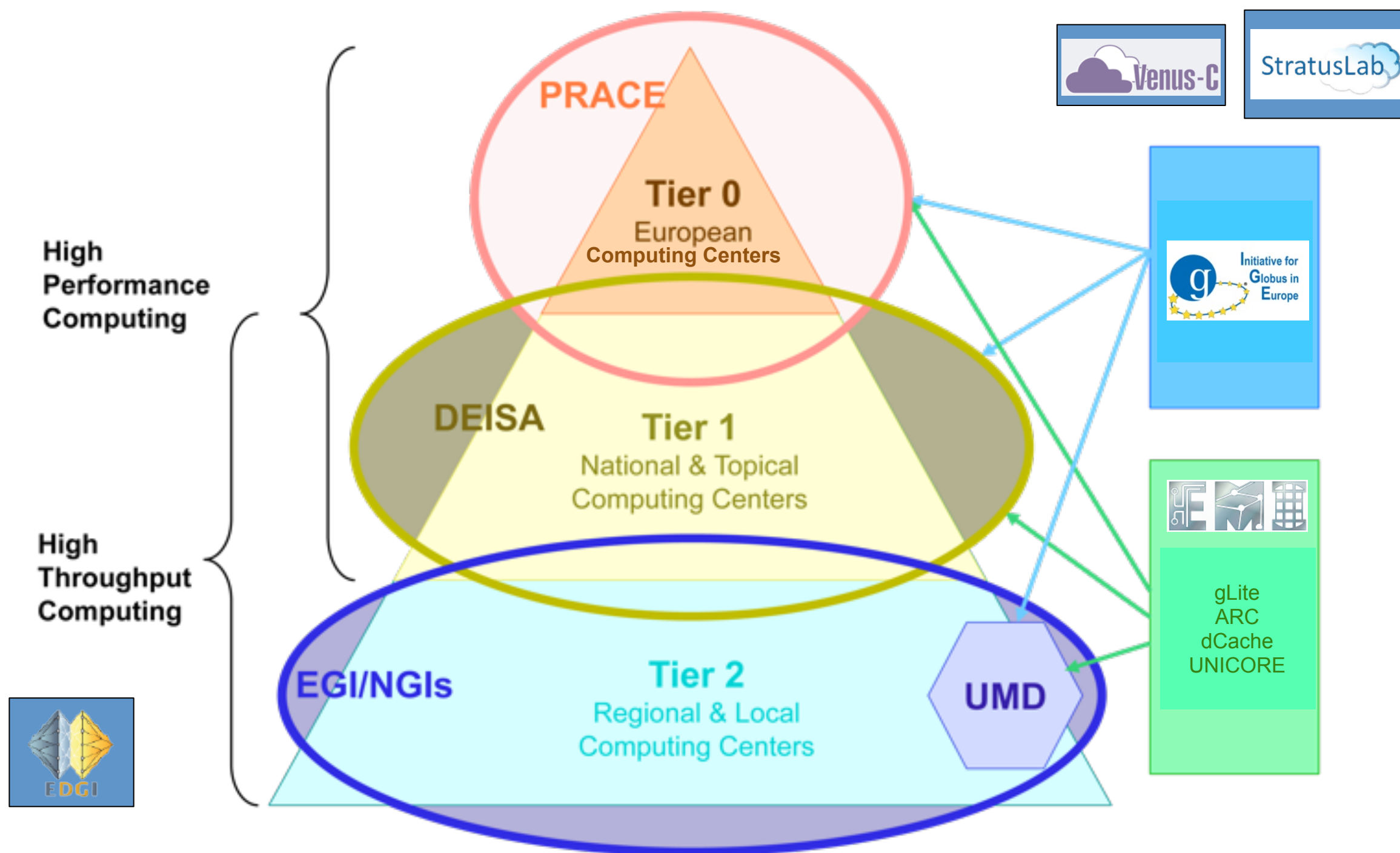Amsterdam, September 16th, 2010

Overview

- The European Grid Ecosystem

- Initiative for Globus in Europe (IGE)
  - Vision
  - Partners
  - Objectives

- Interactions with other DCIs

- Two success stories!

- Summary
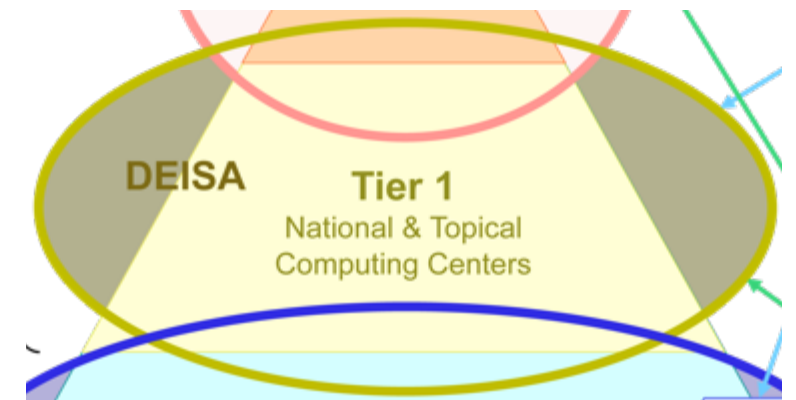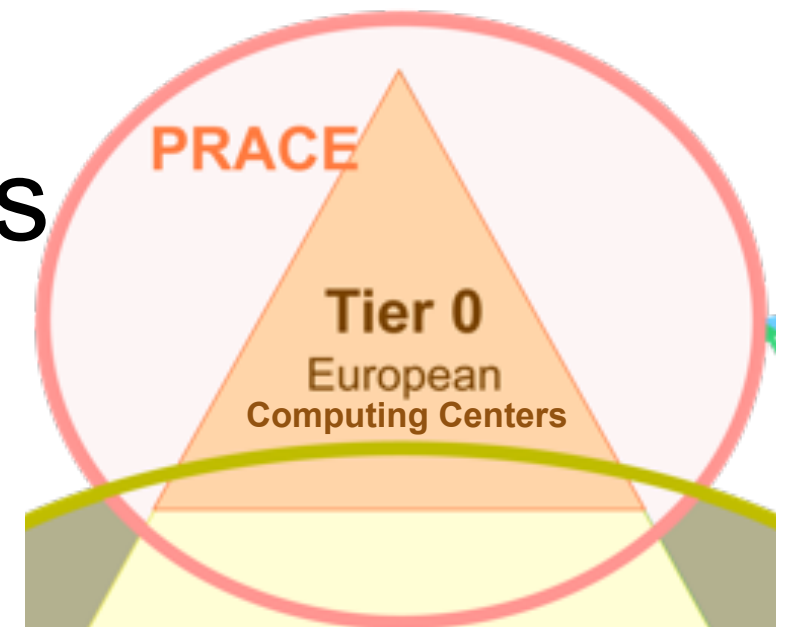
The European Grid Ecosystem
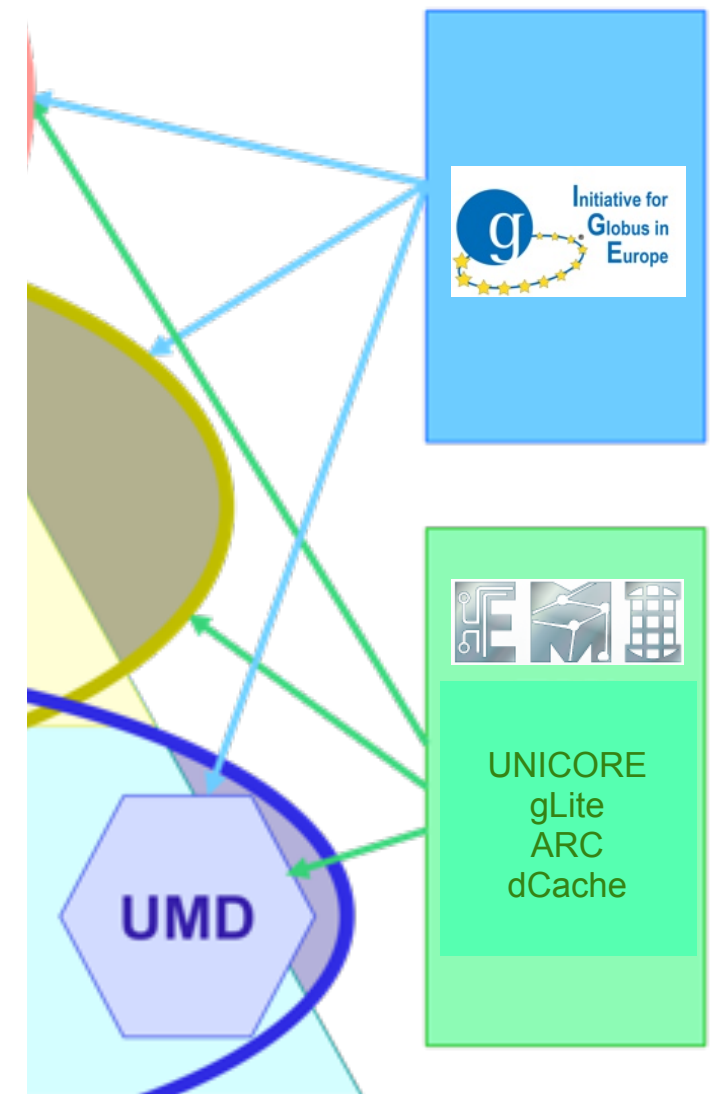
The European Grid Ecosystem

- Globus tools used in DEISA

  – **Gsissh** as primary interactive access method to DEISA through Gsissh door nodes

  – **GridFTP** as primary high performance data transfer tool through door nodes to GPFS

  – **RFT** and **MyProxy** @ LRZ

  – **WS-GRAM** (GT4) available on request

    - GridWay head node operated @LRZ as WS-GRAM door node

- PRACE: Top level HPC,
  Petaflop computing
- Six European supercomputers
  of highest performance

- Globus tools used:
  - **Gsissh** for interactive access
  - **GridFTP** for high speed data transfer
  - **RFT** is planned

PRACE

Tier 0
European
Computing Centers

- IGE is a middleware provider and will bring Globus components into UMD
  - Service Level Agreements (SLAs) for EGI
- Service provider for European Grids
- Third level support for Globus in Europe
- Globus can act as bridge between tiers

UMD

UNICORE
gLite
ARC
dCache

IGE Vision

Help Scientists in the European Research Area

IGE Vision

Help Scientists in the European Research Area

- Coordination of widespread European
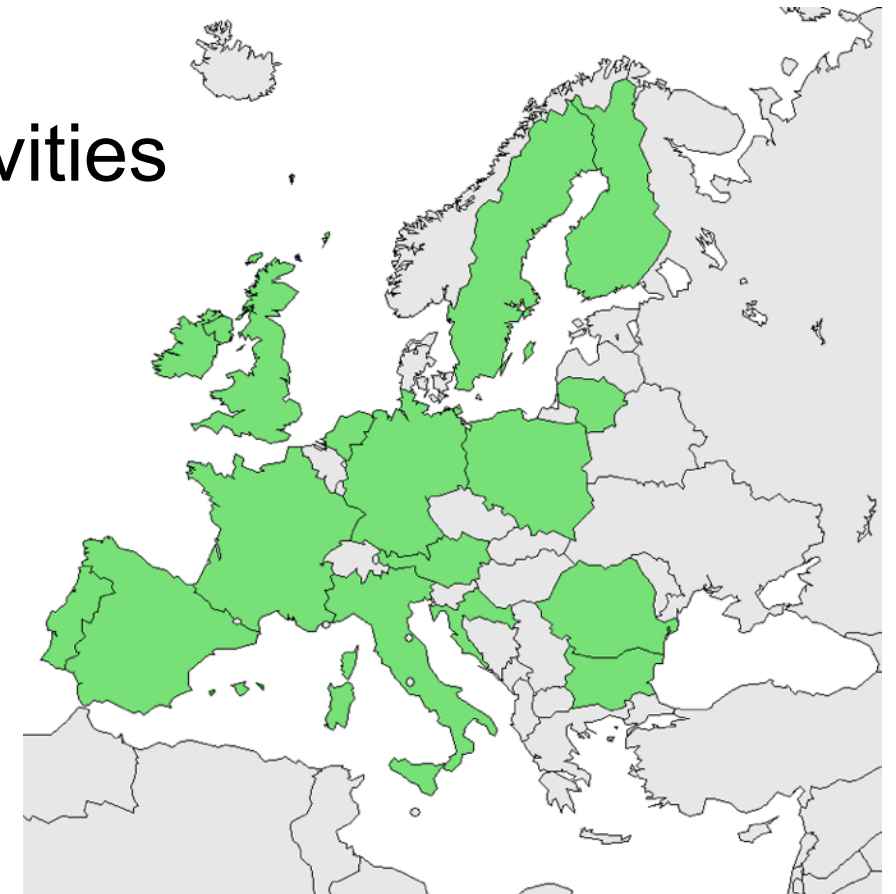 Globus development and operation activities

IGE Vision

Help Scientists in the European Research Area

- Coordination of widespread European
  Globus development and operation activities

Help Scientists in the European Research Area

- Coordination of widespread European
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IGE Vision

Help Scientists in the European Research Area

- Coordination of widespread European
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- Central point of contact in Europe for Globus

- Add the European perspective to Globus

- Globus service provider for European e-Infrastructures such as DEISA, EGI, PRACE
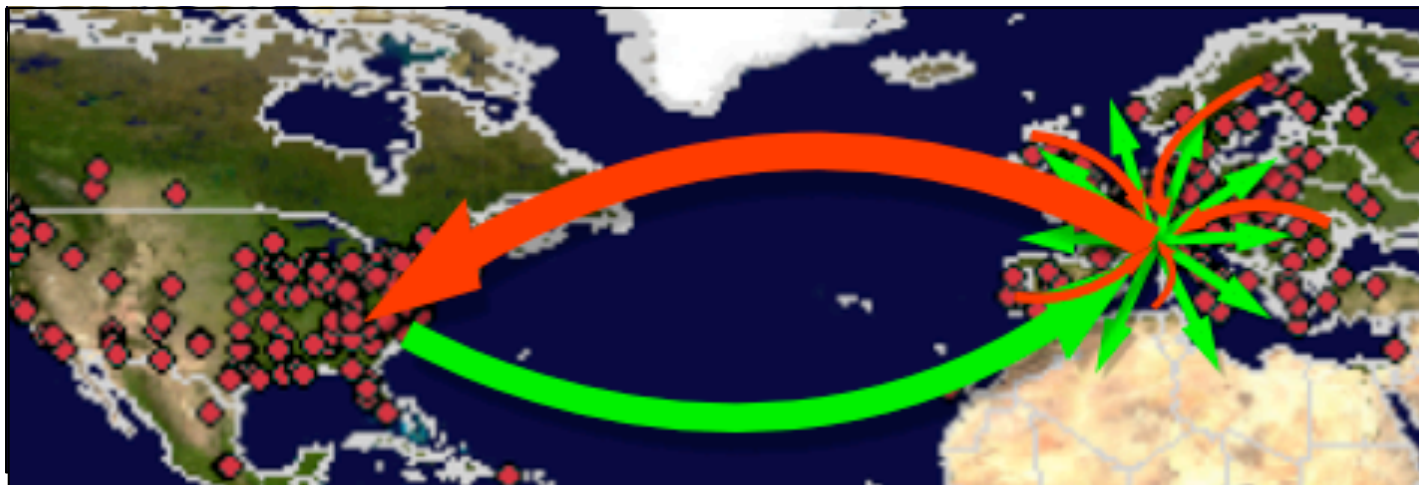
Help Scientists in the European Research Area

- Coordination of widespread European
Globus development and operation activities

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- Globus service provider for European e-Infrastructures such as DEISA, EGI, PRACE

IGE Partners

- Leibniz Supercomputing Centre, Coordinator (LRZ)
- Technische Universität Dortmund (TUDO)
- University of Southampton (SOTON)
- The University of Edinburgh (EPCC)
- Poznan Supercomputing and Networking (PSNC)
- GridwiseTech (GWT)
- Technical University Cluj-Napoca (UTCN)
- Complutense University of Madrid (UCM)
- Uppsala University (UU)
- National Inst. for Nuclear and High Energy Physics (NIKHEF)
- The University of Chicago (UC)

- **Coordination** of European Globus activities
- **Bundle** European input to Globus
- Introduce **adjustments** critical for Europe into Globus **code base**
- Act as **Globus service provider** for European Grids like DEISA, PRACE, and EGI
- Measure Globus **software quality**
- **Standardization**, **training**, **promotion**, and **documentation**
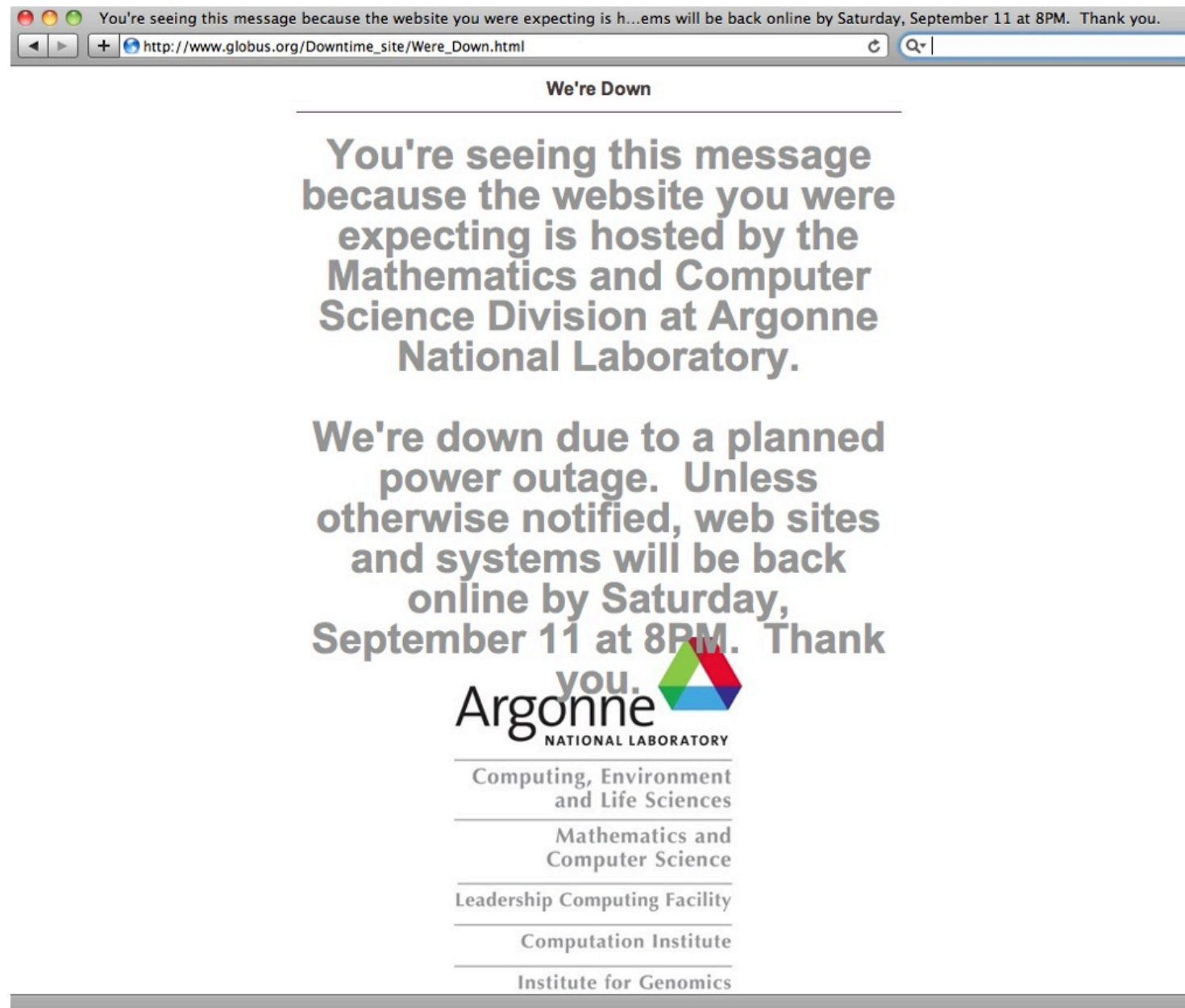- Organize **Globus Europe conference** and **Globus community forum**

- Set up **mirror of globus.org** for Europe
- Provide a **European metrics collector** (otherwise privacy concerns)
- Support **interoperability** efforts (BES, SAML, JSDL, LCAS, accounting, etc.)
- Providing a **repository** and **web resource**: http://www.ige-project.eu/
- **Maintain binary packages** for AIX, SuSE, ...
- **Support batch systems** like LL, NQS2, ...

IGE Services Urgently Needed!

Friday, September 10th, 2010 at www.globus.org

Work Packages

- WP1: Management (LRZ)
- WP2: Community Involvement, Dissem., Training (TUDO)
- WP3: International collaboration and standardization (SOTON)
- WP4: Software adaptions (EPCC)
- WP5: Infrastructure support (PSNC)
- WP6: Test and maintenance (UU)
- Cross WP activities:
    - security (NIKHEF)
    - QA (UTCN)
    - industry relations (GWT)
    - Globus core contact (UC)

Work Packages

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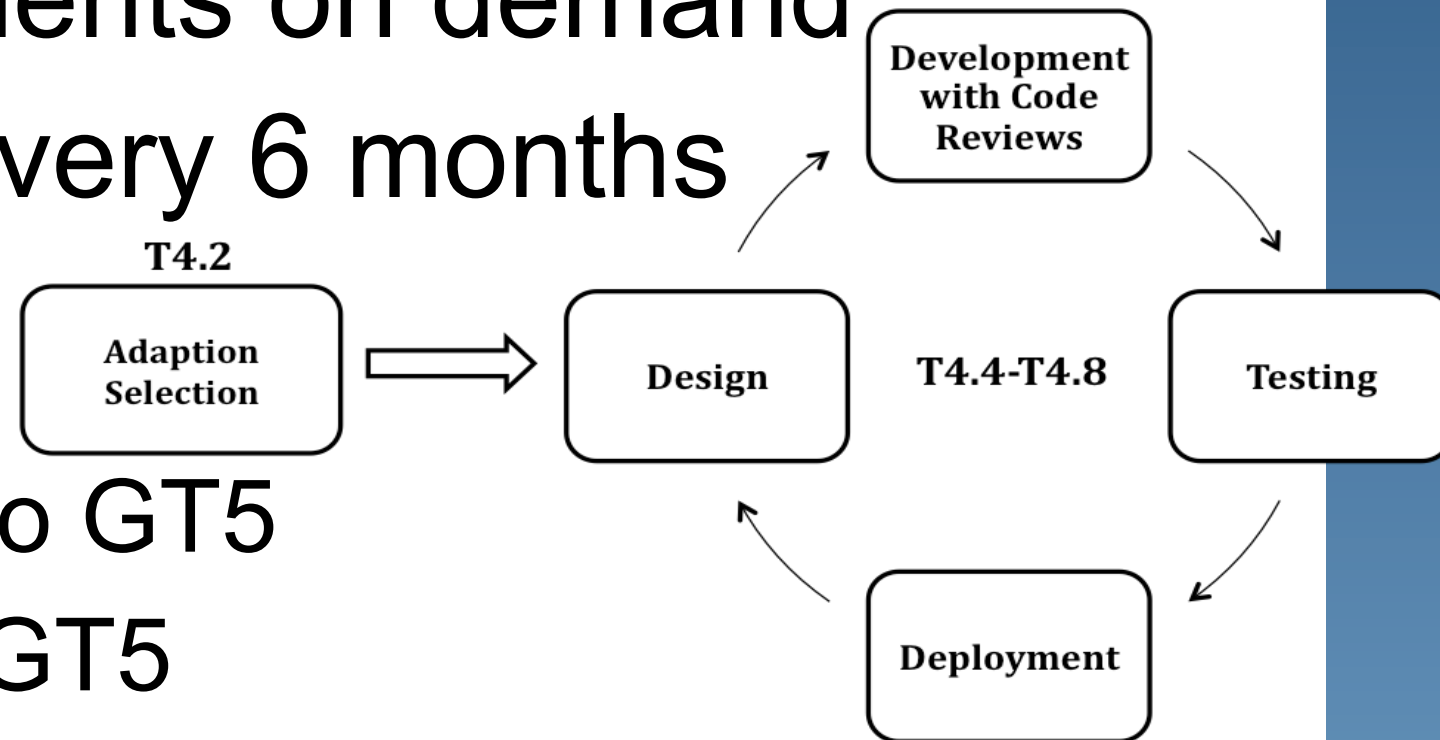# WP3: Standardization and OGF

- European Globus related requirements captured via Community Forum and Liaison Office
- Requirements fed into European Globus development groups and OGF etc.
  - Participate in GIN-cg and PGI-wg
  - Other standards-related groups to be monitored (JSDL, BES, GLUE, DMI…)
  - Open Standards-based solutions to be developed and demonstrated through GIN-cg (community group)
  - Interoperability demo to include increasingly deeper Globus integration (BES, JSDL)
- Support for OGSA-BES, OGSA-DAI in GT5
- Interoperability with other middlewares through implementation of standards

- WP4 will perform software adaptions to European requirements on demand
- New PDCA cycle every 6 months

- Initial tasks:
  - porting OGSA-DAI to GT5
  - porting GridWay to GT5
  - AdHoc-GSI integration
  - VOMS, LCAS/LCMAPS site access control
  - OGSA-BES/JSDL enhancements for GT5

T4.2

Adaption Selection → Design

T4.4-T4.8

Development with Code Reviews

Testing

Deployment

- **http://www.ige-project.eu**
- email: **info@ige-project.eu**
- Duration: 30 months
- Start date: October 1st, 2010

Interactions with other DCIs

- EGI
  - IGE is Globus software provider
  - training, support, SLAs, MoUs
- EDGI
  - get Globus to run on top of EDGI for NGI-UK
  - develop gateway from Globus GRAM to EDGI
- StratusLab
  - Globus Grid services on top of cloud
  - host globus.eu (European branch of globus.org) on StratusLab
  - investigate dynamic Grid deployment (submit VMs through GRAM)
- EMI:
  - common development of standards, assuring interoperability
  - delivering Globus/VDT components to EMI (e.g. GridFTP)
- PRACE, DEISA
  - Globus support, training, SW adaptations

1st Success Story: the Problem

Distributed
European
Infrastructure for
Supercomputing
Applications

- DEISA supports the VPH VC which wants to use GT5 GRAM to submit jobs with their SAGA-based software (no support for WS-GRAM)

- Many machines in DEISA are IBM-brand with LoadLeveler (LL) batch scheduler

- IBM does not provide a GT5 LL-adaptor, thus SARA's computer could not be used

1st Success Story: the Solution

- SARA (Rob van der Wal) contacted **IGE**
- Within WP4 of IGE
  - Eduardo Huedo from Universidad Complutense de Madrid (UCM) offered to have a look
  - but he had no access to an IBM machine
- IGE connected Rob and Eduardo
- Together they ported GT4 LL-adaptor to GT5.0.1
- SARA is now offering GT5 GRAM to VPH
- More work (licensing, packaging, etc.) is needed after IGE has started

globus.org File Transfer Services

Summary

- Vision: **One-stop shop** for Globus in Europe
  Advance research in Europe
- Bundle and coordinate European Globus efforts: **usage** and **development**
- Develop and contribute missing functionality
- Service provider for European Grids
- Third level support for Globus in Europe
- Promote Globus usage in Europe
- First success: GT5 LL-adaptor

Questions?

Thank you for your attention