GARR

The Italian Academic & Research Network

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GARR Science Gateway

Esempio di utilizzo di un framework per la creazione di portali web 2.0.

Riccardo Rotondo

III Borsisti Day, Roma, 06.12.2012

Consortium GARR

Outline

- What is a Science Gateway ?
- The Catania Science Gateway Framework
  - General Architecture
  - DOGS: Data On Grid Services
- Use Case:
  - The GARR Science Gateway
- Conclusions & Future Work

Users in the net

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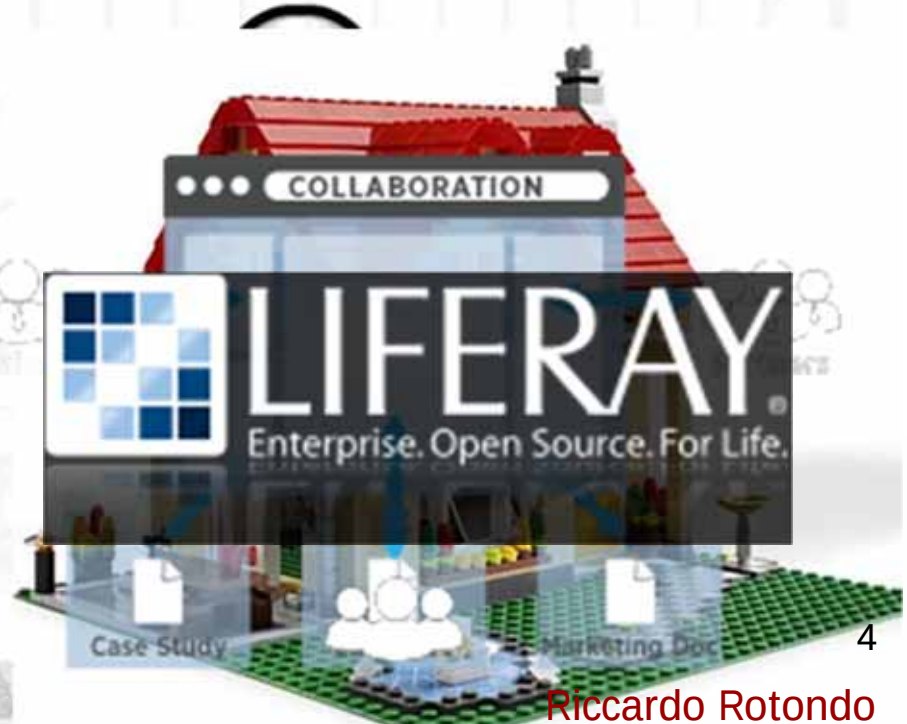
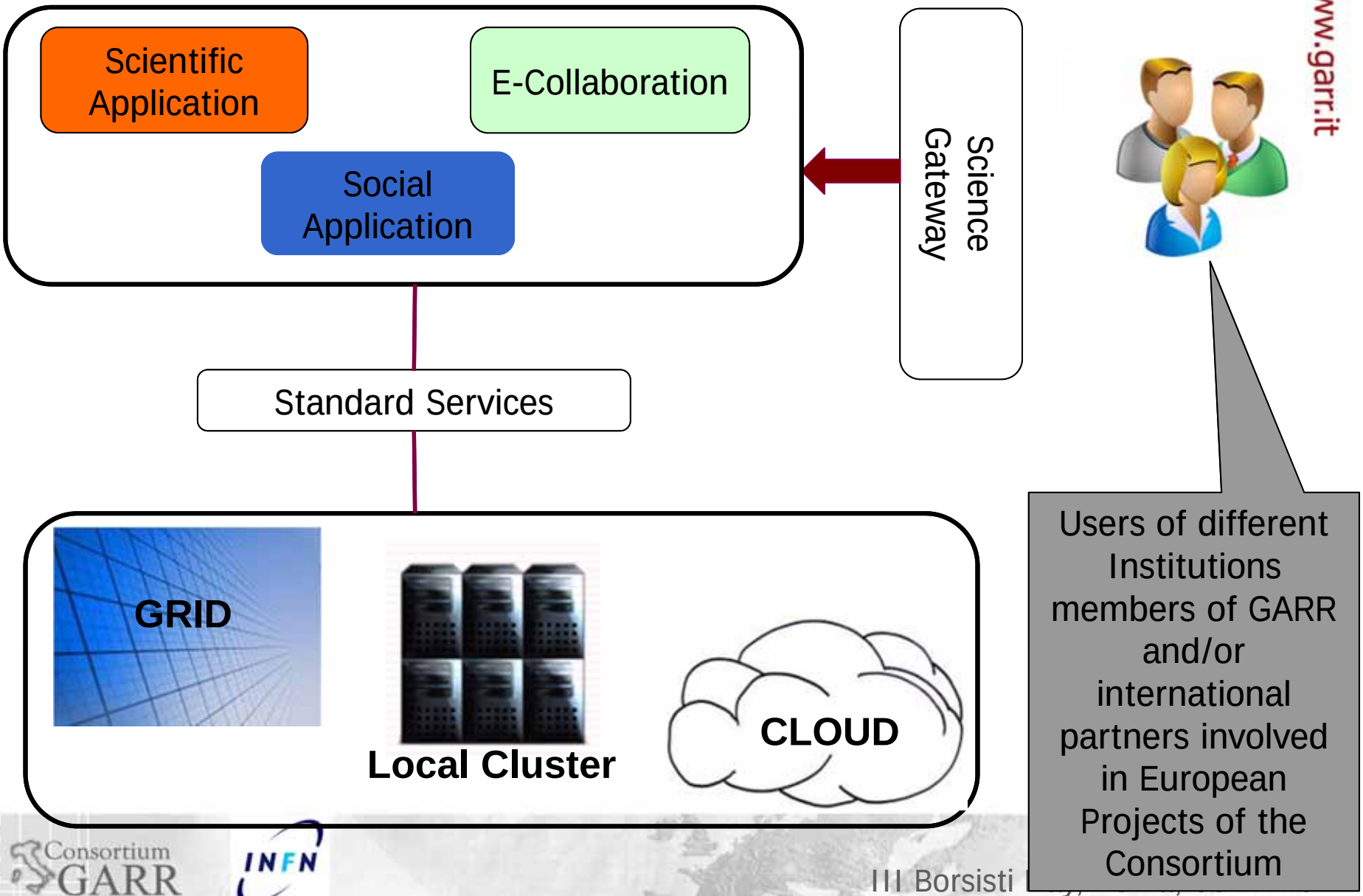
Requisiti fondamentali

- Autenticazione e autorizzazione
  - SAML, LDAP
- Interazione con le applicazioni in modo indipendente dal middleware
  - iSAGA, SAGA
- Tecnologie Java Standard
  - JSR 168/286
- Tecnologie web
  - Web CMS
  - Wiki, Blog, Messages Board, Vconf, Adobe Connect
- Portal Framework

- Adozione di standard
- Semplicità
- Facilità di utilizzo
- Riutilizzabilità



Reference Model



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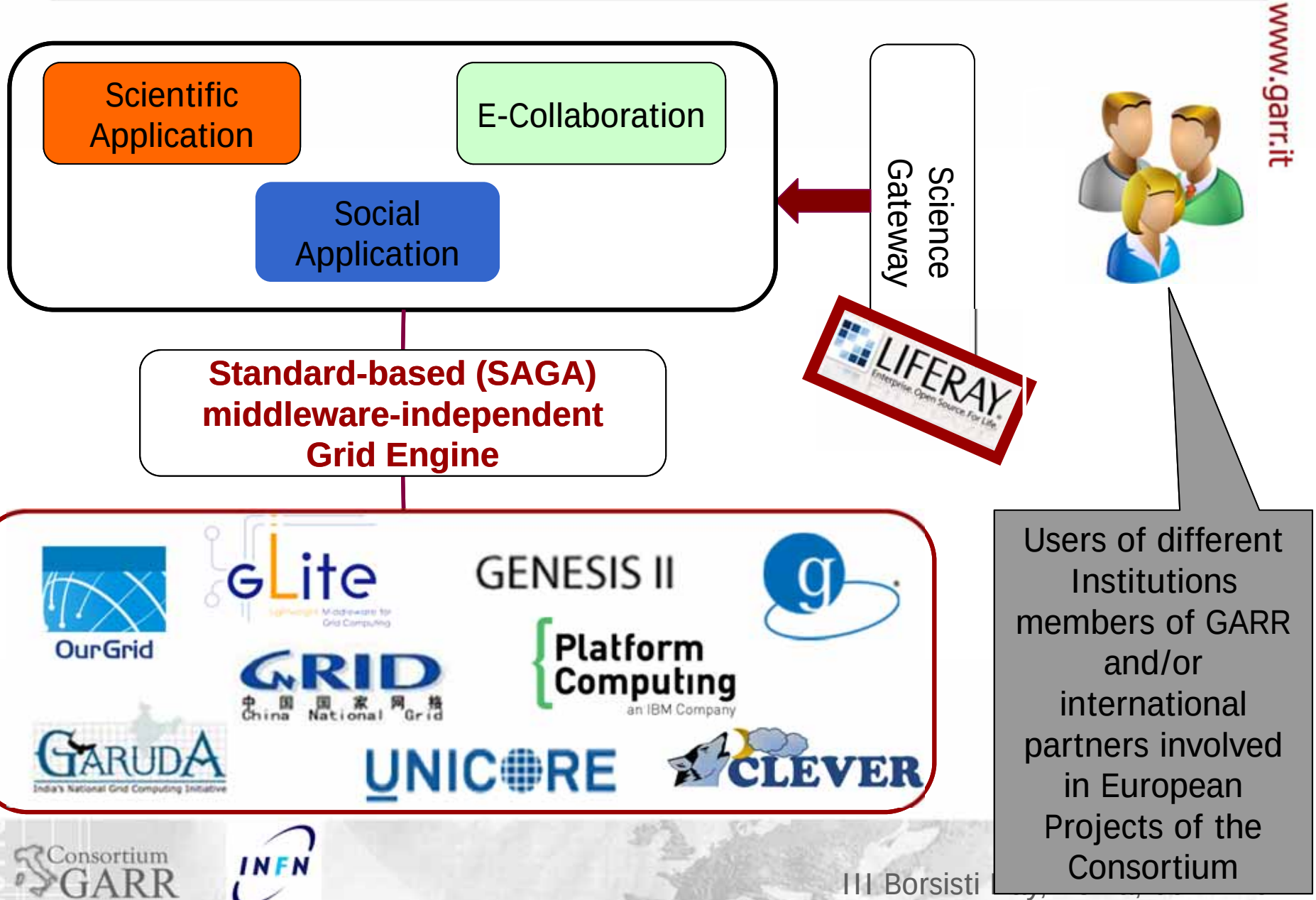
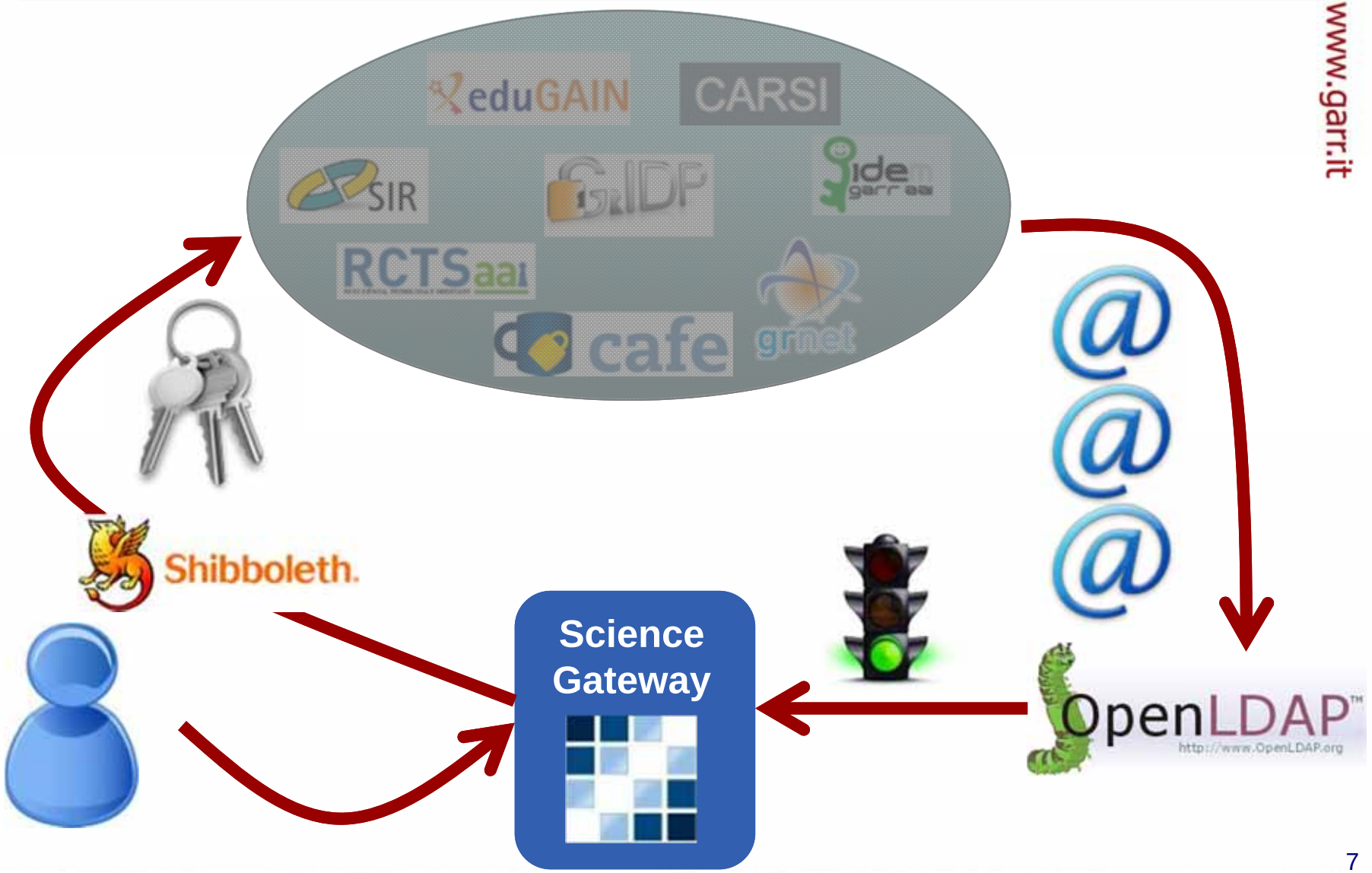
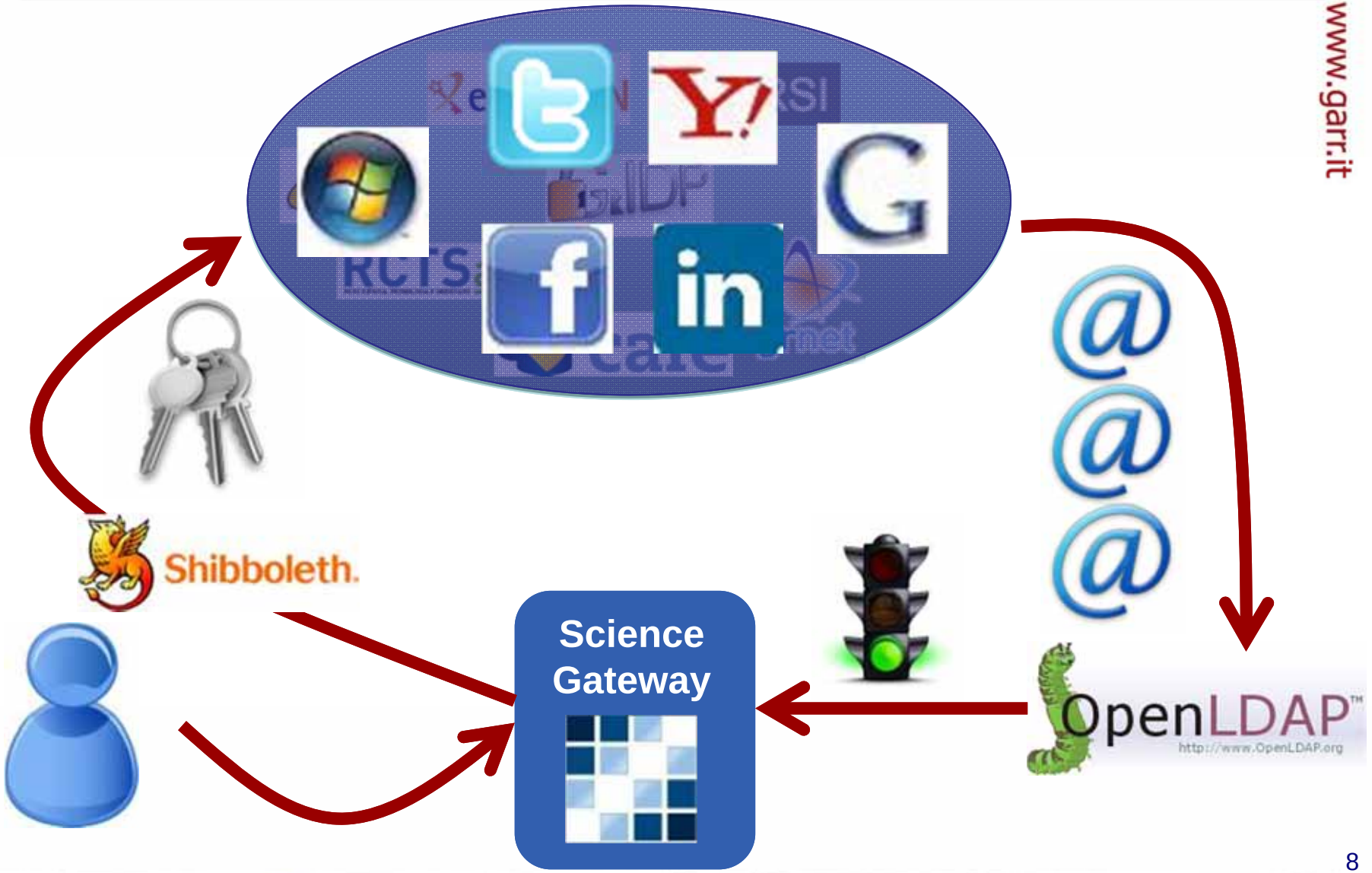


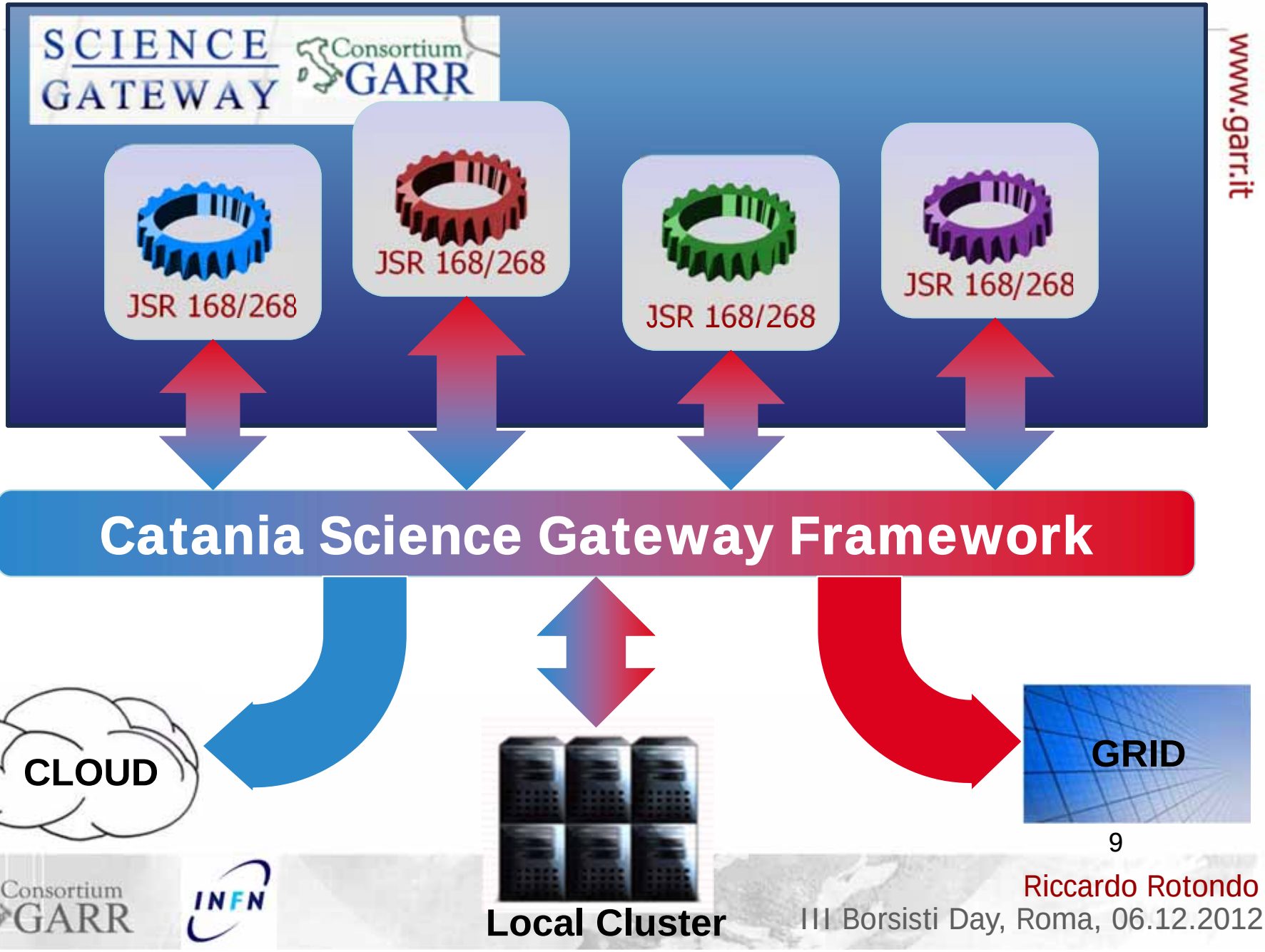
Federated User



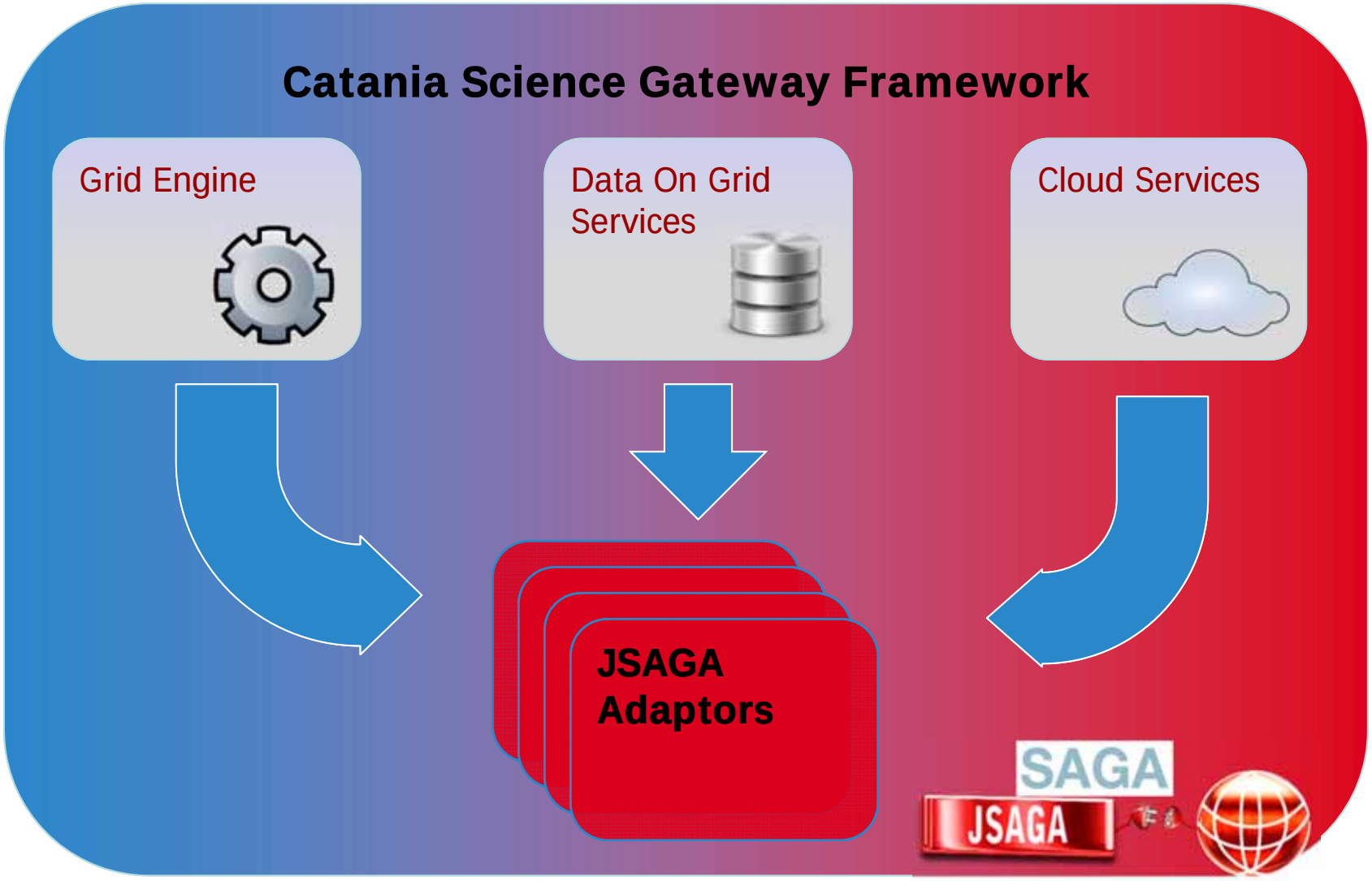
Social User


Shibboleth.
Science Gateway
OpenLDAP
http://www.OpenLDAP.org

Integrated Services



Catania Science Gateway Framework



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Grid Data Management Challenges

- Make interfaces simple for non expert users
  - CLI-based Grid storage interface is not straightforward
- Grid transactions require user certificates
- Complexity of current protocols to manage grid storage elements
  - Very little or no support for access through modern browsers or others web-based applications

Requirements

- Grid Storage complexity hidden to end users
  - Users move files from/to a portal and see it as simple external storage accessible from a web interface and do not care about grid (or any other) technologies behind
- File management smoothly integrated with all the services provided in the SG
- Underlining architecture exposes a file-system-like view (i.e., a Virtual File System - VFS) through which users can perform the following actions:
  - Create, move, delete files/directories with the desired structure
  - Share files with other users
  - Set the number of backup copies desired

Data On Grid Services: DOGS

- A file browser shows Grid files in a tree
- File system exposed by the SG is virtual
- Easy transfer from/to Grid (by SG) is done in a few clicks
- Users do not need to care about how and where their files are really located

Back-end technical details

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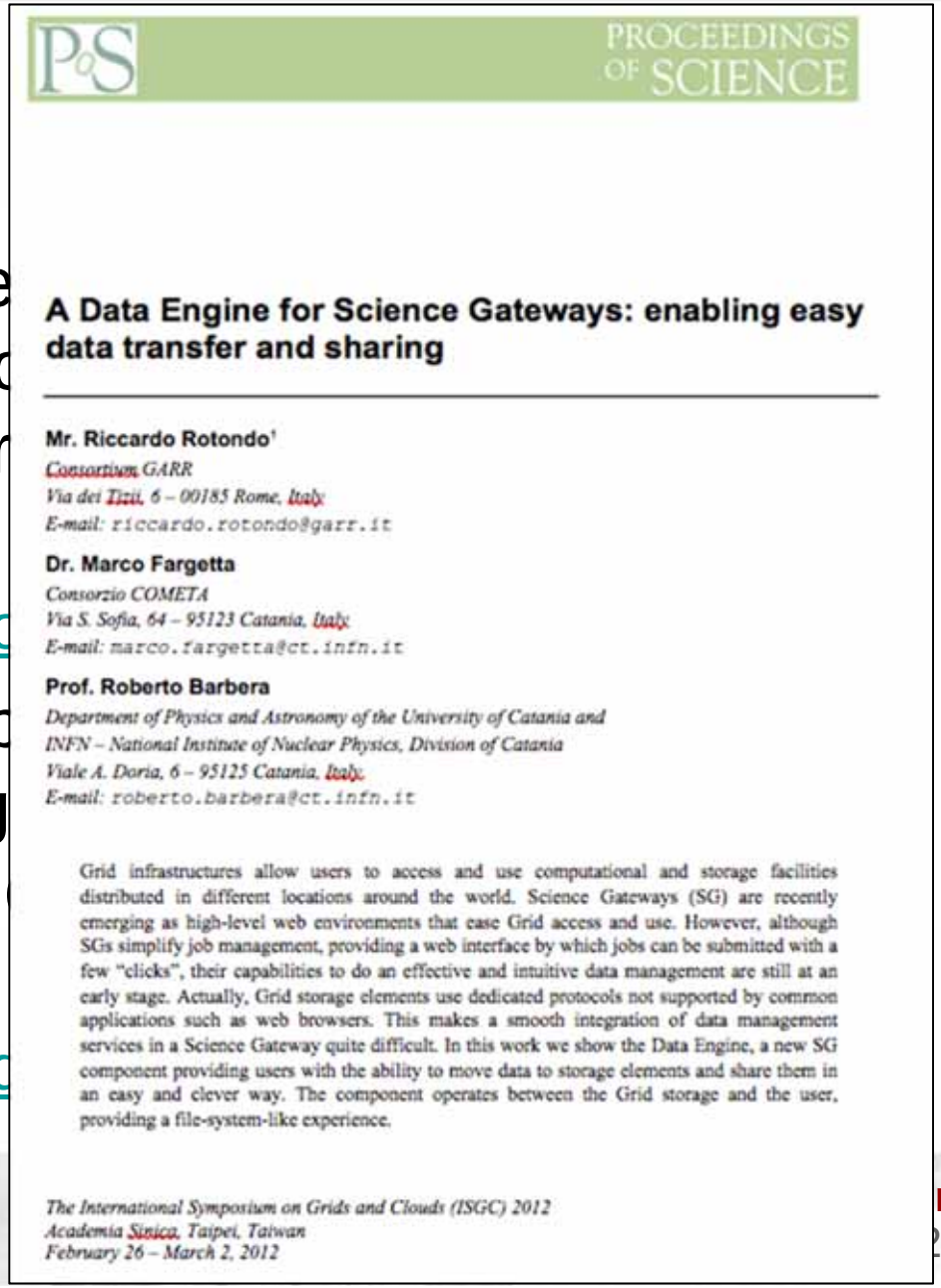
- JSAGA API used to transfer data from/to storage elements
- Hibernate to manage the VFS collecting information on files stored on Grid; any changes/actions in the user view affect the VFS
- MySQL as underlying RDBMS
- An additional component has been developed in order to keep track of each transaction in the users tracking DB (to be compliant with the EGI Portal and User Traceability Policies)

Front-end technical details

- A portlet has been cre
  Liferay-based portal to
  only to federated user
  privileges
  - http://www.liferay.co
- The portlet view comp
  web-based file manag
  using jQuery UI for a
  interface
  - http://elrte.org/elfinc



PROCEEDINGS OF SCIENCE

A Data Engine for Science Gateways: enabling easy data transfer and sharing

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Grid infrastructures allow users to access and use computational and storage facilities distributed in different locations around the world. Science Gateways (SG) are recently emerging as high-level web environments that ease Grid access and use. However, although SGs simplify job management, providing a web interface by which jobs can be submitted with a few "clicks", their capabilities to do an effective and intuitive data management are still at an early stage. Actually, Grid storage elements use dedicated protocols not supported by common applications such as web browsers. This makes a smooth integration of data management services in a Science Gateway quite difficult. In this work we show the Data Engine, a new SG component providing users with the ability to move data to storage elements and share them in an easy and clever way. The component operates between the Grid storage and the user, providing a file-system-like experience.

The International Symposium on Grids and Clouds (ISGC) 2012
Academia Sinica, Taipei, Taiwan
February 26 – March 2, 2012

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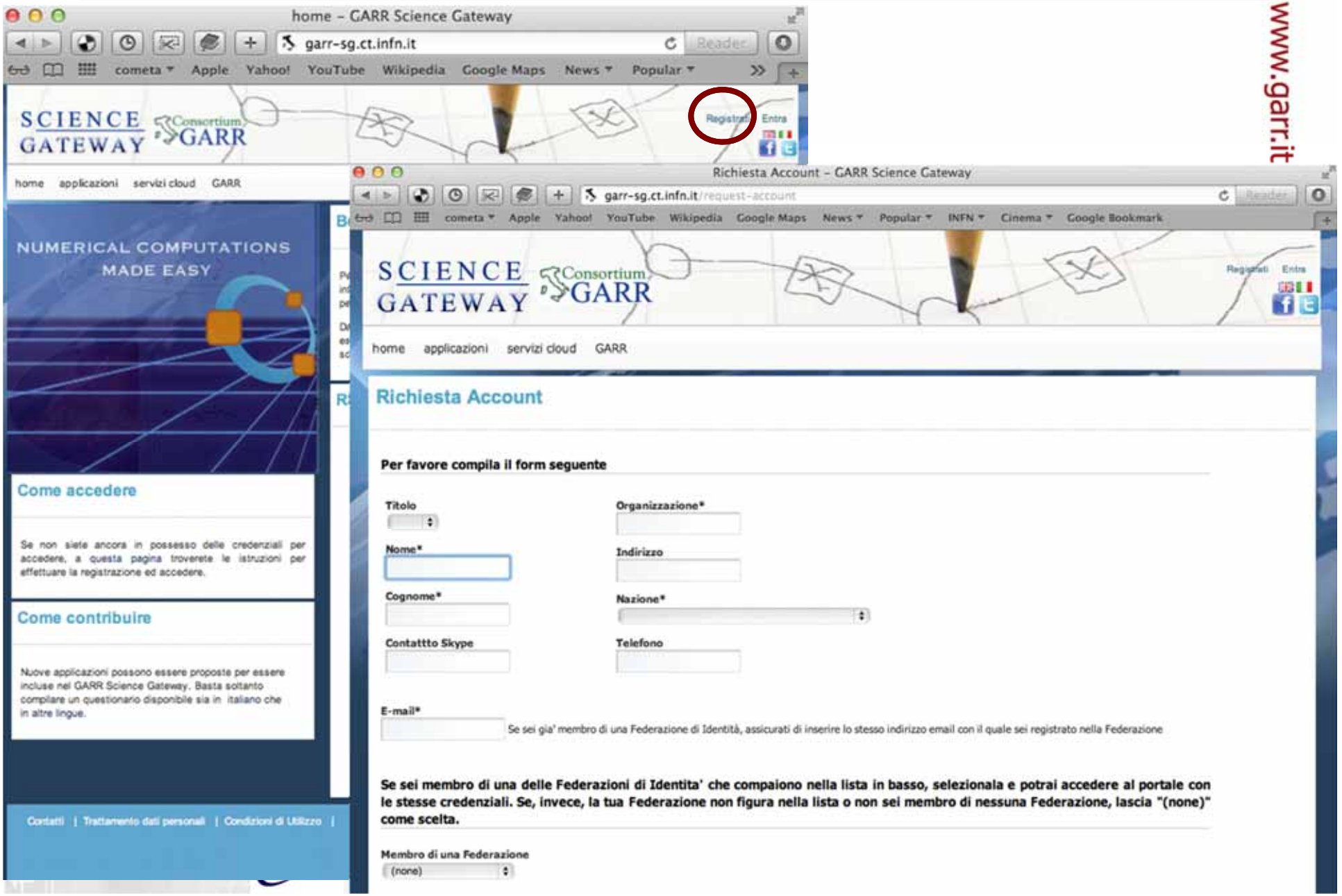
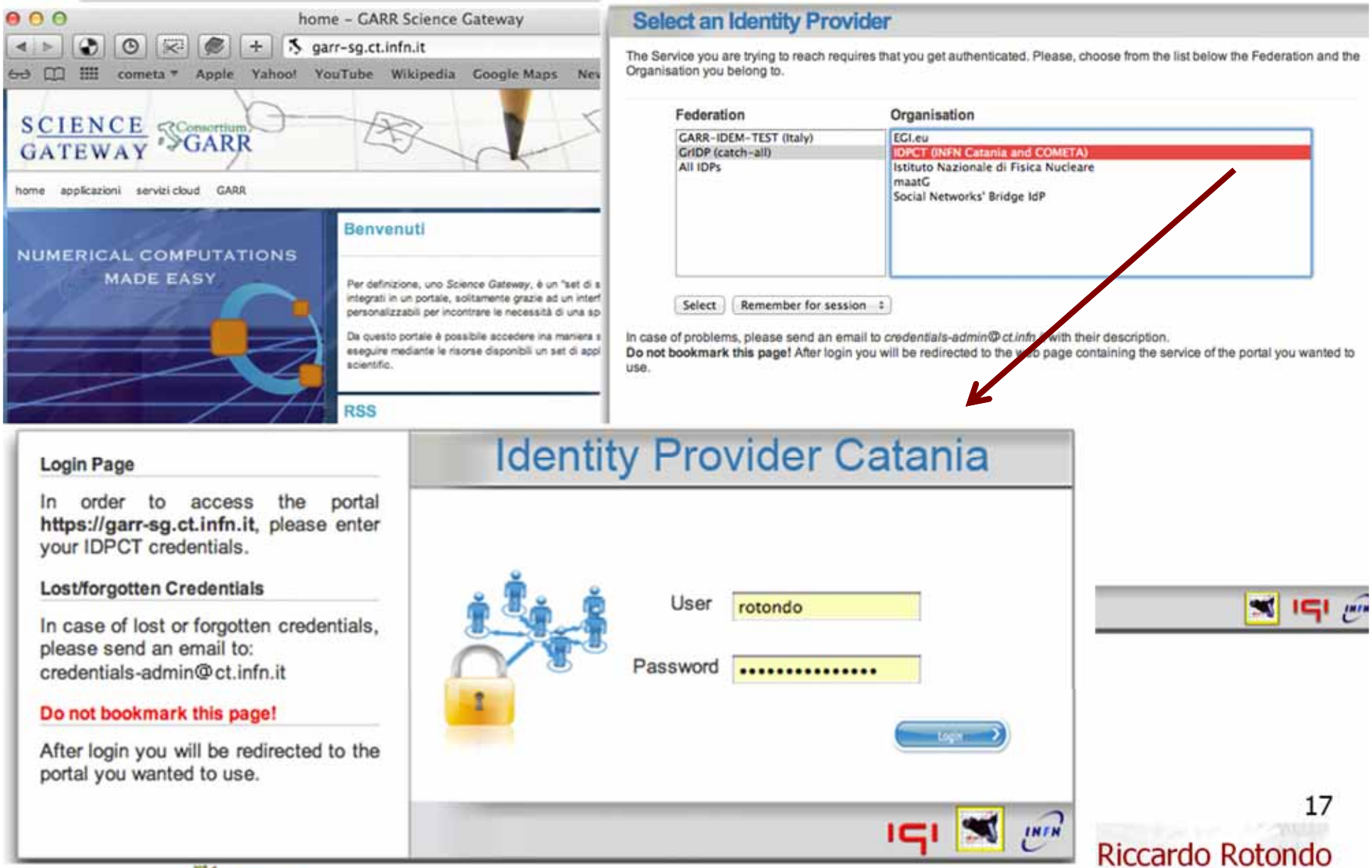
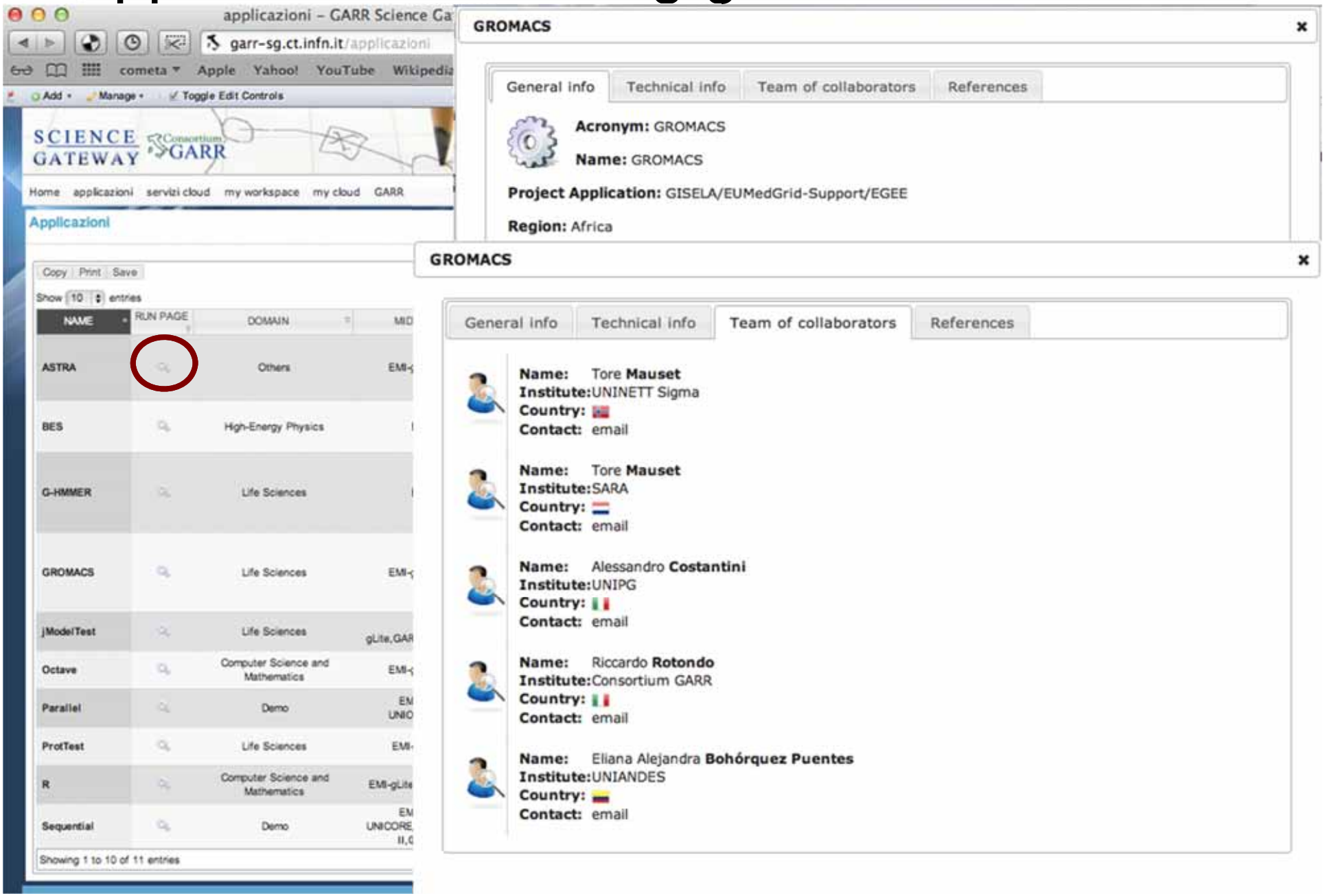
The GARR Science Gateway



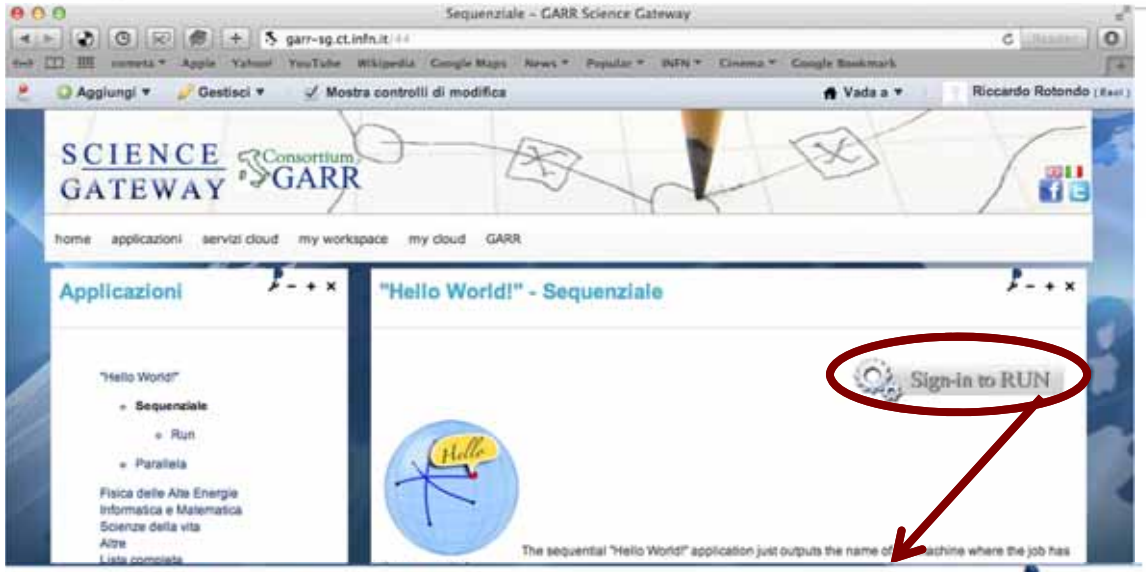
Access

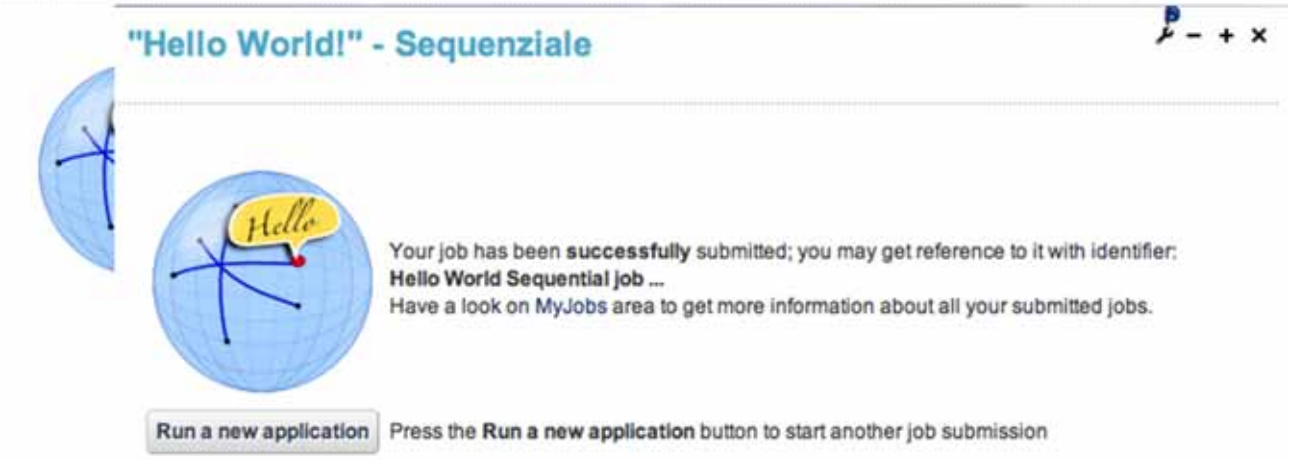

home - GARR Science Gateway
garr-sg.ct.infn.it
cometa
Apple
Yahoo!
YouTube
Wikipedia
Google Maps
SCIENCE GATEWAY
Consortium GARR
home
applicazioni
servizi cloud
GARR
NUMERICAL COMPUTATIONS MADE EASY
Benvenuti
RSS
Select an Identity Provider
The Service you are trying to reach requires that you get authenticated. Please, choose from the list below the Federation and the Organisation you belong to.
Federation
Organisation
GARR-IDEM-TEST (Italy)
GrIDP (catch-all)
All IDPs
EGI.eu
IDPCT (INFN Catania and COMETA)
Istituto Nazionale di Fisica Nucleare
maatG
Social Networks' Bridge IdP
Select
Remember for session
Login Page
In order to access the portal https://garr-sg.ct.infn.it, please enter your IDPCT credentials.
Lost/forgotten Credentials
In case of lost or forgotten credentials, please send an email to: credentials-admin@ct.infn.it
Do not bookmark this page!
After login you will be redirected to the portal you wanted to use.
Identity Provider Catania
User
rotondo
Password
Login
This service is powered by Shibboleth

Applications accessing grid services



Job Submission





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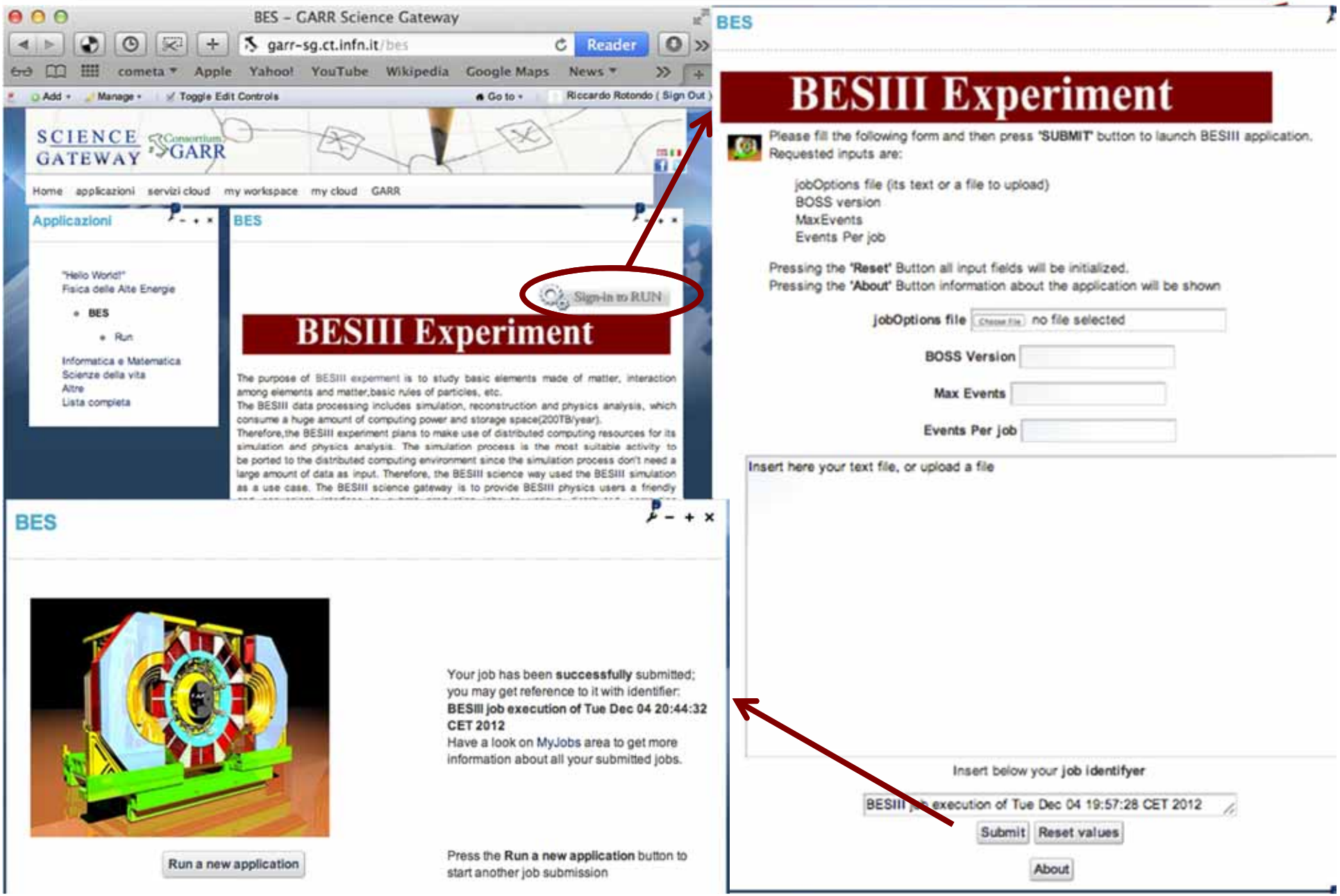
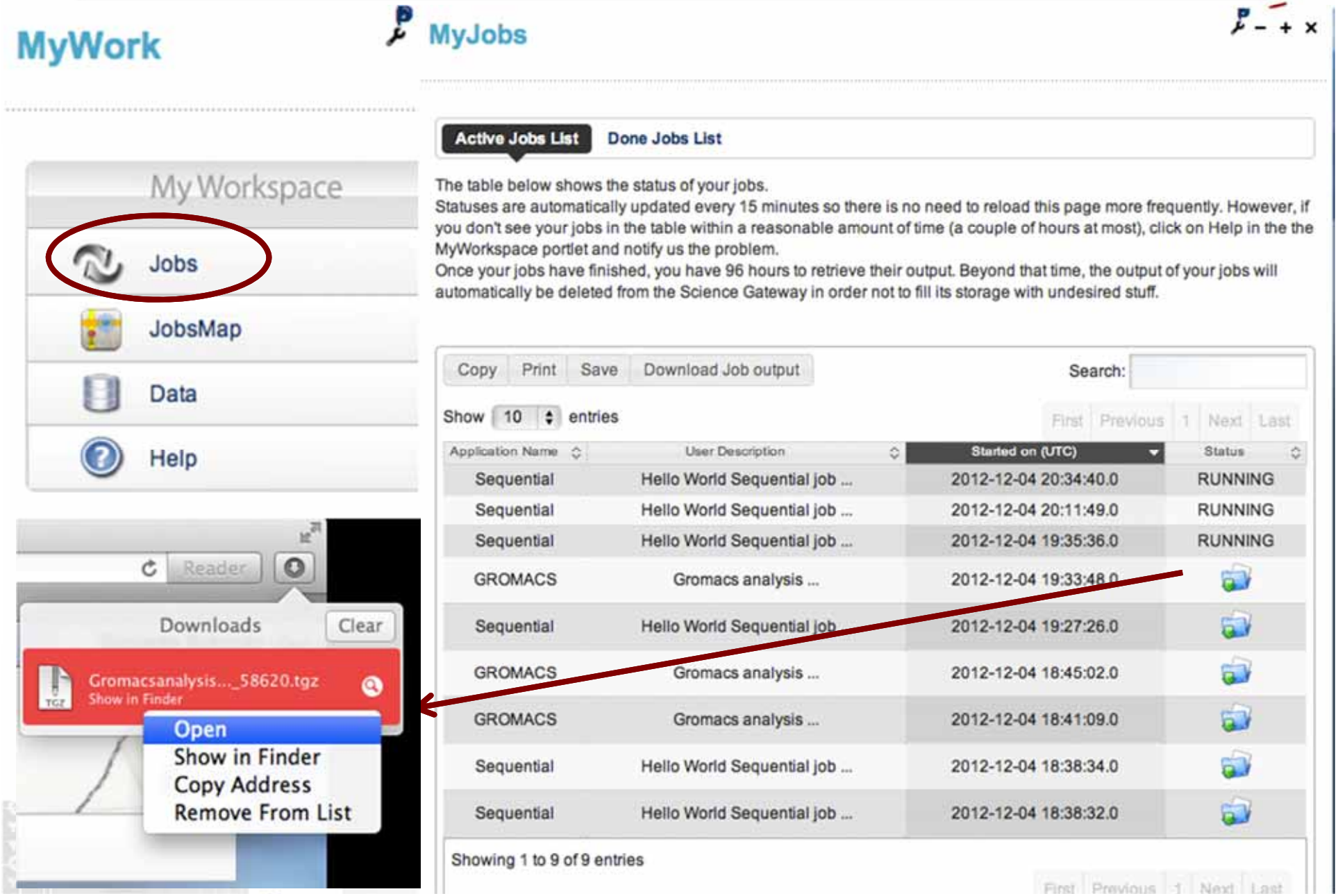
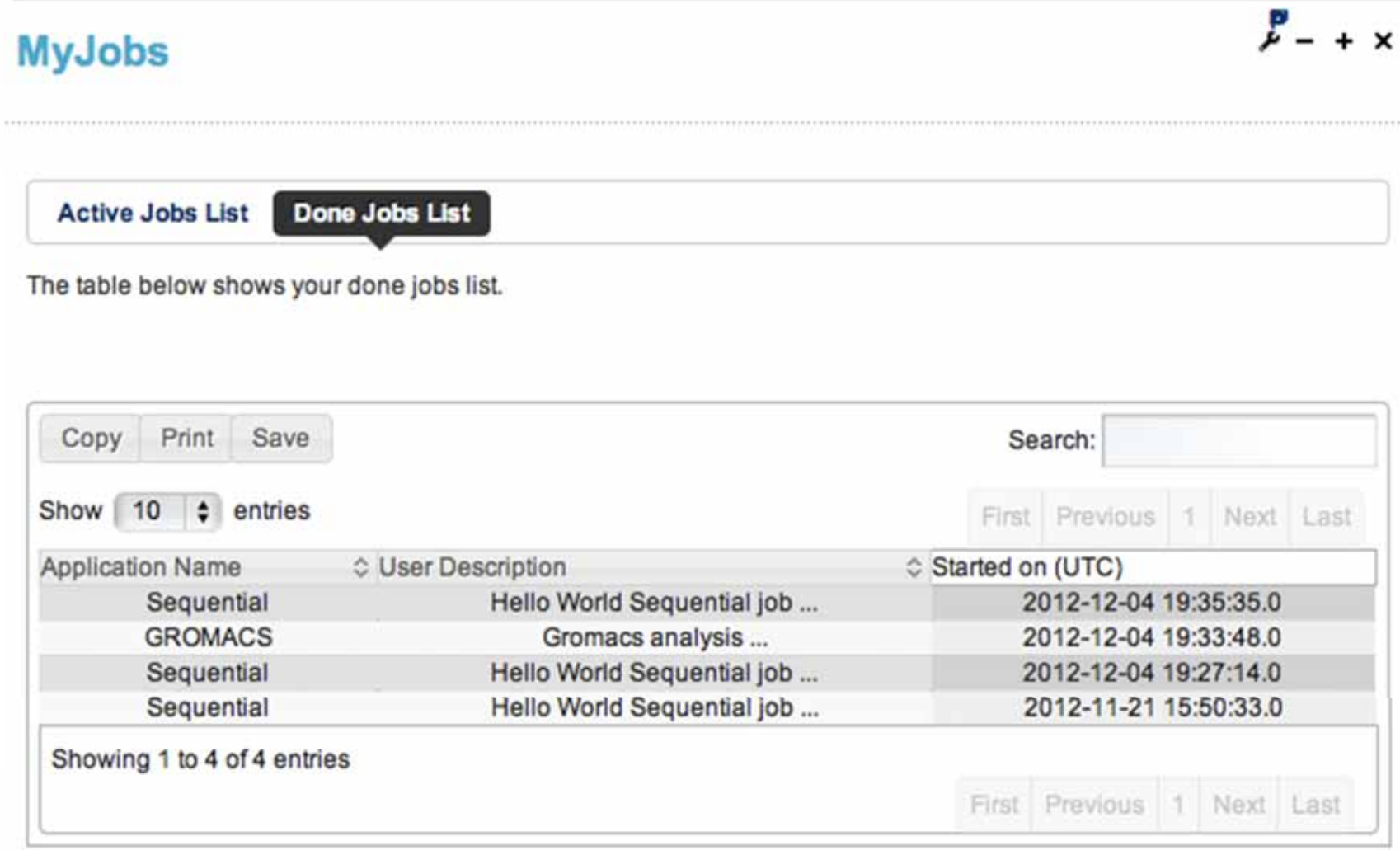
Job Submission



My Workspace – Active Job List



My Workspace - Done Job List



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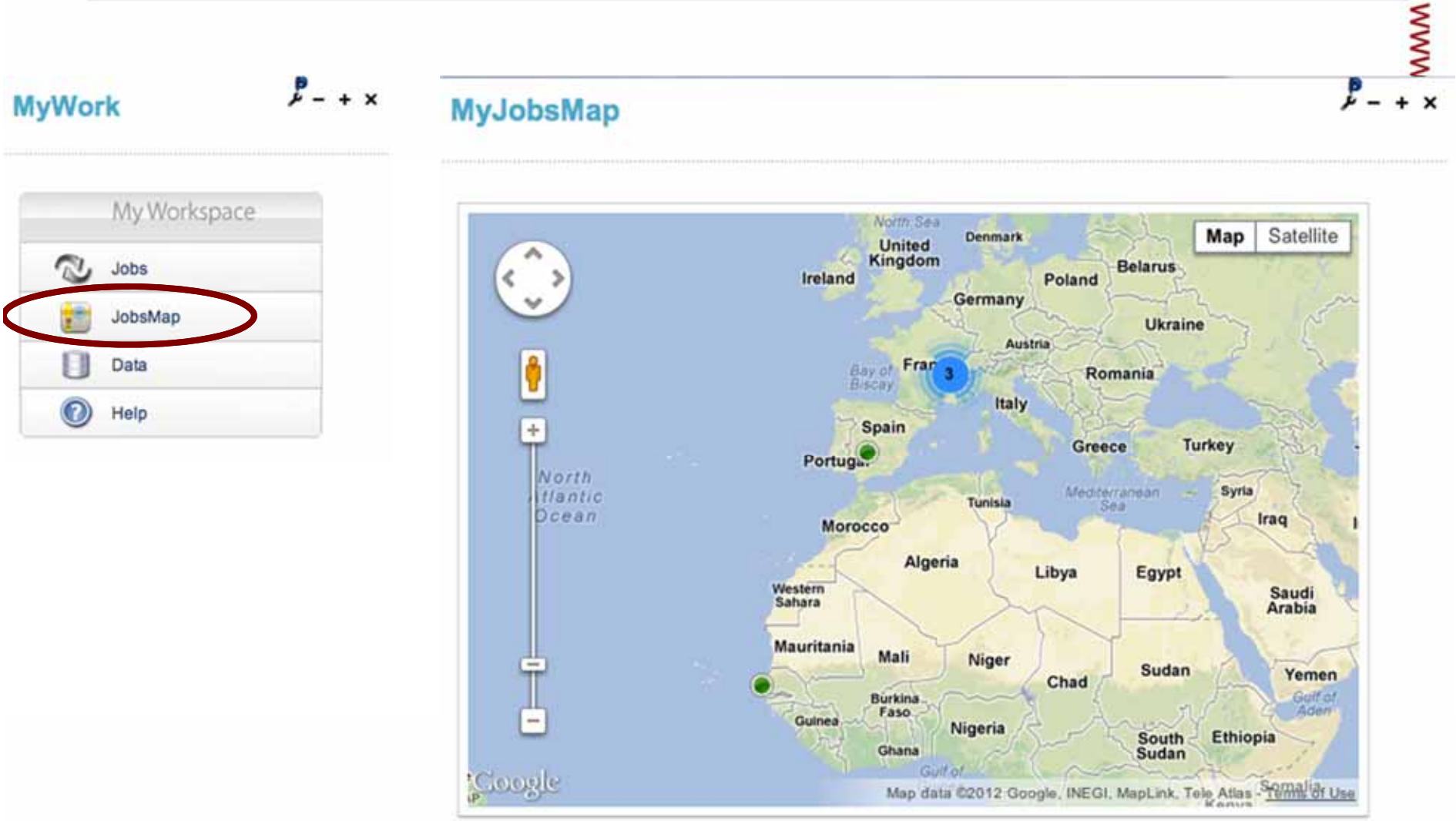
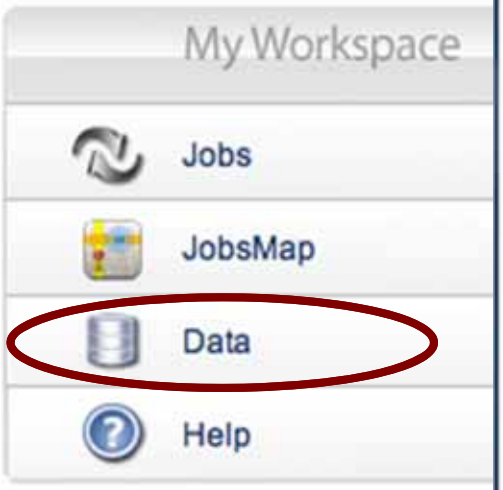
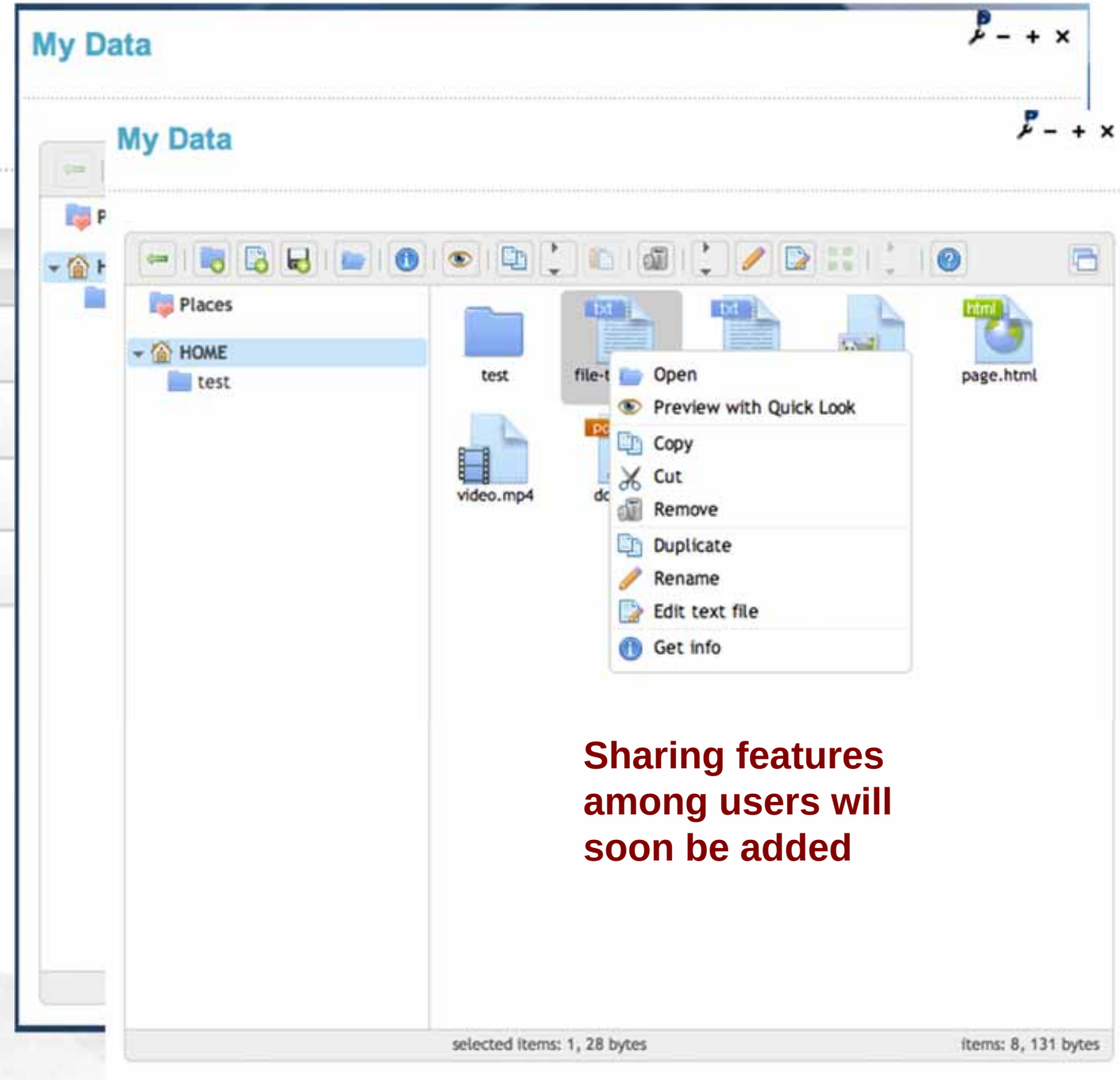
My Workspace – MyJobsMap



My Data

MyWork





Sharing features among users will soon be added

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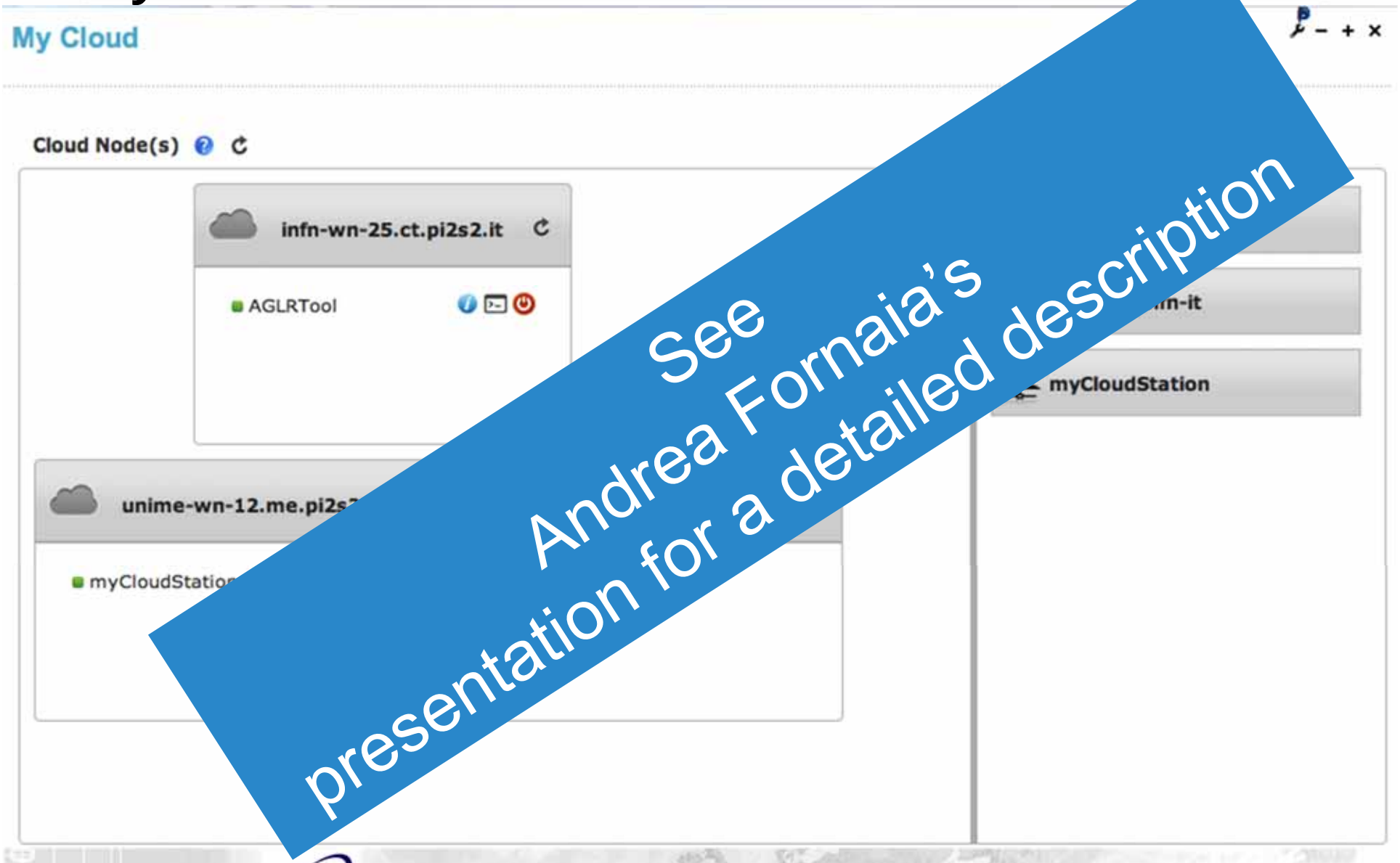
INFN

My Cloud



See Andrea Fornaia's presentation for a detailed description

Facebook Integration

Conclusion

- A unique web portal is able to access to Grid and Cloud services in few clicks with single-sign-on in an easy, intuitive interface
- Users are able to share their experiences even with Social Networks support
- The activities of dissemination contributed to the spread of these technologies increasing the number or applications available

Future Work

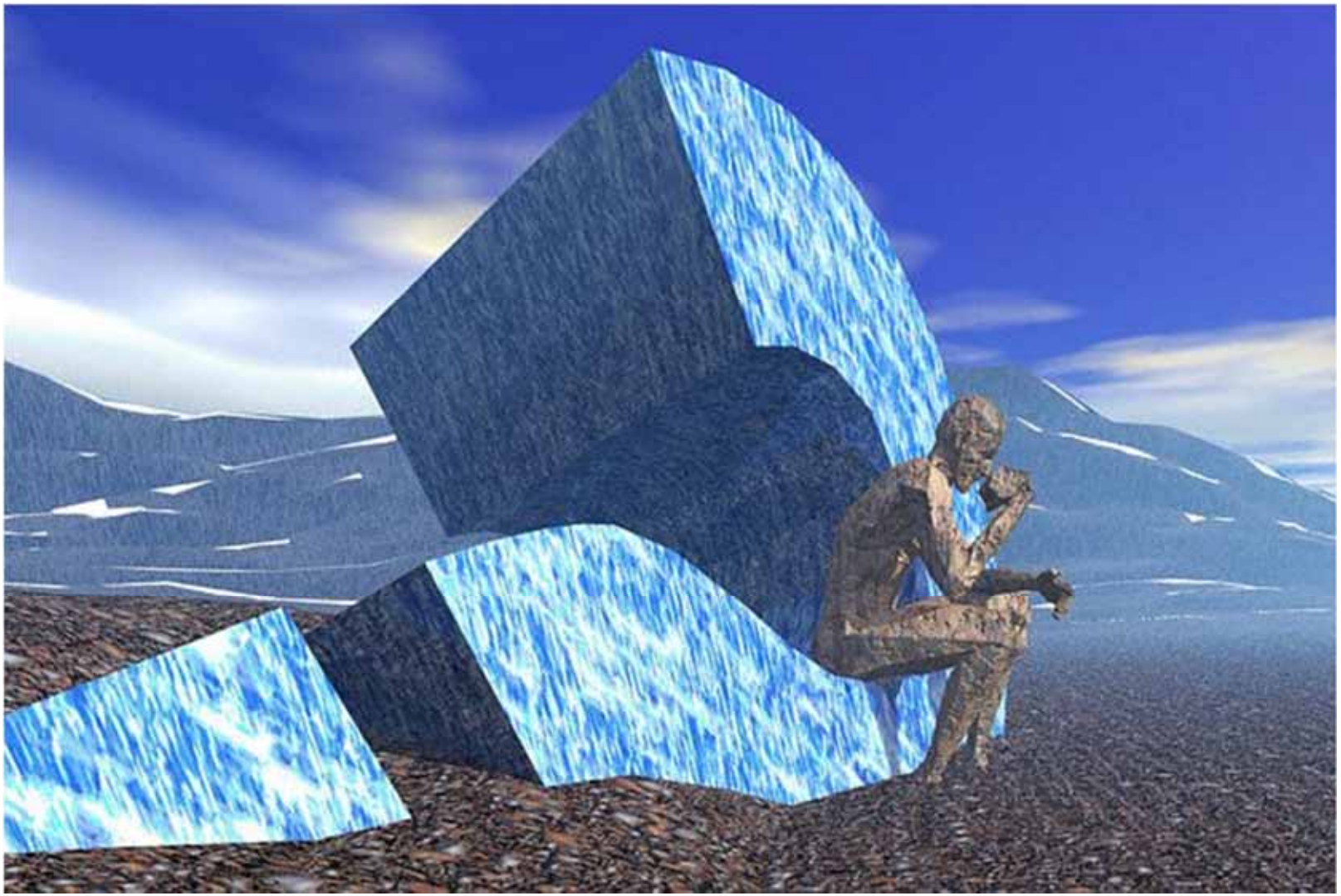
- Better and deeper integrations in GARR Services:
  - Access with GARR-IDEM Credentials
  - Application will customised for GARR partners and members
  - Deeper integration of Cloud Services:
    - **DOGS and GARRBOX are similar tools that may collaborate to extend their functionalities**
- Dissemination of this paradigm:
  - Event & School to train new developer and identify new applications
  - Training Material and Documentation will be soon available on the portal

References & Acknowledgments

- GARR Science Gateway: https://garr-sg.ct.infn.it
- GARR Science Gateway Facebook Community Page: https://www.facebook.com/GarrScienceGatewayCommunity
- How to contribute: http://applications.epikh.eu/survey4sciencegateways

- R. Barbera, supervisor of the project.
- Special thanks to R. Ricceri for the support in the web design

Questions ?



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