

ECRI 2007[★]

★ *european conference on research infrastructures*

ECRI 2007[★]

★ *european conference on research infrastructures*

Fostering Users' adoption of e-Infrastructure

Silvana Muscella, Metaware SpA

ECRI 2007

Hamburg – 6th June, 2007

Summary & message of this presentation

- Adoption of e-Infrastructure – A reality
- The transformation affects how enterprises are operating
- Some relevant case studies
 - Latin America
 - India
 - Europe
- Considerations for the near future

How enterprises are dealing with this transformation

Enterprises welcome collaboration once they see real commercial opportunities for them

- Learning the technology before the competition does
 - The logical next step on the road of the IT market to the ubiquitous connectivity, virtualisation, service outsourcing, product commoditisation and globalisation
- Potential for government financial aid
 - Many govts. US, Europe, Asia-Pacific strongly financially support the development of research infrastructures in the private sector through various programmes (*Europe FP6, FP7, Asia Pacific - 863 R&D programme China, Naregi, Japan, Teragrid, US, etc.*)
- Joining forces with academic know-how
 - Academic institutions involved in research look more to commercial partners to prove usability of their solutions & awaiting technology transfer
- Influence on Standards
 - Small companies positioning themselves within institutions may advance knowledge of direction, change & influence on how standards evolve
- Preparing for globalisation
 - Viable business for the future means more & more companies are paying closer attention to how they will work with foreign partners

Benefits from e-Infrastructure adoption may have a different impact depending on the industry/enterprise

➤ Hard benefits (measurable)

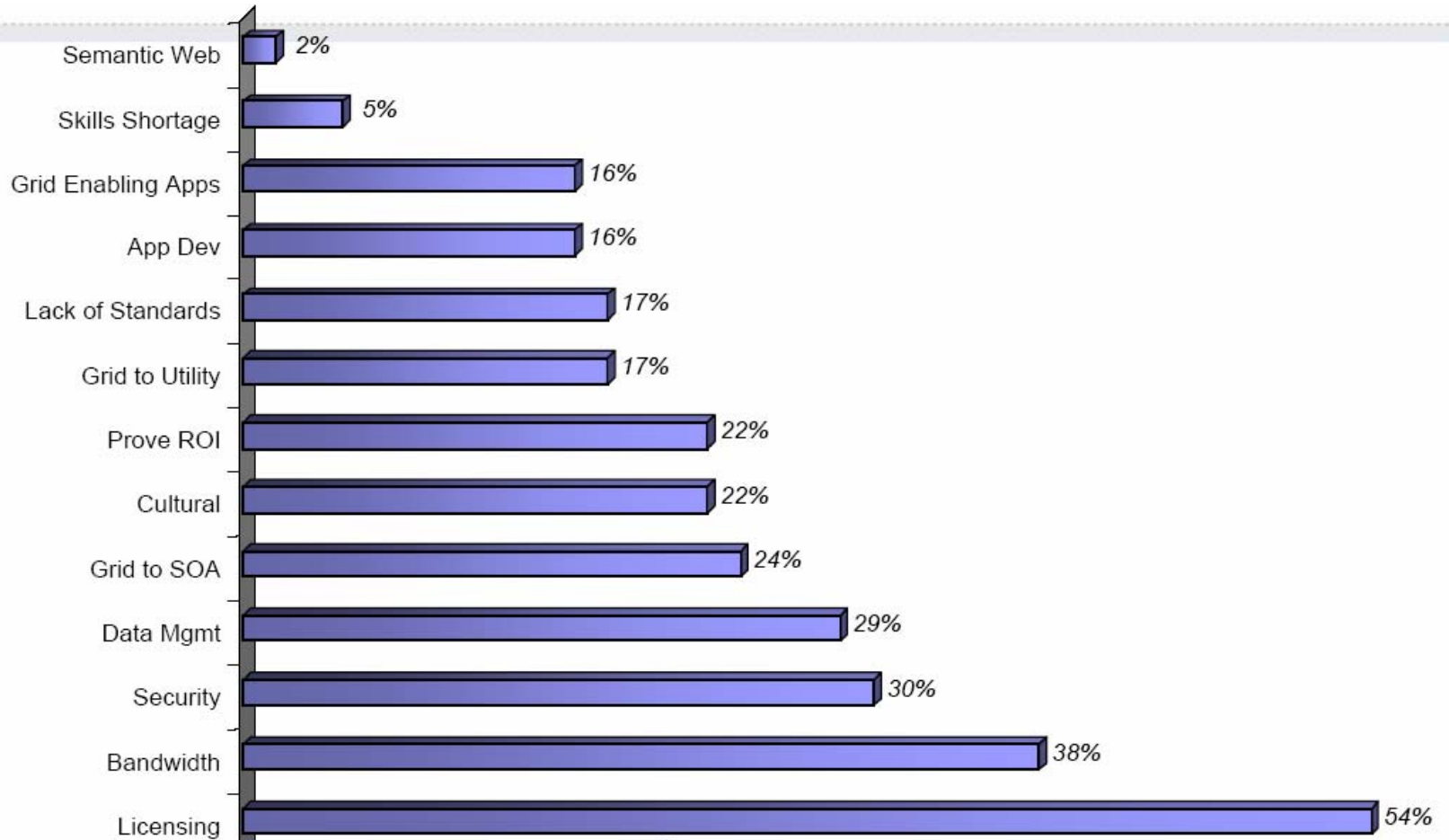
- Solve a class of problems which today cannot be done because of limited processing performance
- Reduce HW cost per operation
- Cost savings (20% or more have been reported)
- Improved resource utilization, interoperability, performance and time-to-market
- Increase revenue through improved business processes

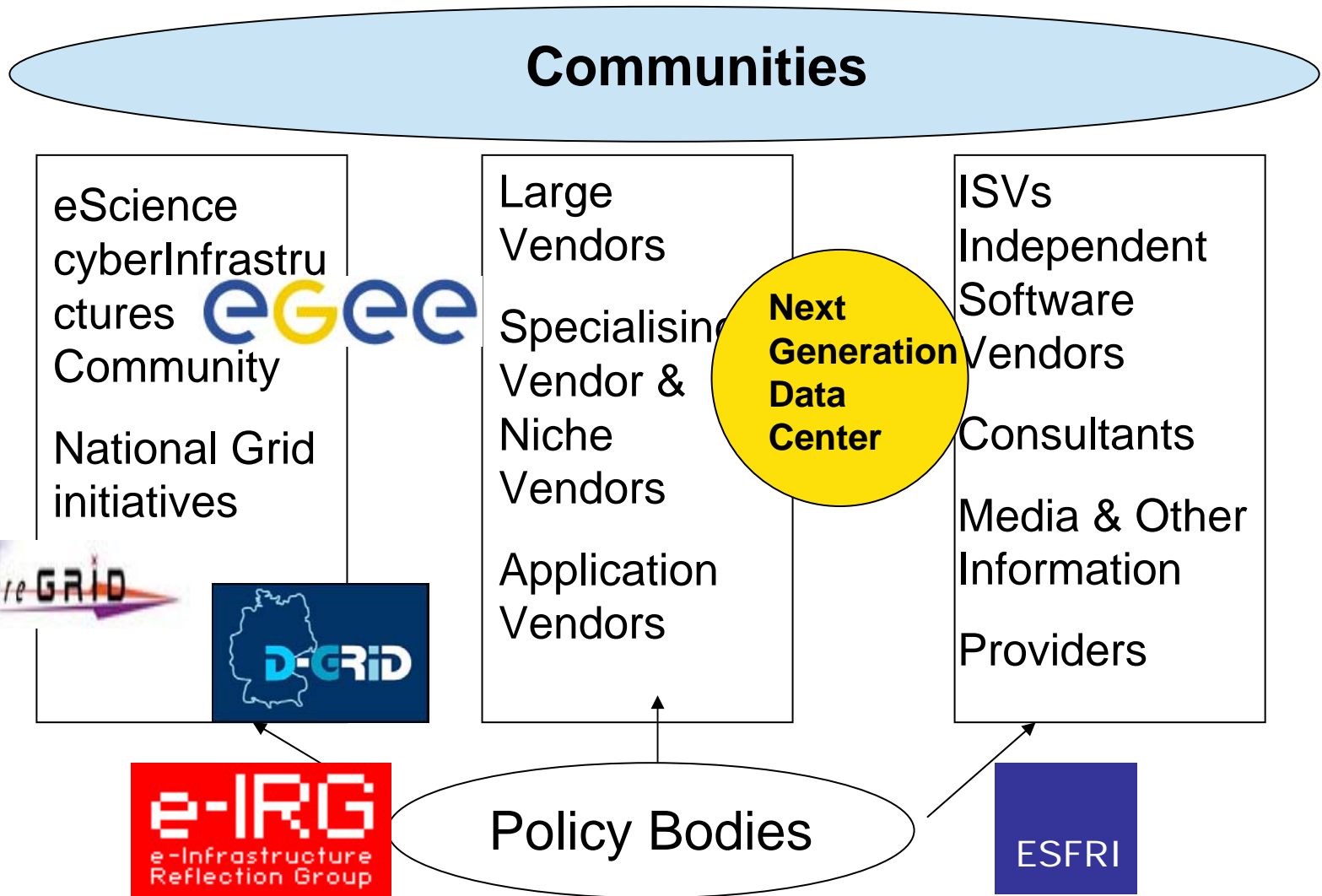
➤ Soft benefits (fundamental, real, hard to measure)

- Collaboration
- Utilisation
- Flexibility/Agility/Adaptability

Main challenges faced by enterprises in Grid Adoption

The survey is representative of several industries





The Interoperability of the global effort that technical standards can facilitate in product development will give rise to better quality products

World Wide Web Consortium (W3C)

- Working Group driven interoperability testing, but minimal compliance testing

The Internet Engineering Task Force (IETF)

- Working Group only

Organisation for Advancement of Structured Information Standards (OASIS)

- WG interoperability testing for specification quality only

Web Services Interoperability Organisation (WS-I)

- Formal compliance testing & assurance

The European Telecommunications Standards Institute (ETSI)

- Formal compliance testing & assurance

The Open Grid Forum (OGF)

- No compliance testing of OGF specifications. Limited WG only. No compliance testing of combinations of specifications in the context of Grid applications

The Ecuadorian National Research and Education Network (CEDIA)

The sonification software - study of the Tungurahua volcano, transferring data across GÉANT2 to the ALICE - RedCLARA network

- ✓ The software used for sonification by the Italian National Institute of Nuclear Physics (INFN) for use at Mount Etna, the tallest volcano in Europe. Following the initial work, a team of scientists, led by the University of Catania, are now collaborating with colleagues in Ecuador

Results

- ✓ Digitally collects geophysical information on seismic movements before using data sonification to transform them into audible sounds waves
- ✓ Identify similarities in eruption dynamics and so help predict future activity

AugerAccess – High Energy Cosmic Rays (Argentina) Improving the Auger Observatory in Argentina and European Institutions in the study of very high cosmic rays

- ✓ At present some of the data must be put on disk and hand-carried to Mendoza
- ✓ Replace the present link with a much faster one using infrastructure - **Red CLARA, Alice, GEANT**

Results and advances of AugerAccess in the first one year and half of the project (started on November 1st, 2005)

- ✓ The feasibility study complete of the upgrading of the communication infrastructure of the Auger Observatory (Malargüe, province of Mendoza, Argentina).
- ✓ Progress made on the remote monitoring and control of the data of the Observatory.
 - Implementation of a dynamic database with data on the calibration of the detectors and on the properties of the atmosphere on the Observatory site.
- ✓ The atmospheric data collected at the Observatory, is of special interest for scientists involved in Earth and Atmospheric Science

Develop a Regional coupled atmosphere-ocean model system for
“Prediction of the Indian Summer Monsoon” Atmospheric model
on the EU-IndiaGrid infrastructure to study variation of the Indian
summer monsoon

Coupled meteorology-air quality modelling system for the study of
pollutant dispersion in urban areas

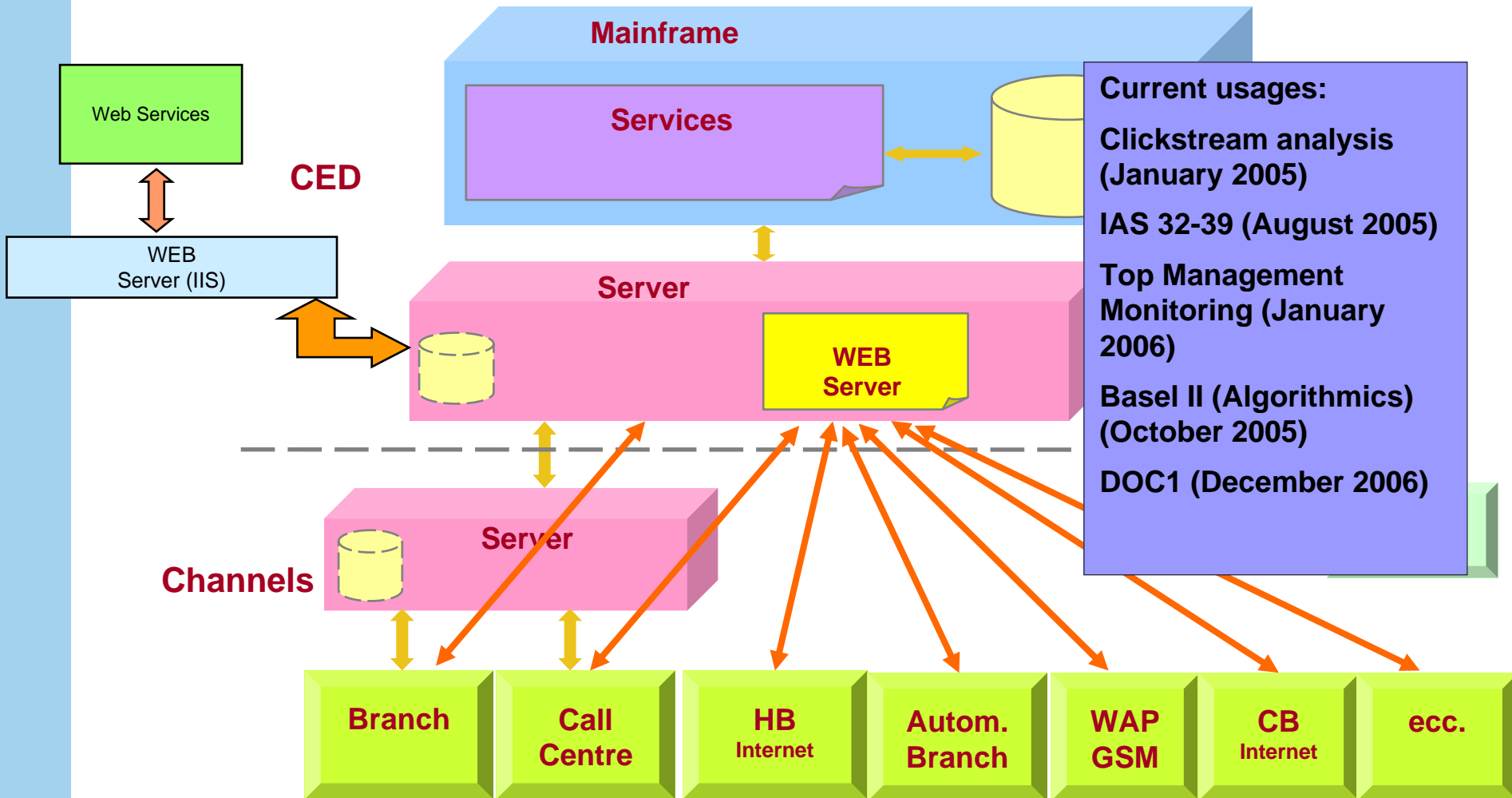
Results: improved reliability of the predictions for monsoons, and
coupling it with an ocean model for climate studies

HOW?

Supporting the interconnection & interoperability between EGEE &
GARUDA

Work in Progress

Extension of multi-channelling architecture



Finance and insurance

BE11-Risk Management in Finance - Grid for financial products pricing
ECP-CRSA Fininfo AXA Telefonica ID

Earth Sciences

BE18-EGEODE Seismic imaging & reservoir simulation
CGG TNO PetroSoft NICE



Earth Observation

BE07-Earth Observation - Grid enabled services for atmospheric retrieval parameters of importance for pollution, health and meteorological applications
GMV ESRIN-ESA ATOS ORIGIN CNR TERRADUE



Health care

Health-e-Child: Grid-based biomedical information platform for Paediatrics
SIEMENS AG Lynkeus Srl etc.

SMEs and small ISV

Grid platform for plastic industry (CS SI CNRS; PEP)
Content Based Image Retrieval (CBIR) application (Cambridge Ontology Ltd)

Portals (based Grid engine)

Genius (INFN; NICE); P-Grade (Sztaki); Elisa (CS SI; CNRS)

<http://project-eu-egEE-itf.web.cern.ch/project-eu-egEE-ITF/Applications/Applications.htm>

- Research projects will look more to increase a Sustainable grid-based e-Infrastructures (utility model)
- To strengthen the integration of industrial efforts and SMEs into sustainable infrastructures in this context, enterprise has to be seen as both a potential user and a major partner for service provision
- Extend e-infrastructures to SMEs, start-up (enhancing collaborations with Europe)
- Provide a mechanism for adoption by enterprise, covering:
 - Business model;
 - Accounting/billing;
 - Commercial software license policy;
 - Security;
 - SLA;
 - Standardization; etc.

Conclusions and the near future (Cont'd)

- Clear policies have to be established for access from industrial research projects in pre-competitive domains to production e-Infrastructures
- Increased developments for Innovative solutions, policies & funding schemes & collaboration between industry and Research in commercial Grid adoption
- Most challenges are not technical issues but policy issues.
 - Today related infrastructures rely on the GEANT network to interconnect but with network restrictions for commercial traffic
 - A more flexible approach would allow for nascent business applications to establish a customer base
 - New opportunities presented by distributed infrastructures requires increased training and improved skills base for research community, which also needs to form part of any national or European strategy for e-Infrastructure.

- The 451 Group - *“The Grid Adoption Research Service”* – GARS
www.the451group.com
- The Insight Research co-operation *“A vertical market perspective 2006-2011”*
www.insight-corp.com
- Forrester Research *“ Decoding Computer Grid technology & How to put it to good use “ F. Gillet*
www.forrester.com
- Grid Computing Now Knowledge Transfer Network
<http://grid.globalwatchonline.com>
- Qi3 - provides commercial expertise
www.qi3.co.uk
- *“Grid Computing The Savvy Manager’s Guide”* by P. Plaszczak & R. Wellner, Jr - www.savvygrid.com
- The Research & Industry Handbook - The BELIEF Project (EC FP6)
www.beliefproject.org/materials_listing

Silvana Muscella

s.muscella@metaware.it

Tel: +39 050 3871422

Thank you for your attention!