



Co-ordination & Harmonisation of Advanced e-Infrastructures

The CHAIN project
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INDICATE Workshop
Paris, 7 June 2012

Research Infrastructures – Grant Agreement n. 260011



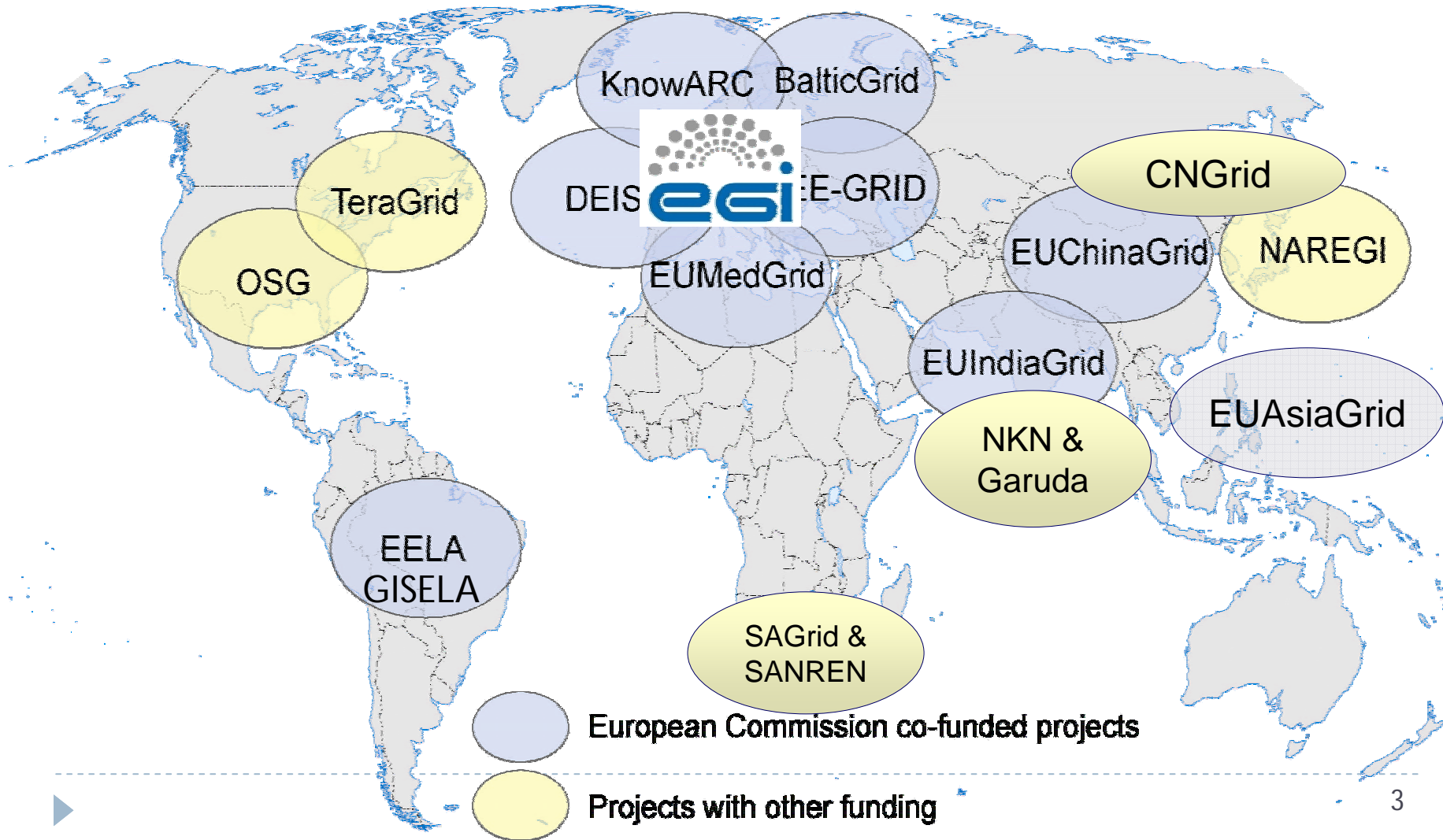


Outline

- ▶ The CHAIN vision
- ▶ State of the art analysis
- ▶ Data analysis and recommendations
- ▶ Virtual Research Communities
- ▶ Interoperation & Interoperability
- ▶ Conclusions



Regional Grid infrastructures





CHAIN: global coverage





Project objectives

- ▶ Define a strategy and a model for external collaboration, in close collaboration with EGI.eu which will enable operational and organisation interfacing of EGI and external eInfrastructures
- ▶ Validate this model, as a proof-of-principle, by supporting the extension and consolidation of worldwide Virtual Research Communities
- ▶ Explore and propose concrete steps forward towards the coordination with other projects and initiatives (e.g. EGI.eu, EUMEDGRID-Support, EUIndiaGrid2, LinkSCEEM2, NKN & Garuda, etc.)





Project information

- ▶ Grant Agreement for a total EC contribution of 1.1 M€
- ▶ Total cost: about 1.9 M€
- ▶ Start Date: 1st December 2010 - Duration 24 Months
- ▶ Partners:

- 1) INFN (Italy - Coordinator)
- 2) CESNET (Czech Rep.)
- 3) CIEMAT (Spain)
- 4) GRNET (Greece)
- 5) IHEP (China)
- 6) UBUNTUNET (Africa)
- 7) CLARA (Latin America)
- 8) PSA (India)
- 9) ASREN (Med./Middle East/Gulf) Since 1 August 2011

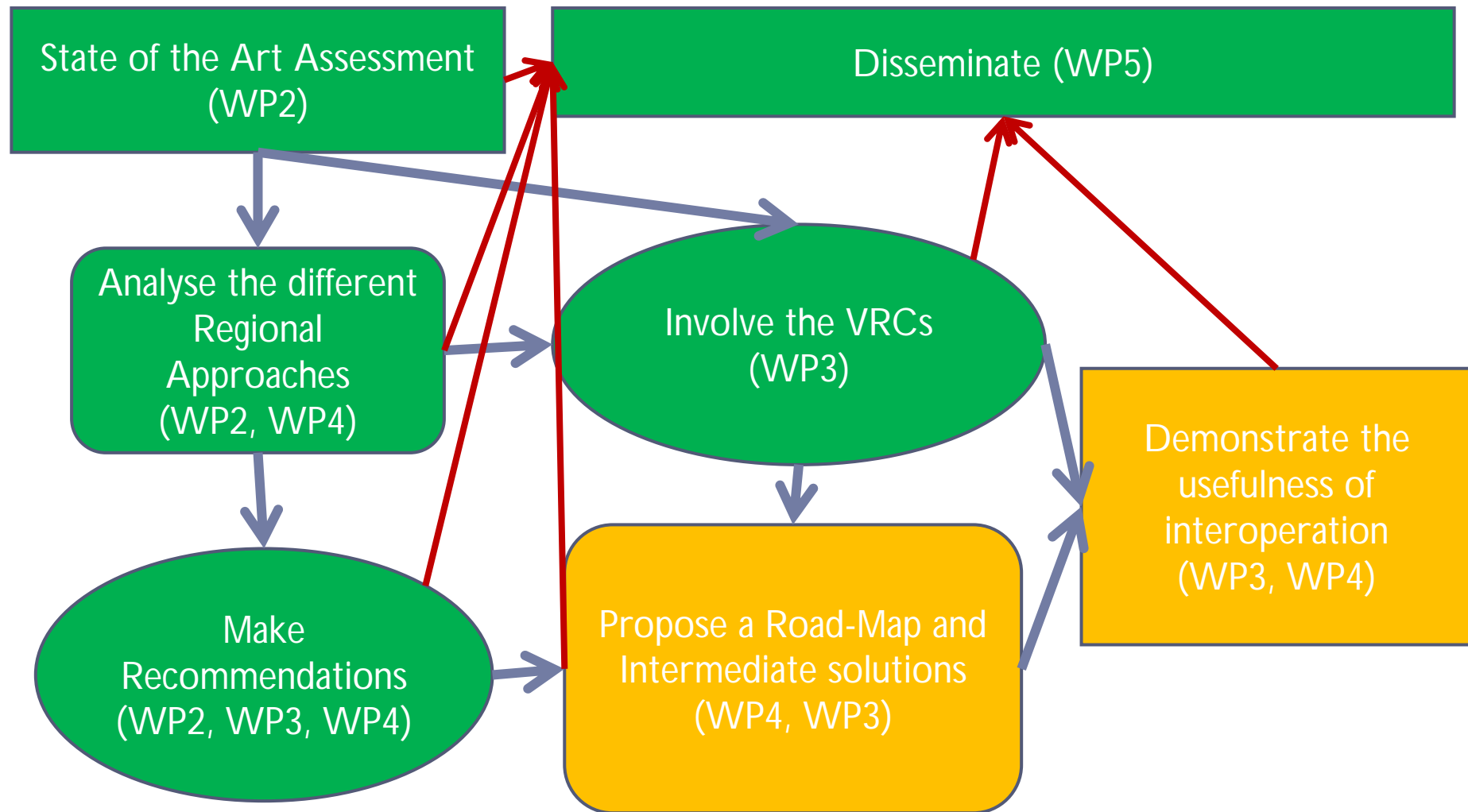




Project strategic vision

- ▶ A world-wide Distributed Computing Infrastructure can address big scientific challenges that are not manageable with departmental computing systems
- ▶ Virtual Research Communities can transparently access different kind of resources: scientific applications and tools, Data Repositories, down to CPUs and Disks. The vision is that of VRCs sharing resources ubiquitously across different administrative domains
- ▶ Regional e-Infrastructures should be made interoperable among each other. CHAIN is committed to promote and validate a proof-of-concept that addresses this







State of the art analysis (WP2)

- ▶ Analysis of existing NGI literature and related questionnaires
- ▶ Creation of the regional and NGI questionnaires
- ▶ Questionnaires being implemented and published online
- ▶ Collection of contact points from all continents
- ▶ Questionnaire is kept open and collection of contact points from all continents is continued
- ▶ Questionnaire data provided through the CHAIN Knowledge Base

A screenshot of a web-based questionnaire titled "National questionnaire" with a progress bar showing 2% completion. The form is titled "User support services" and contains three sections of questions. Each section has a red header, a question, a "Choose one of the following answers" instruction, three radio button options, and a "Please enter your comment here:" text box. The first question is "Does your country have application support / porting team?". The second is "Does your country have a User support team?". The third is "Is there a non-disciplinary or generic (catch-all) Virtual Organisation (VO)?". Below these is a section for "Please list the training approaches that you use:" with a large text area. At the bottom right, the number "9" is displayed, and at the bottom left, there are navigation buttons: "Get and view reports", "Return to start", "Previous", and "Next".



Knowledge base (WP2, WP5)

Welcome Home Project Area Knowledge Base Applications Events News Multimedia Contact

Country View Site View Table View www.chain-project/knowledge-base

To navigate the map, click on the continent and then on the countries where you see a pin in correspondence of their capitals.
To see some detailed information you must have your personal certificate installed in the web browser.

tool by ammap.com Home

A world map where continents are color-coded: North America is brown, South America is green, Africa is orange, Europe and Asia are dark grey, and Australia is dark green. The map is displayed in a 'Country View' mode.

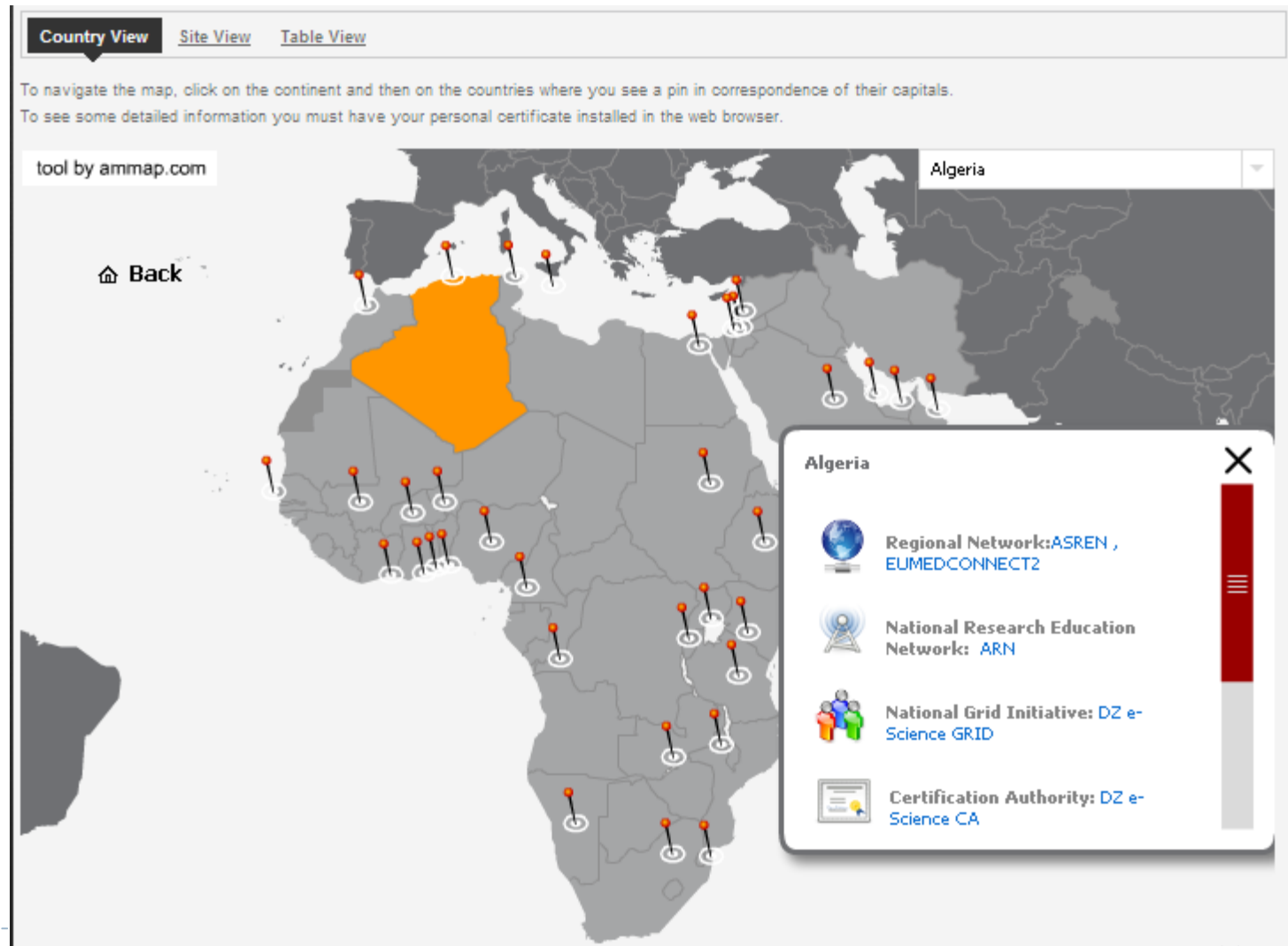
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Country View Site View Table View

To navigate the map, click on the continent and then on the countries where you see a pin in correspondence of their capitals.
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tool by ammap.com

Back



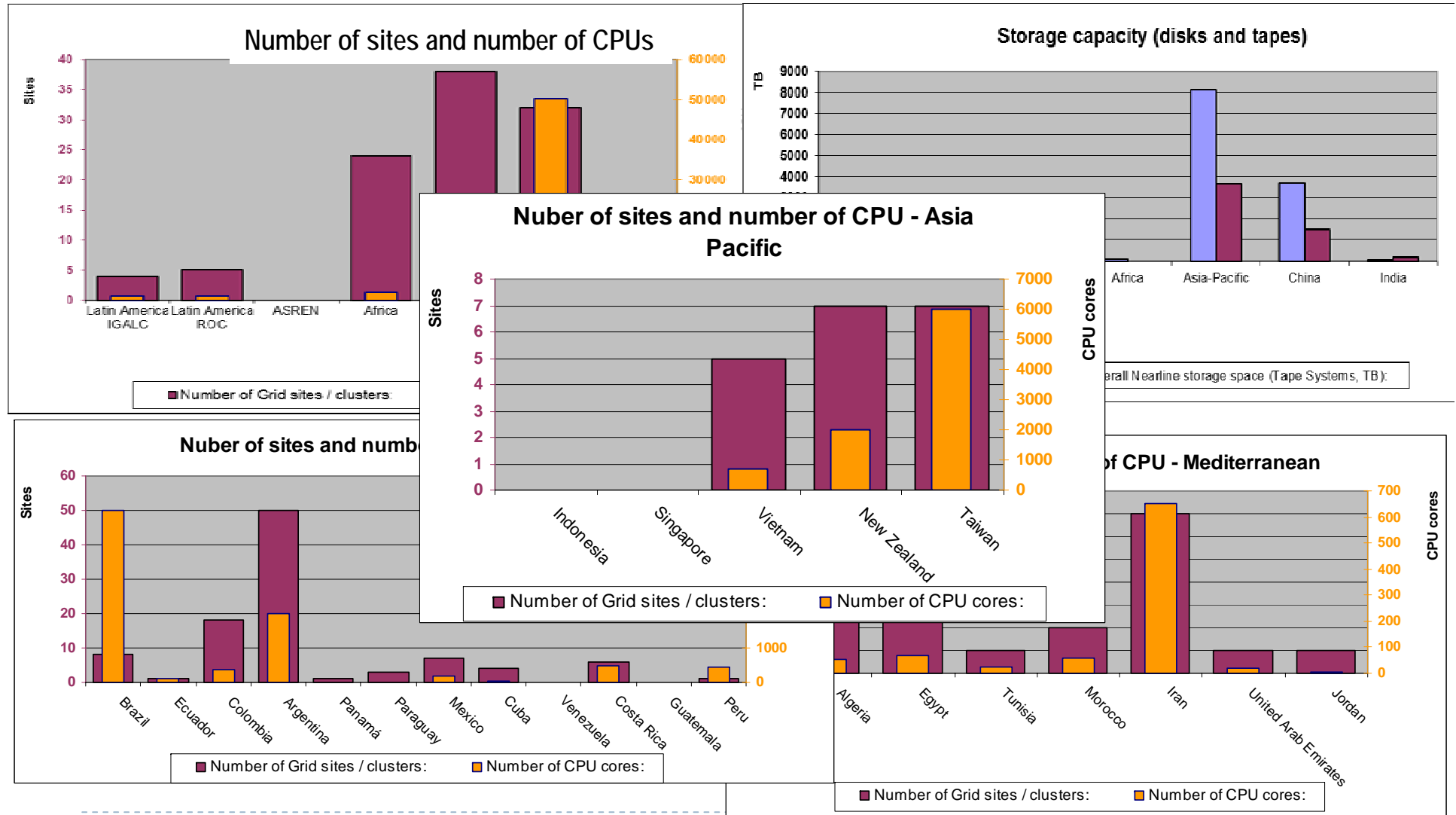
Algeria

Algeria

- Regional Network: ASREN , EUMEDCONNECT2
- National Research Education Network: ARN
- National Grid Initiative: DZ e-Science GRID
- Certification Authority: DZ e-Science CA



Data analysis (WP4, WP2)





WP2 Recommendations

- ▶ 74 Detailed recommendations classified by:
 - ▶ Short (1 year), Medium (3 years) and Long term (5 years)
 - ▶ High, Medium, Low priority
 - ▶ National Grid Initiatives (9):
 - ▶ General (5); Regional (4)
 - ▶ Interoperations (14):
 - ▶ General (1), ROC (3), User Support (1), Monitoring (3), Security (2), Core Services (2); Middleware (2)
 - ▶ Interoperability (2): General (1), Input/Output (1)
 - ▶ Virtual Research Communities' perspective: General (2)
 - ▶ Regional planning (47):
 - ▶ Africa (9), Asia Pacific (6), Central Asia (5), China (7), India (4), Latin America (5), Mediterranean & Arab Countries (11)





Africa & Arabia ROC (WP2, WP4)

<http://roc.africa-grid.org>

Africa & Arabia ROC
Regional Operation Center



Home User Pages Site Manager Pages Virtual Organisations Grid Services Monitors User Support



en by Roberto Barbera

C for short) has been created as a coordination and support point for all relating and challenging endeavour of creating a common Grid infrastructure

They are listed on the right frame of this page.

to the Africa ROC and those sites belonging to other ROCs but participating in roles, referring to sites, to get more information on their status, please visit the pages of this site and/or feel free to contact us.

Supporting Projects/Initiatives

ASREN	+
CHAIN	+
EPIKH	+
EUMEDGRID-SUPPORT	+
SAGRID	+





China ROC

(<http://china-roc.ihep.ac.cn/>)

- ▶ Cloned tools from EGI
- ▶ Support to Chinese Users of EGI and WLCG.

The screenshot shows the main page of the China ROC website. The header features a map of China and the text 'China Roc'. A navigation menu includes links for Home, User Pages, Site Manager Pages, Virtual Organisations, Grid Services, Monitors, User Support, and Contact Us. The main content area is titled 'About China ROC' and contains text explaining the center's purpose and listing managers. On the right, there are two sidebars: 'China ROC NEWS' with a link to the website and 'Next Events' listing two workshops in Beijing for May 2011.

This screenshot shows the 'Join as a new user (EUCHINA Virtual Organisation)' page. It provides instructions for users to register, including requirements for a personal certificate and a list of Chinese Certification Authorities (CAs) such as IHEP CA and CHRC Grid CA. It also outlines the first step of the process: requesting a personal certificate from a local Registration Authority (RA).

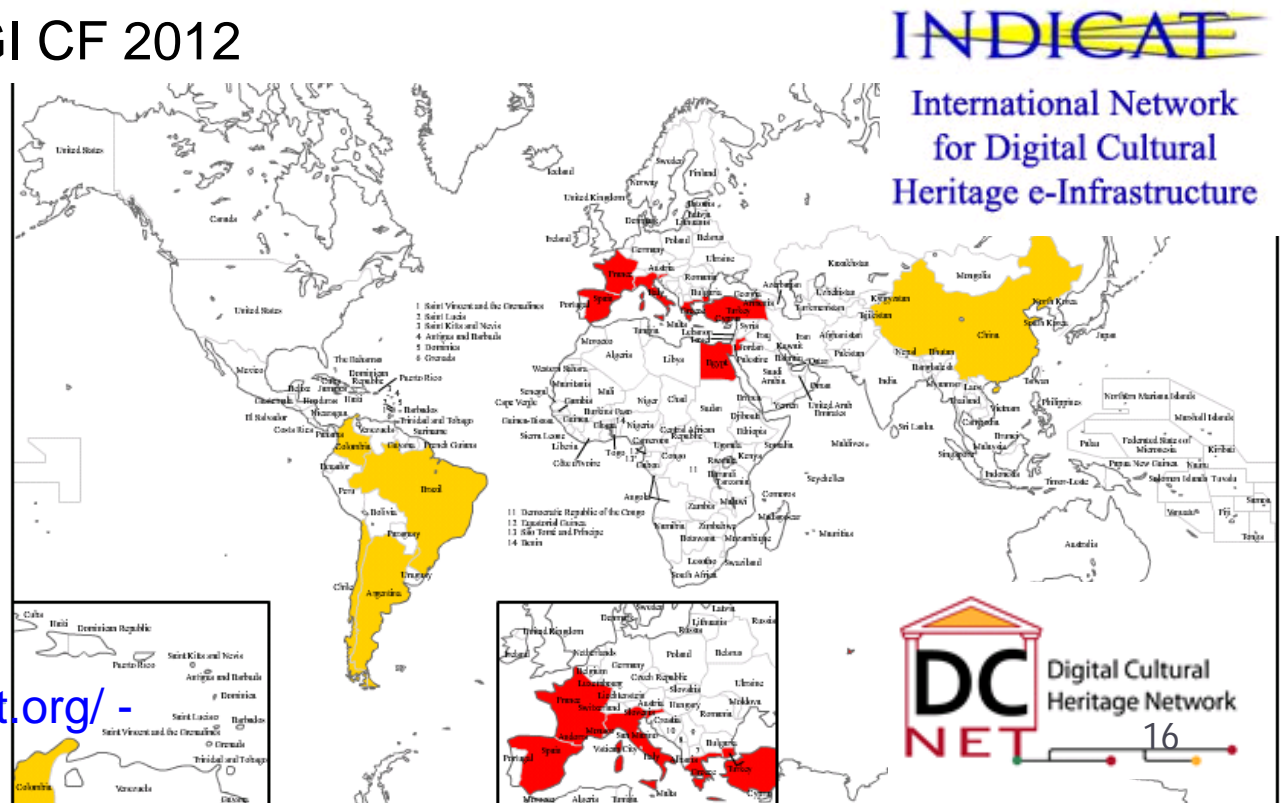


Collaboration with INDICATE

- ▶ Coordinator: Dr. Rossella Caffo – ICCU/Ministero per i Beni e le Attività Culturali
- ▶ These initiatives are working on coordination of policy and best practice regarding the use of e-Infrastructures for digital cultural heritage
- ▶ INDICATE / DC-NET partners in red, collaborations in orange
- ▶ MoU signed during EGI CF 2012

- ▶ This VRC offers much different requirements than those from traditional R&D communities
- ▶ New contacts to integrate a digital repository in Panama by means of the INDICATE e-Culture Science Gateway

- ▶ <http://www.indicate-project.org/> -
- ▶ <http://www.dc-net.org/>

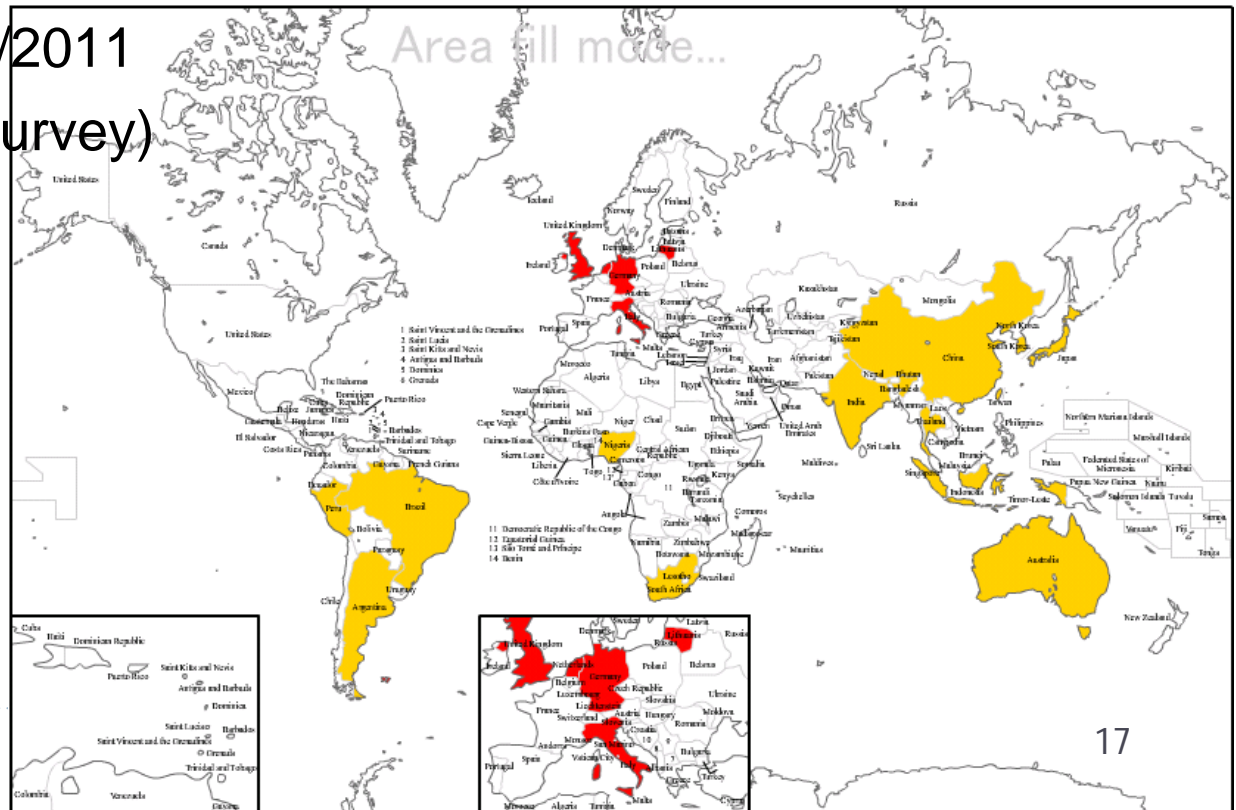


Other Identified VRCs (1)

- ▶ Coordinator: Dr. Alexandre M.J.J. Bonvin – Universiteit Utrecht
- ▶ Structural biology, making use of NMR (Nuclear Magnetic Resonance), SAXS (Small Angle X-ray Scattering), computational modelling or other related techniques to study biomolecules
- ▶ We-NMR partners in red, collaborations in orange
- ▶ MoU signed on 21/09/2011
- ▶ New contacts (WP2 survey)
 - ▶ Burundi
 - ▶ Costa Rica



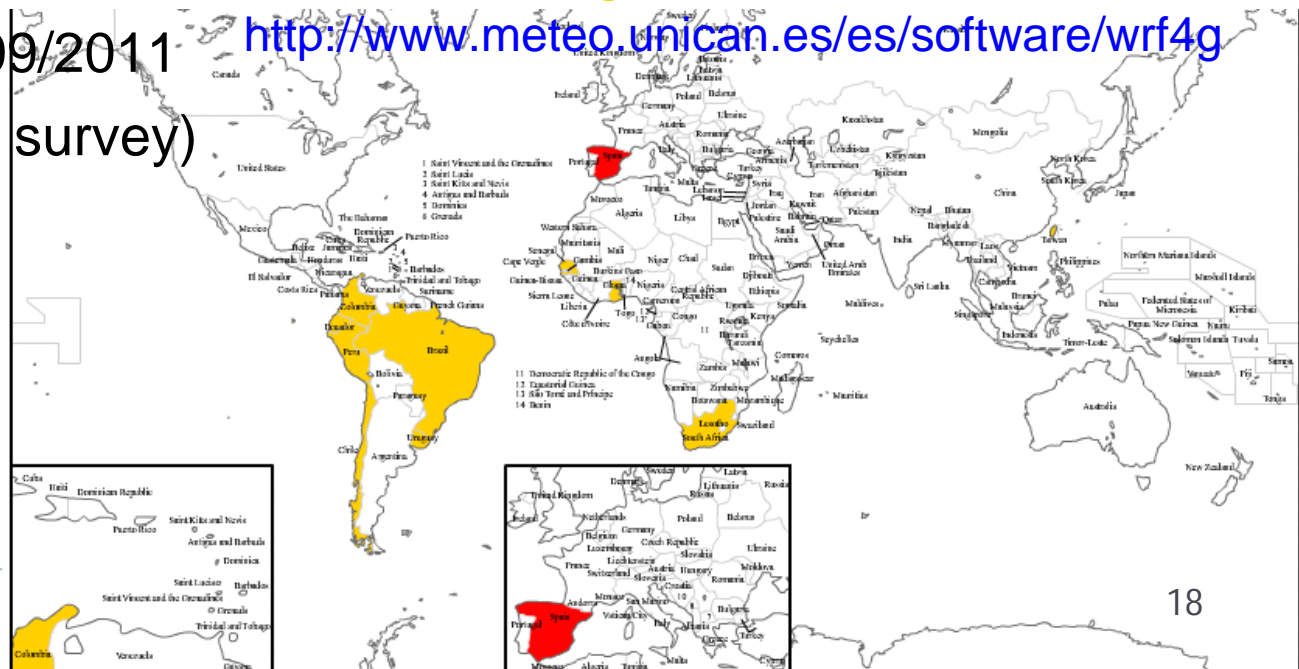
<http://www.wenmr.eu>





Identified VRC (2)

- ▶ Coordinator: Dr. Antonio Cofiño – Universidad de Cantabria
- ▶ Meteorology and other Earth Science related areas willing to enhance their forecasting techniques on Idealized Simulations, Regional and Global Applications, Parameterization and Data Assimilation or Forecast and Hurricane Research
- ▶ Dissemination within CORDEX project
- ▶ WRF4G partners in red, collaborations in orange
- ▶ MoU signed on 19/09/2011 <http://www.meteo.unican.es/es/software/wrf4g>
- ▶ New contacts (WP2 survey)
 - ▶ Burundi
 - ▶ China
 - ▶ Costa Rica
 - ▶ Cuba





Identified VRC (3)

- ▶ Coordinator: Dr. David Posada – Universidad de Vigo
- ▶ Evolutionary biology for the statistical selection of best-fit models of nucleotide substitution and amino acid replacement for a given set of aligned sequences (molecular systematics, phylogenetics, phylogenomics, molecular evolution and/or bioinformatics)
- ▶ jModelTest & ProtTest registered users
 - ▶ Modeltest ~ 30.000
 - ▶ jModelTest ~ 11.000
 - ▶ Prottest ~ 5.000
- ▶ MoU signed on 21/02/2012
- ▶ New sequential and distributed computing versions available on SG and being tested
- ▶ New contacts (WP2 survey): Burundi, Costa Rica, Democratic Republic of Congo, Ethiopia, Nigeria, Panama, Sudan, Taiwan



<http://darwin.uvigo.es/>



Identified VRC (4)

- ▶ LSGC

LSGC

- ▶ MoU signed during EGI CF 2012
- ▶ One of the biggest Grid users, HEP excluded. According to EGI accounting portal, during last year, there were jobs running in these Regions:
 - ▶ Asia Pacific
 - ▶ Europe
 - ▶ Canada
 - ▶ Latin America (IGALC & ROC_LA)
 - ▶ Russia



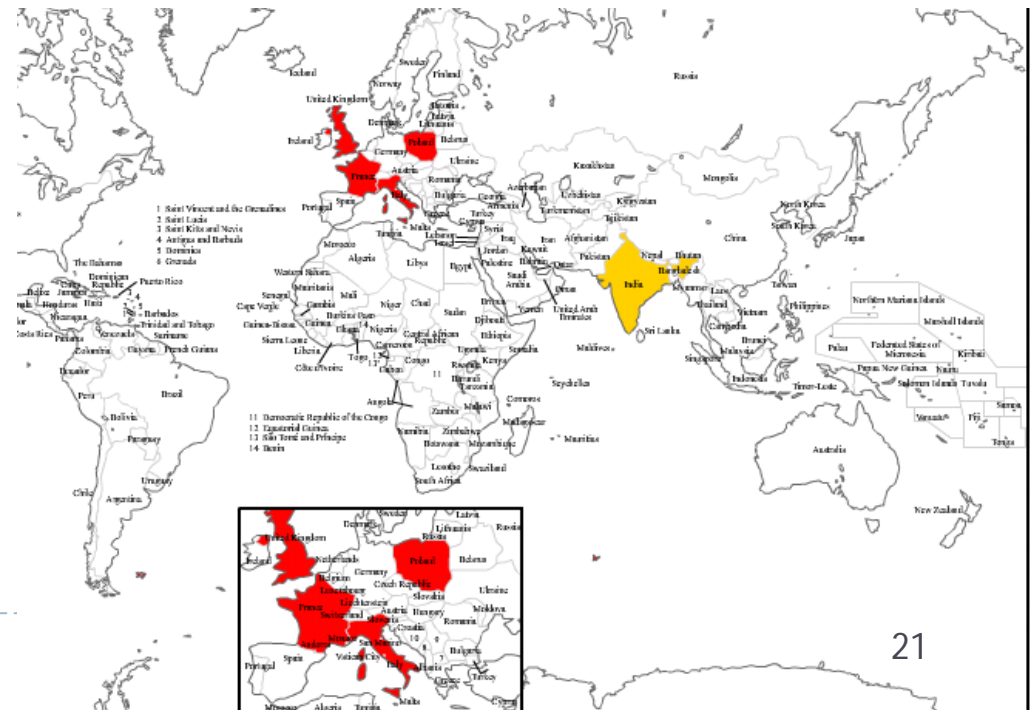


Identified VRC (5)

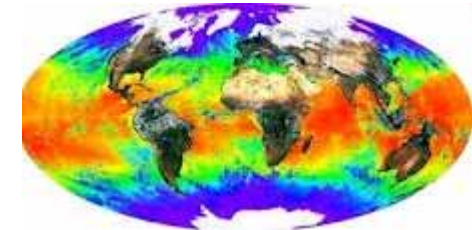
- ▶ Coordinator: Dr. Fulvio Galeazzi - GARR
- ▶ Design, implement, and validate a GRID-based e-Infrastructure building upon neuGRID and relying on the Pan-European backbone GEANT and the NRENs. Over this e-Infrastructure, a service will be provided for the computer-aided extraction of diagnostic markers for Alzheimer's disease and schizophrenia from medical images
- ▶ DECIDE partners in red
- ▶ MoU signed in April 2012



▶ (<http://www.eu-decide.eu>)



- ▶ Climate Change



- ▶ Conf. Role of e-Infrastructures in Climate Change
- ▶ List of interested people and projects
 - ▶ 4 projects identified
 - ▶ 20 contacts
 - ▶ WRF4G is being promoted inside the VRC
 - ▶ New development: CAM4G → Strategy to be also used in other models
 - ▶ Adaptation of GridWay to SAGA (near future)
 - ▶ Seismology groups identified in LA, India and Italy



Identified VRC (7)

- ▶ SuperB

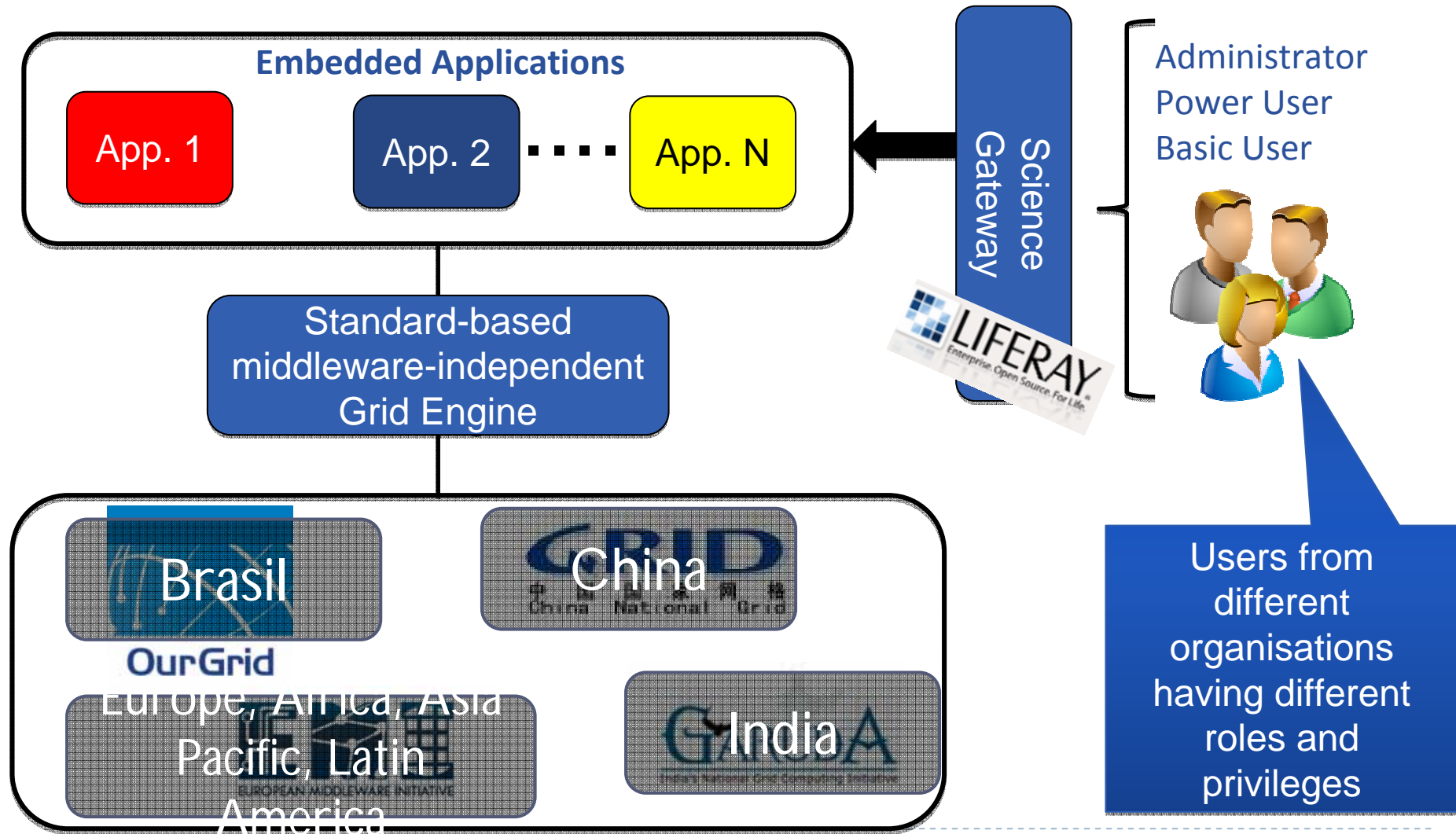


- ▶ SuperB will be a heavy flavour accelerator that will provide complementary information to LHC, looking at rare decays with a very high luminosity electron-positron asymmetric collider
- ▶ Potential contacts world-wide by means of LHC collaborations
 - ▶ Continuous contacts with them
 - ▶ MoU in preparation



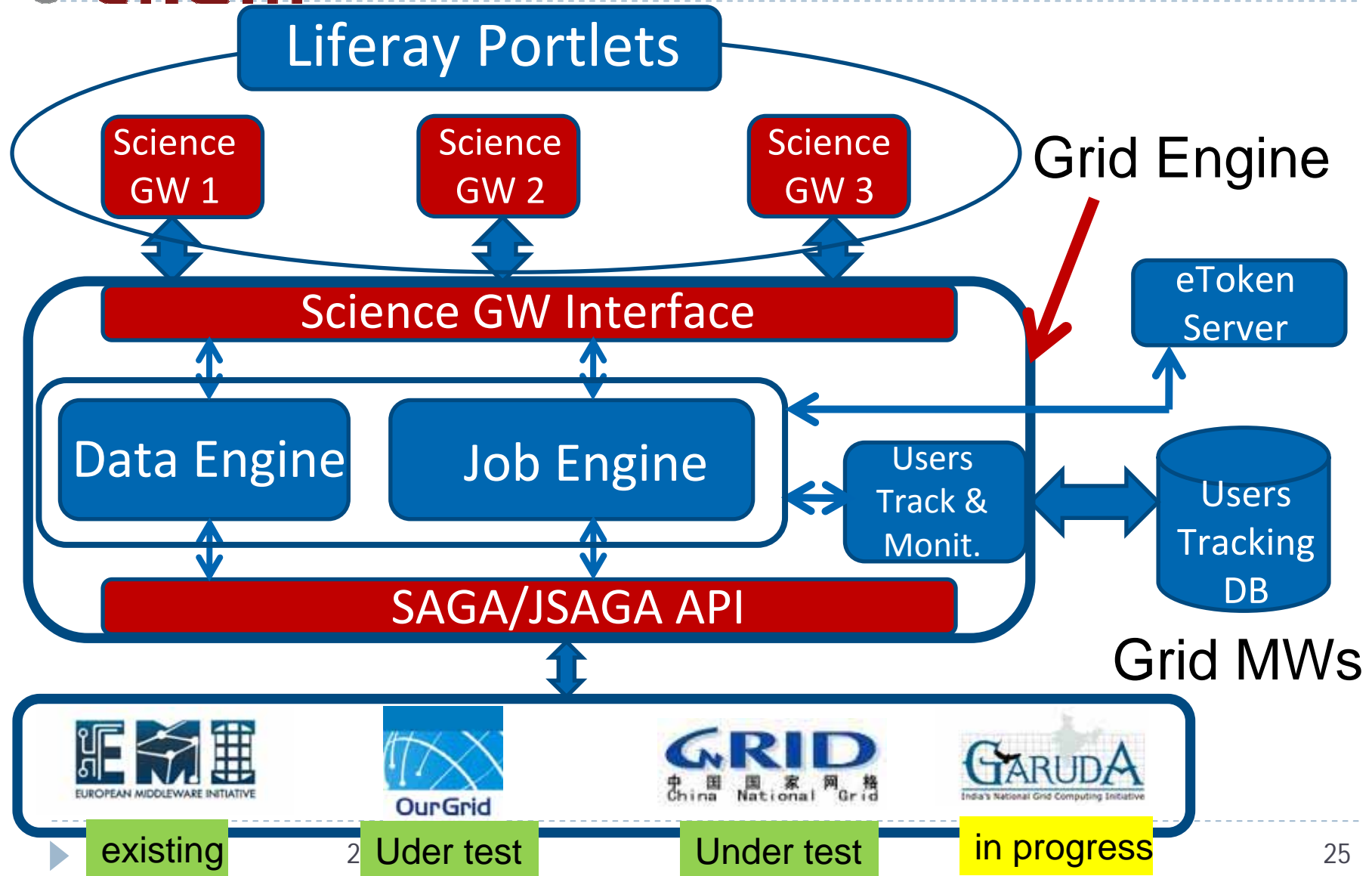


Access: the Science Gateway model (WP3, WP4)





CHAIN interoperability test: software stack





Next Events

- ▶ GISELA-CHAIN Joint Conference: Mexico City 27-29 June 2012
- ▶ CHAIN Session at TCAL 2012: Lima 2 July 2012
- ▶ CHAIN Workshop at EGI TF 2012: Prague 17-21 September 2012
- ▶ CHAIN Workshop at IEEE CLUSTER 2012: Beijing 28 September 2012
- ▶ CHAIN Workshop at the NKN conference: Mumbai 30 October – 2 November 2012
- ▶ eAGE 2012 Conference: Amman 12-13 December 2012





Conclusions

- ▶ The CHAIN project aims to provide a comprehensive vision on the evolution of Regional eInfrastructures
- ▶ The CHAIN Knowledge Base already provides a dynamic and user friendly visualisation
- ▶ CHAIN project has successfully agreed with other regional projects on the SG approach
- ▶ The first test using SG to access different infrastructures has been very encouraging
- ▶ A final test/demo is foreseen at the EGI TF 2012 in Prague in September with possibly other middlewares.





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Thank you

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