Latest results of the Grid Application Support Centre at MTA SZTAKI

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GASuC
Grid Application Support Centre

www.eu-egee.org

EGEE'09 Conference
Barcelona, 21-25 September 2009

Information Society and Media

EGEE Application Porting Support Groups

- **MTA SZTAKI, Budapest**
  - Grid Application Support Center (GASuC)
    - *http://www.lpds.sztaki.hu/gasuc*
- **INFN, Catania**
  - GILDA Team
    - *https://gilda.ct.infn.it/*
- **UCM, Madrid**
  - Distributed Systems Architecture Research Group
    - *http://asds.dacya.ucm.es/doku.php?id=start*
- **CSIC, Santander**
  - Institute of Physics of Cantabria
    - *http://grid.ifca.es/*
- **ASGC, Taipei**
  - Academia Sinica Grid Computing
    - *http://grid.sinica.edu.tw/*
- **University of Melbourne, Melbourne**
  - Academia Sinica Grid Computing
    - *http://grid.sinica.edu.tw/*

Support cycle and services

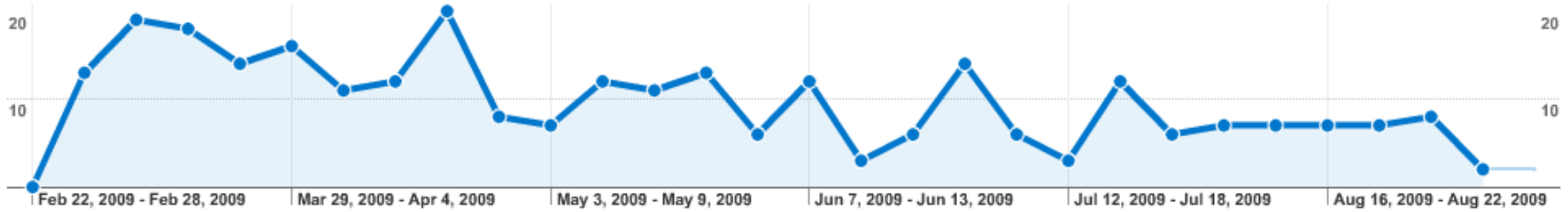
Visit porting centre to make the cycle more effective!

Application porting group webpage www.lpds.sztaki.hu/gasuc

APS group webpage statistics by Google analyitics

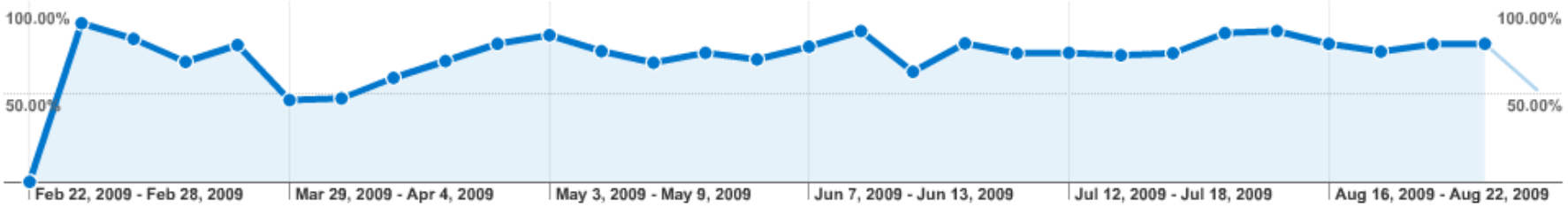
Visits per week:

(Total visits: 1005, Total page views: 2812)



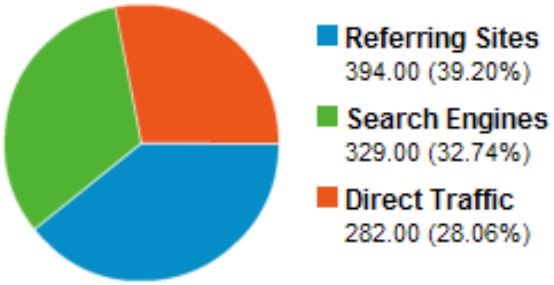
New visits per week:

(~70% of total visits)

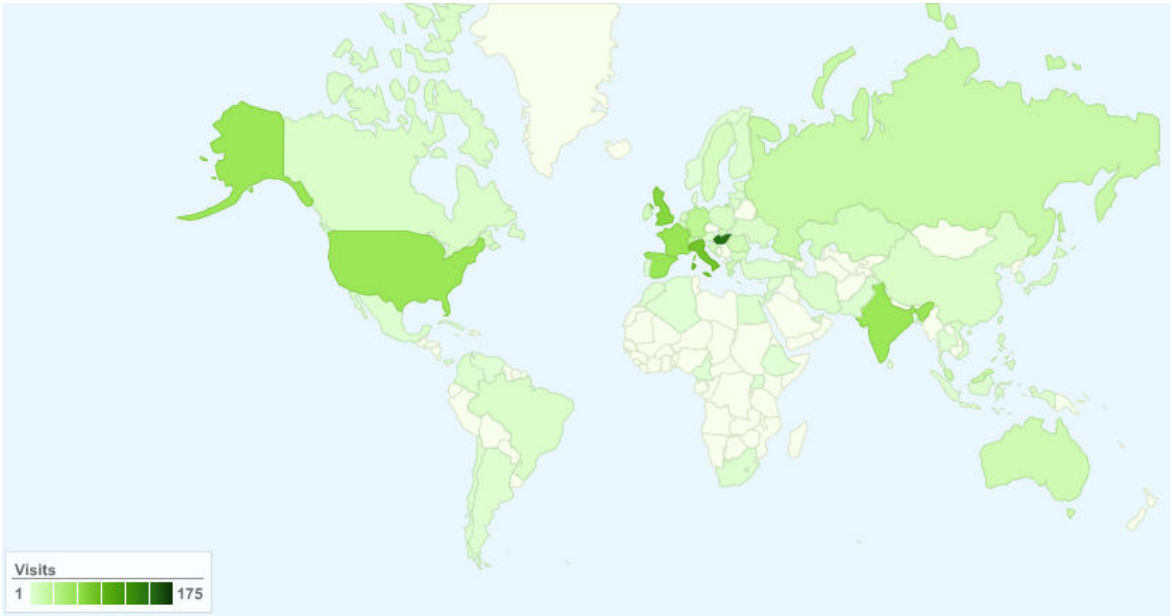


APS group webpage statistics by Google analyitics

Visitors came from:



1.	project.eu-egee.org	60
2.	indico.cern.ch	58
3.	images.google.com	28
4.	cs.man.ac.uk	26
5.	isgtw.org	24
6.	mta.hu	23
7.	technical.eu-egee.org	20
8.	eu-egee.org	17
9.	edges-grid.eu	12
10.	images.google.co.uk	8



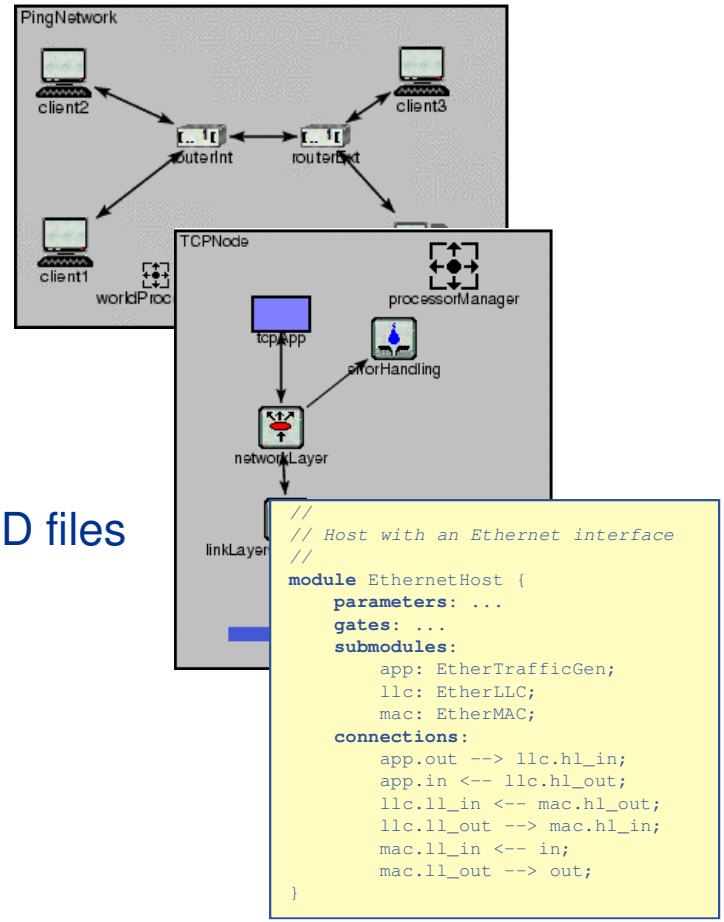
- USA 65
- India 65
- Russia 23

Recent application: OMNET++ simulation framework

A generic simulation framework:

- **For the simulation of complex distributed systems: distributed hardware and software architectures, communication networks, queuing networks,…**
  - An **open** environment
- **Dual licensing:**
  - Academic Public License
  - Commercial License
- **Vivid academic and commercial community**
  - www.omnetpp.org

- **OMNET developers**
  - define new modules (network endpoints) in NED files
  - define simulation parameters in INI file



Two types of OMNET portals

OMNET user portal

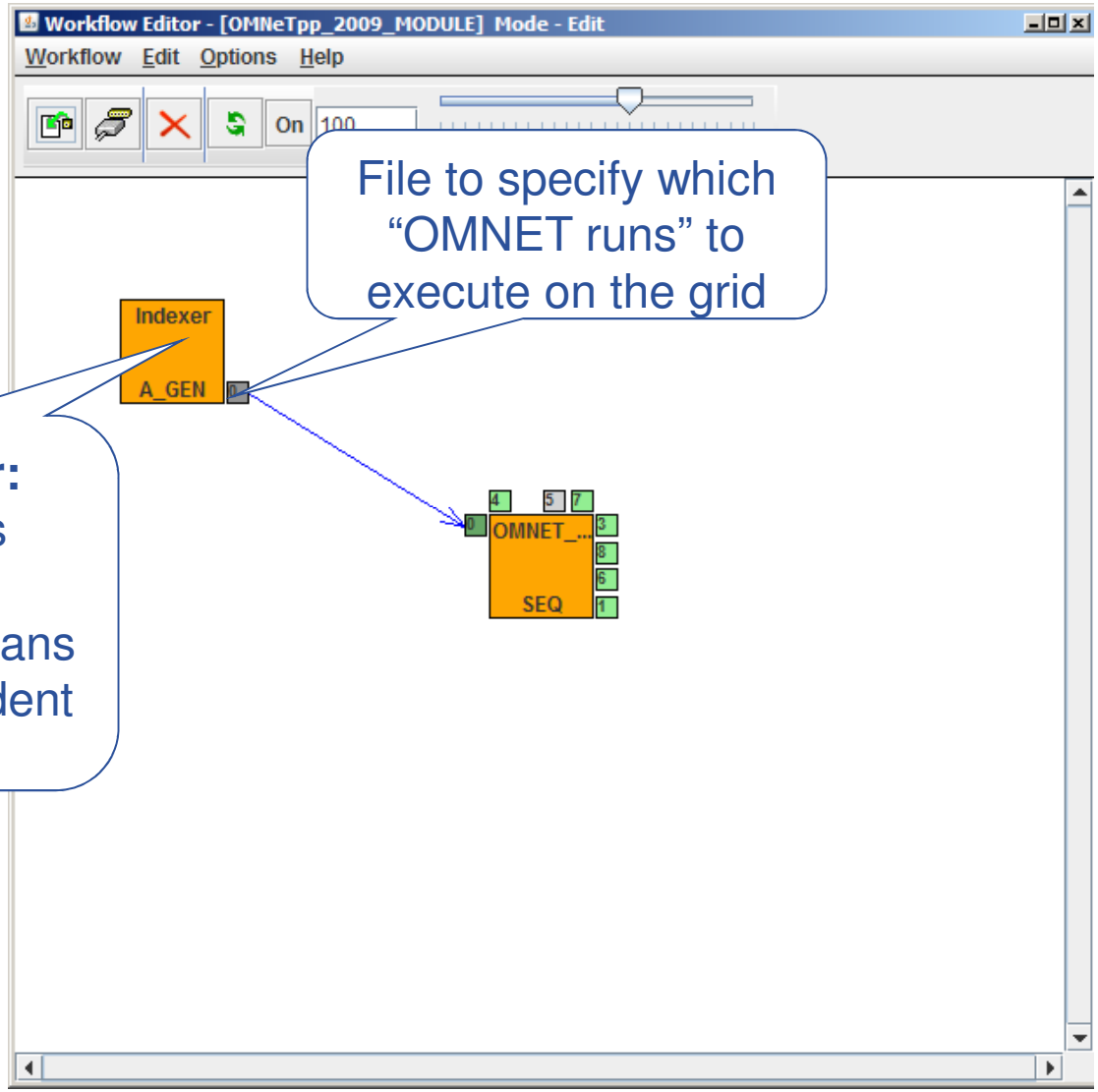
- **Automated account cration. Account exists for 1 week**
- **Only INET and Queuing modules in NED files**
  - No binary comes from end user
    - Portal performs grid operations with a robot certificate
- **In production: https://pgrade-omnet.sztaki.hu**

OMNET developer portal

- **Permanent user accounts**
- **Any NED file**
  - Binaries come from end users
    - Grid operations with the users' personal certificates
- **Under development**

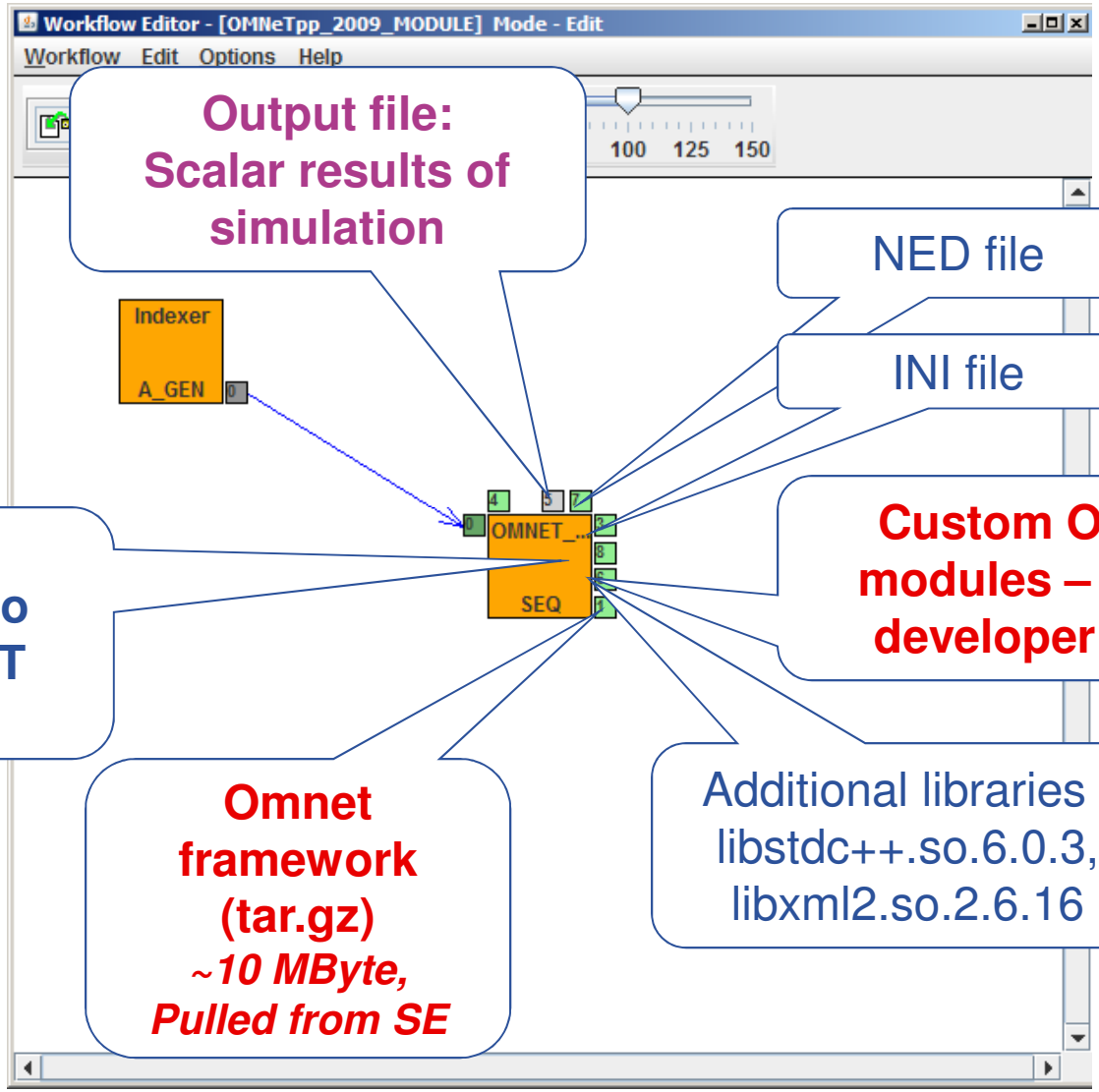
OMNET++ Workflow

www.portal.p-grade.hu



OMNET++ Workflow

www.portal.p-grade.hu



Output file: Scalar results of simulation

NED file

INI file

Executable: Wrpper script to start up OMNET framework

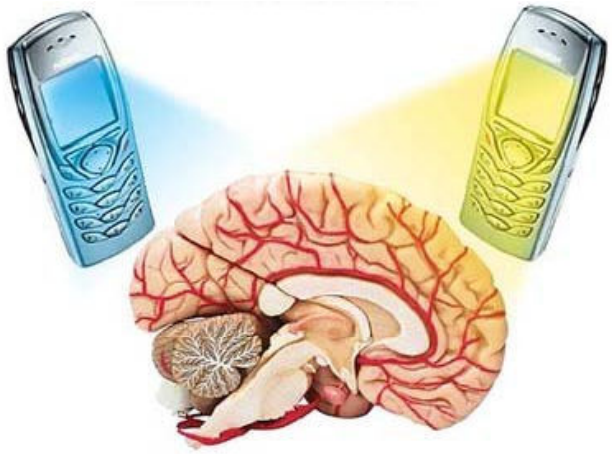
Custom OMNET modules – only in developer portal

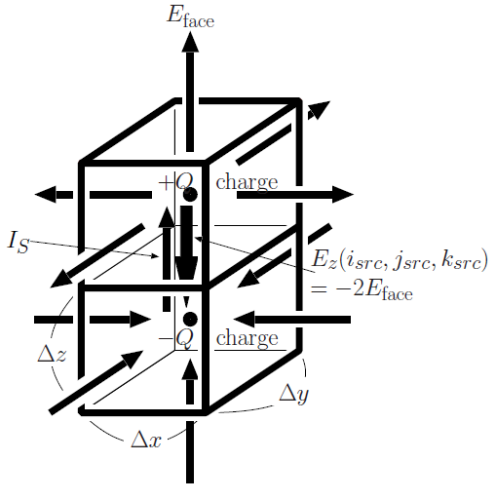
Omnet framework (tar.gz)
~10 MByte, Pulled from SE

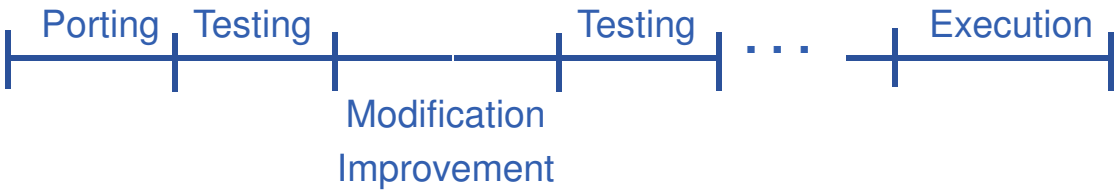
Additional libraries : libstdc++.so.6.0.3, libxml2.so.2.6.16

Recent application: MPI-FD-FDTD

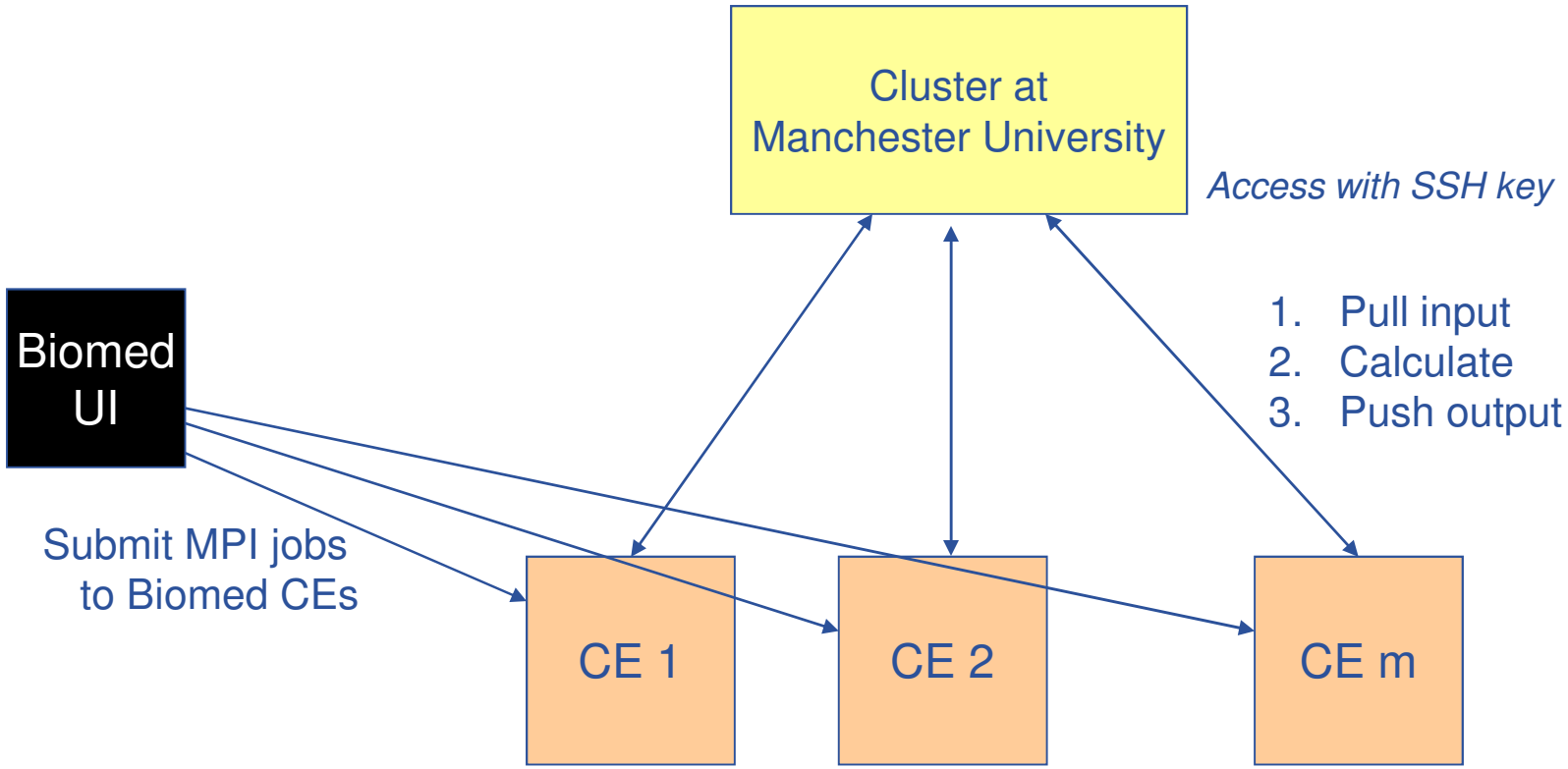
- **Numerical modeling of ElectroMagnetic field distribution in human tissues**
- **1-2 mm digital human phantom from MRI data**
- **Parameter-study execution with scripts**
- **Used VO: Biomed**
- **Difficulties:**
  - Too few Biomed sites support MPI
  - MPI compilation for every site
  - Limited CPUtime for MPI processes
  - Too many files –link to SEs cannot survive the transfer session
  - GGUS tickets: 49293, 49106, 45066, 40091, 40090, 39569, 34265, 31564, 31563







Recent application: MPI-FD-FDTD



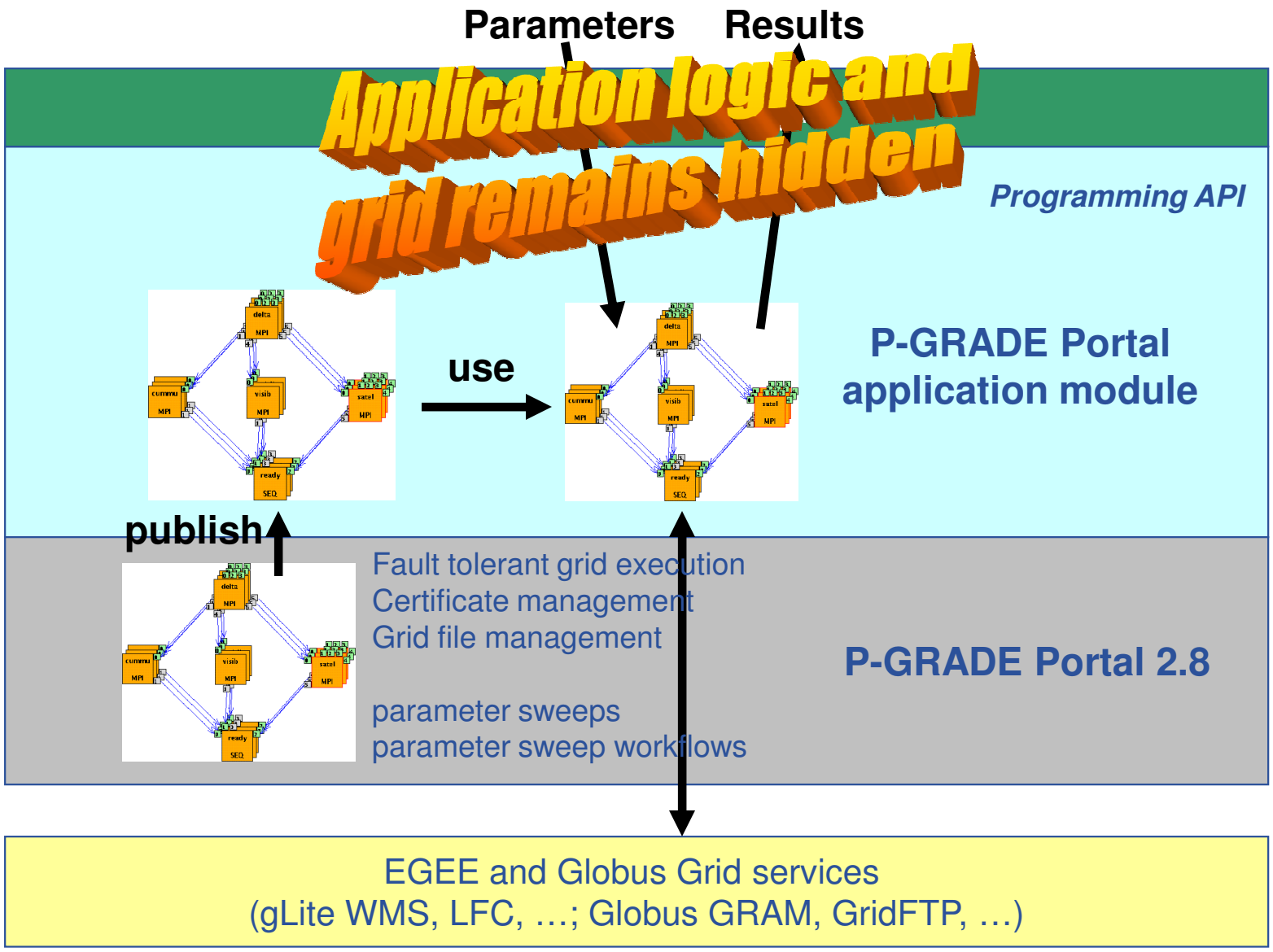
Costen, F.; Berenger, J.-P.; Brown, A.K.:Comparison of FDTD hard source with FDTD soft source and accuracy assessment in Debye media **IEEE Transactions on Antennas and Propagation, Vol. 57, Issue 7, 2009, Pp. 2014-2022.**

Lowering barriers 1: Grid portal development package

- **Most porting projects must produce a grid portal**
  - Web based access
  - Interface for non IT people
  - Automated recognition and handling of grid errors
- **Application specific module for P-GRADE Portal**
  - Provides an API on top of Gridsphere and P-GRADE core services
    - Only a few Java classes
  - Connect any Web interface to your grid applications
  - No need to learn P-GRADE and Gridsphere programming
- **Examples:**
  - OMNET simulation portals (1 novice, 1 advance)
  - Numerical Modeling of Mantle Convection portal
  - E-marketplace Model Integrated with Logistics

www.portal.p-grade.hu

Develop an application specific grid portal (Science gateway)



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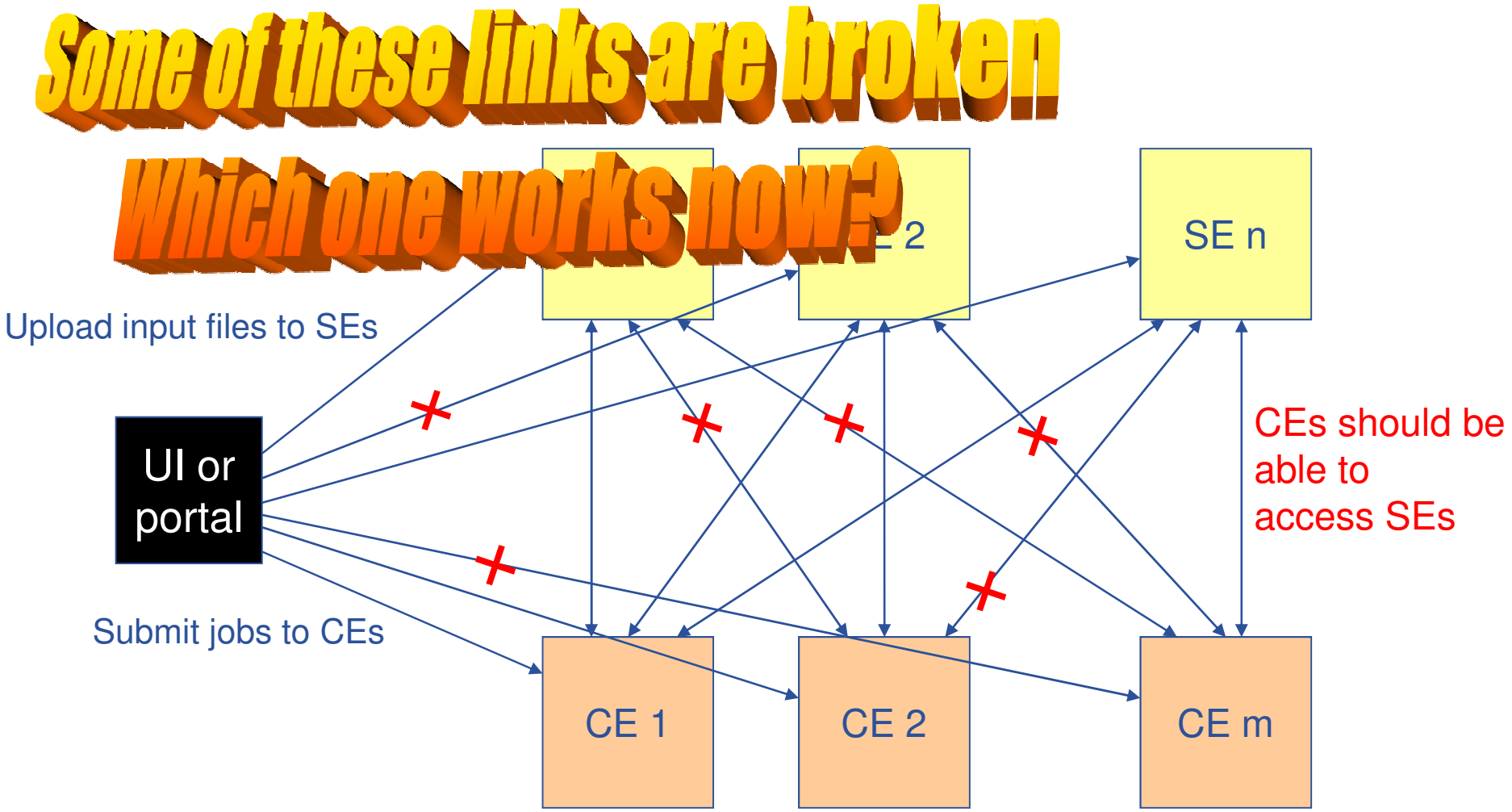
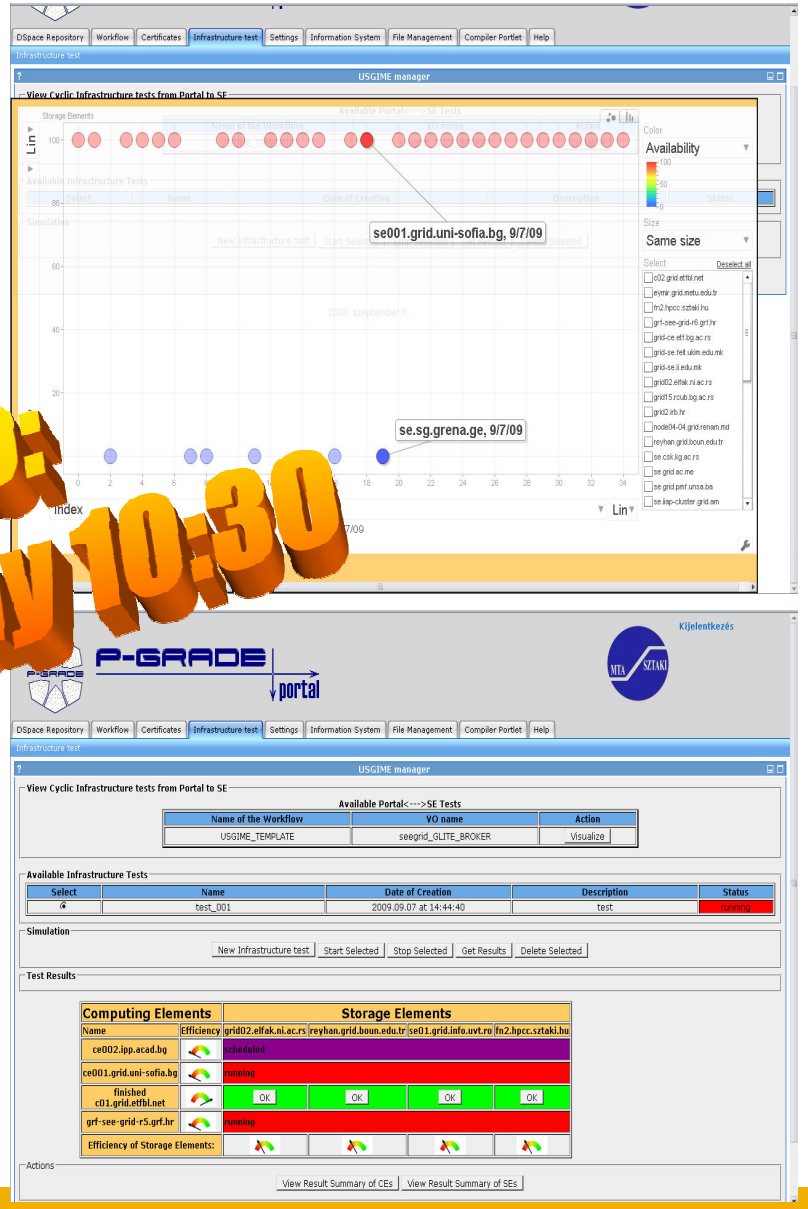
Lowering barriers 2: Resource accessibility test



Resource accessibility: Test portlet and workflow

- **Test the links between your UI and your SEs**
  - With a robot certificate
- **Test the links between your CEs and SEs**
  - With your certificate
- **Ready to used test infrastructure for SEE-GRID VO**
  - http://sourceforge.net/projects/pgportal/
- **Easy to customize for other VOs**



Lowering barriers 3: Grid application repository

- Applications enabled on EGEE with P-GRADE Portal
- Share, Annotate, Search, Import, Reuse, Download, Execute

Available:

- https://pgrade-dspace.sztaki.hu/jspui/handle/dspace/43
- In any P-GRADE Portal 2.8 installation

Conclusions

- **SZTAKI porting team is active in**
  - international recognition of grid porting support
  - porting applications
    - OMNET++ discrete event simulation community
      - *Science Gateways for Discrete Event Simulation based on P-GRADE Portal*
        Wednesday 11:00 Science Gateways session
    - Electro magnetic field distribution in human tissues
  - lowering barriers for developers and end users
      - *Further development of P-GRADE Portal for advance user support*
        Wednesday 10:30 DEMO

- **Apply for assistance at www.lpds.sztaki.hu/gasuc**
  - Financial support to visit a porting centre

- **Application Porting Support SSC**
  - Currently developing, open to any NGI & institute
  - Further information:
    - SSC workshop on Friday
    - Your NGI representative and internal section of web.eu-egi.eu webpage
    - Gergely Sipos (sipos@sztaki.hu)

EGEE Application Porting Support Group

www.lpds.sztaki.hu/gasuc

Questions?