GRIA

Grids in Industry: Lost in Transition?

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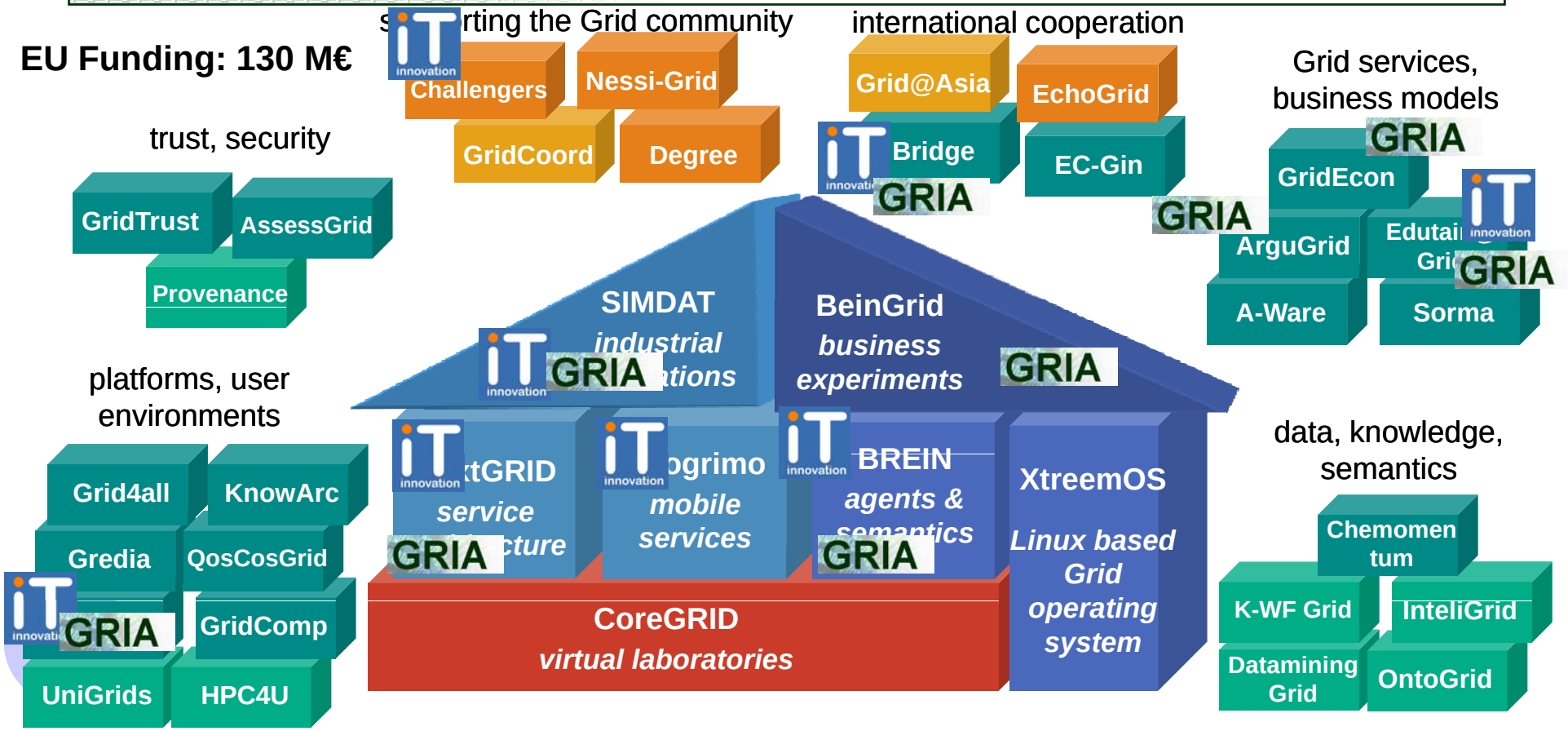
Business Track: Solutions and Barriers to Grid Adoption in Business

EGEE-07, Budapest, Hungary, 2 Oct 2007

Grid Research Projects under FP6

EU Funding: 130 M€



Wave 2 – start 2006

Wave 1 – start 2004

Specific support action

Integrated project

Network of excellence

Specific targeted research project

Contents

- Once upon a time...
- Overview of the current condition
- Diagnosis, treatment and prognosis

Once upon a time....

+ www. = GRID

A commonly accepted early vision...

The Anatomy of the Grid

Enabling Scalable Virtual Organizations *

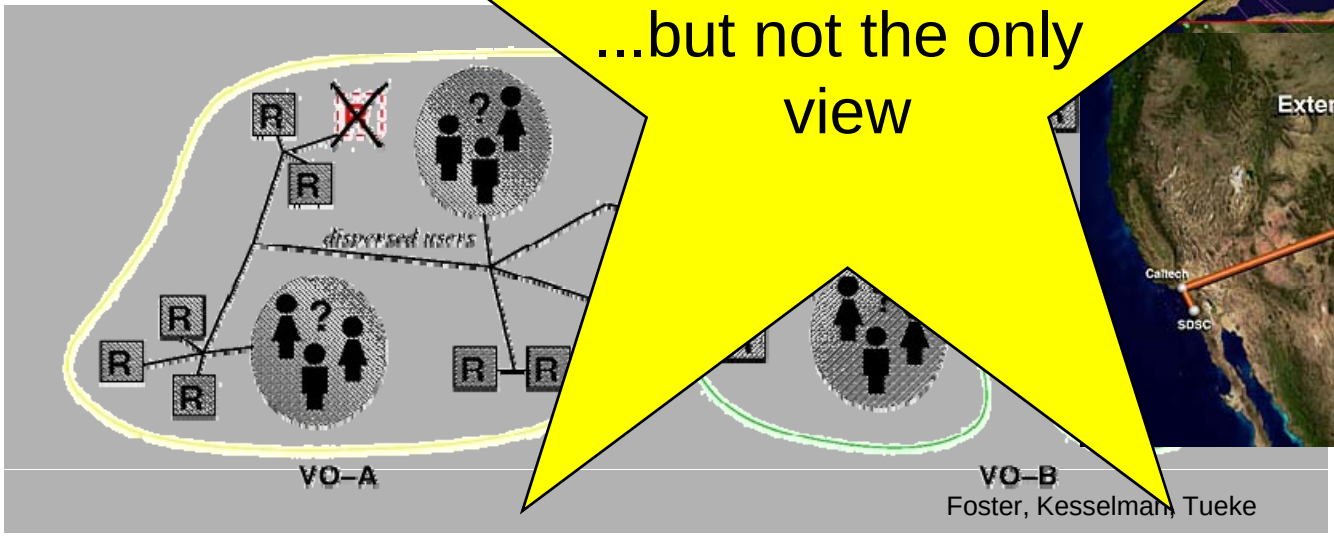
Ian Foster •¶ Carl Kesselman § Steven Tuecke •
{foster, tuecke}@mcs.anl.gov, carl@isi.edu

The Physiology of the Grid

An Open Grid Services Architecture fo

Virtual organisations.....

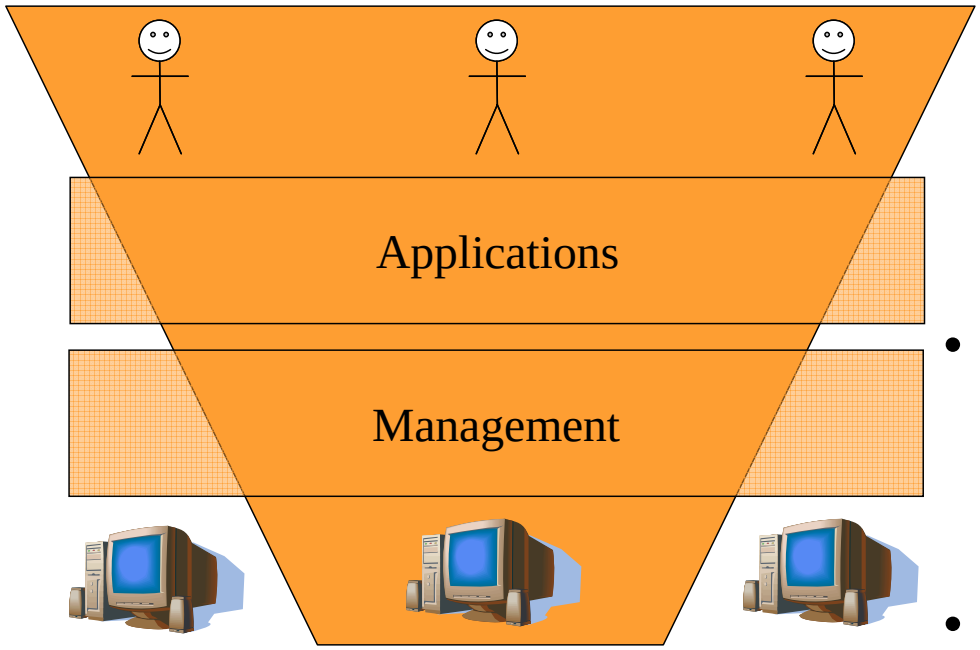
...but not the only view



Foster, Kesselman, Tueke

Diagnosis: What is the condition?

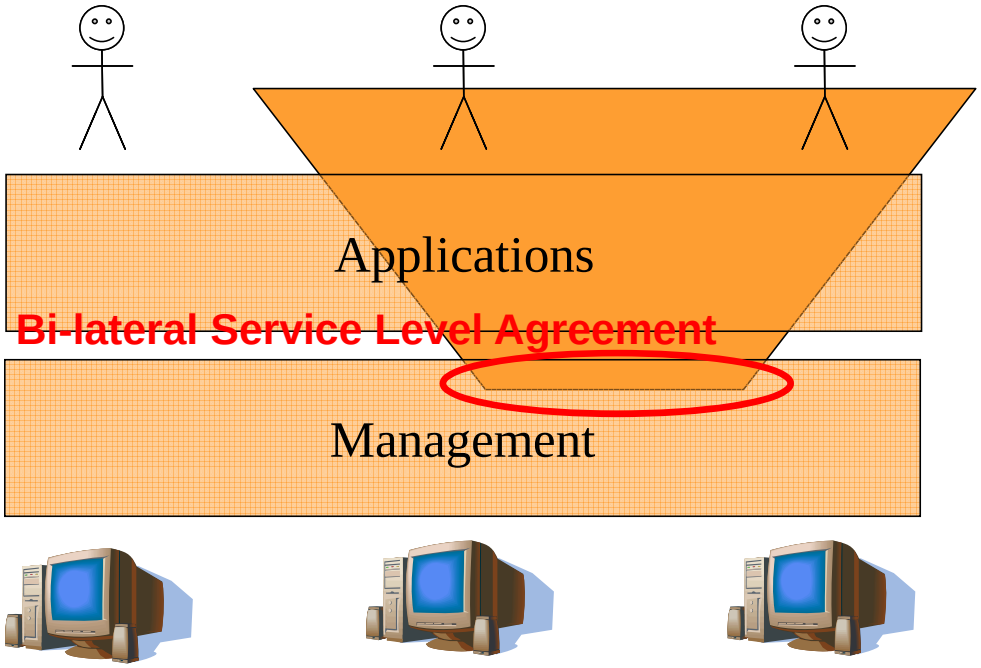
Traditional virtual organisation model



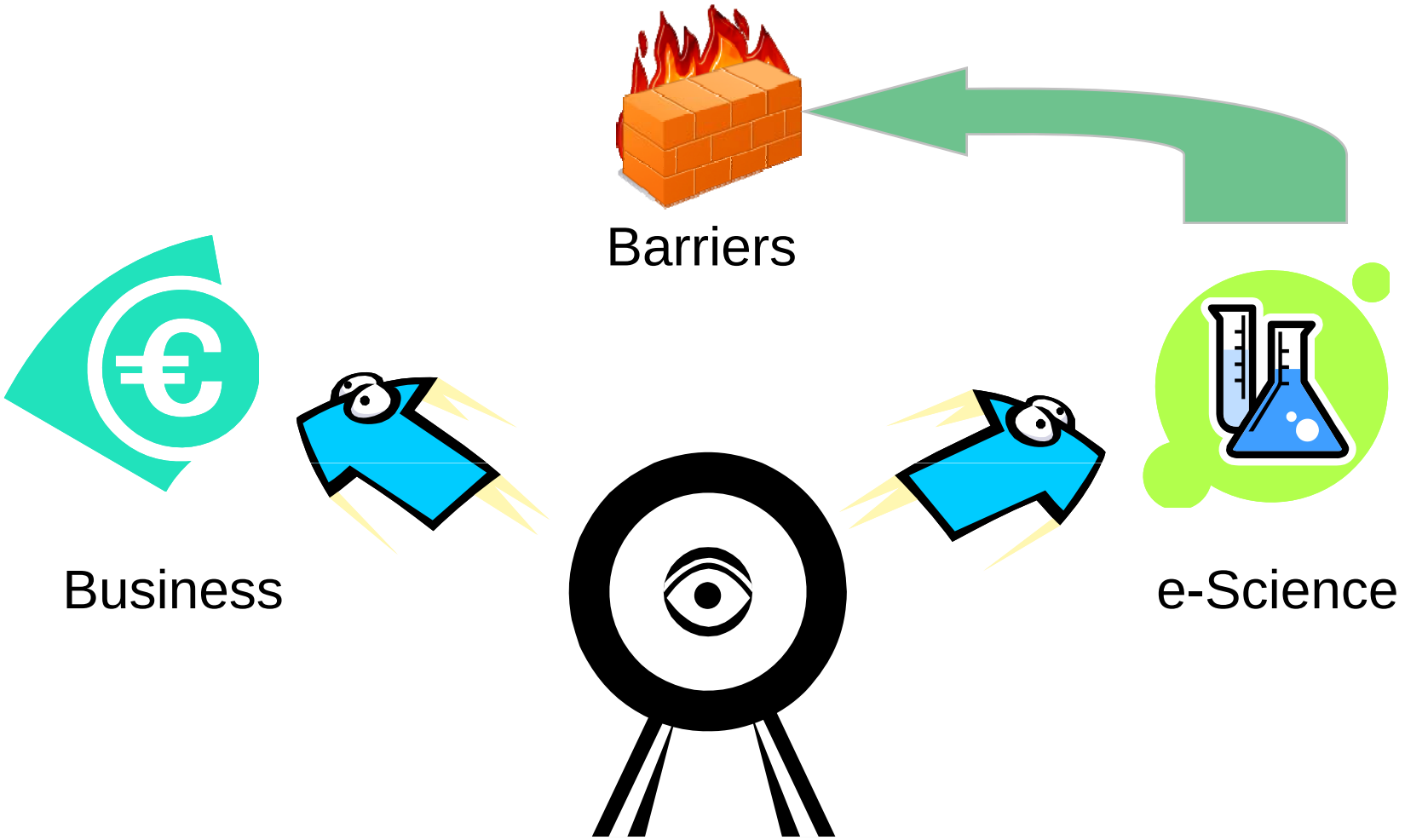
- Traditional Virtual Organisation
  - persistent
  - resourceful
  - manages federated resources
  - optimises to achieve shared goals
- Good for long-lived trusting communities
  - e.g. academic collaborations
  - business cooperatives
- Not so good for service provision
  - too trusting, too open

An alternative model for industry

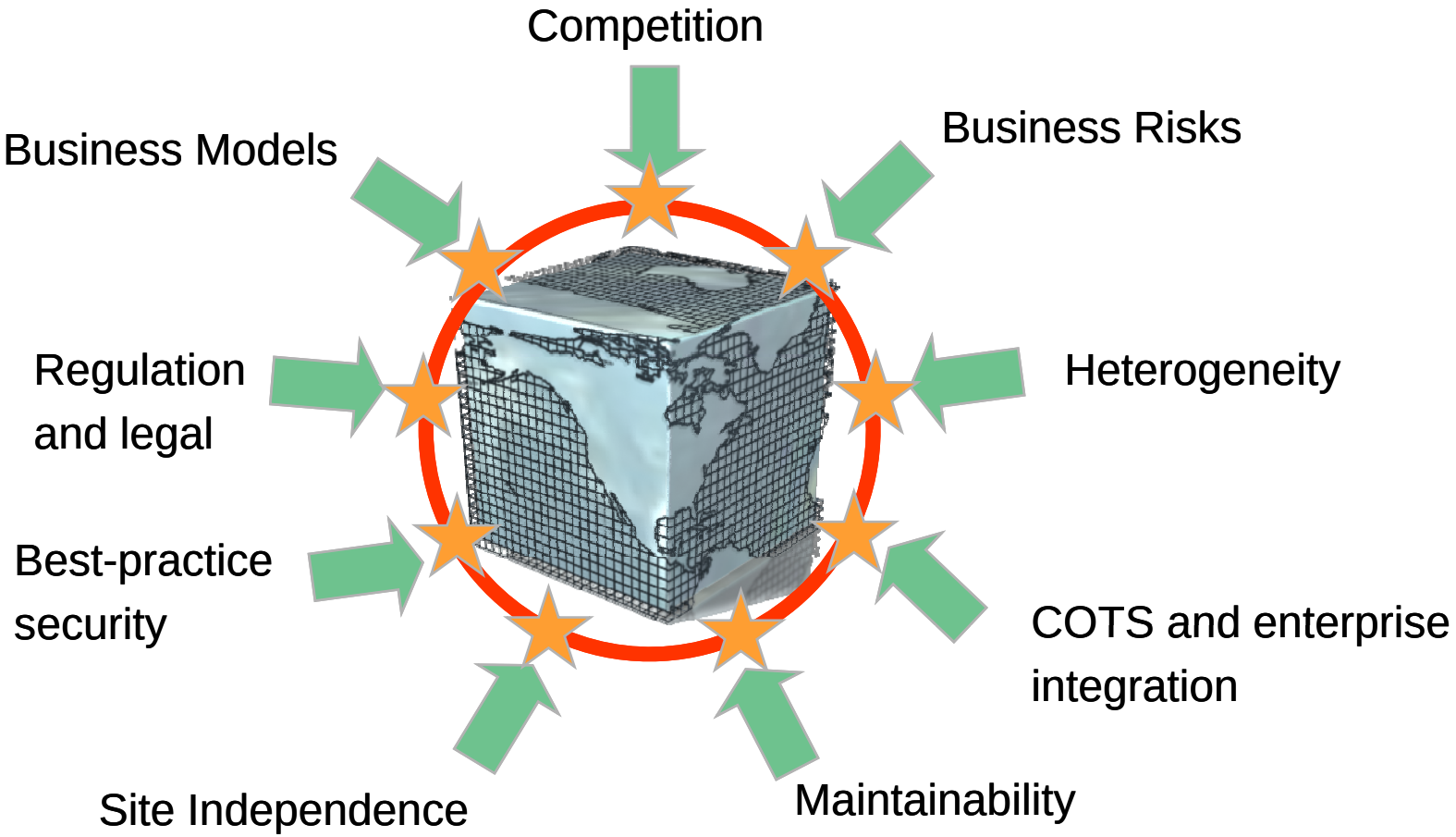
- Client federation
  - user-driven, transient
  - no prior infrastructure
  - resources managed by providers based on SLA
  - optimises provider-consumer value exchanges
- Service Level Agreements
  - regulate use of resources
  - replace VO-level controls
- Good for fast collaborations
  - market-based services
  - lightweight, short-lived project collaborations



Differences in perspective



Infrastructure tensions



Treatment

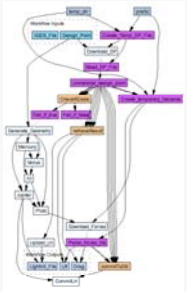
A treatment based on design principles

- Customers control which services they consume, how much they are used, and by whom
- Service providers operate independently and maintain control of their own resources
- Services are subject to Service Level Agreements
- Service providers operate within the terms of relevant application software licenses
- Security to commercial standards
- Heterogeneous infrastructures
- Maintenance should be cost-effective

GRIA: Secure service-oriented collaborations

- Open source service-oriented infrastructure supporting B2B collaborations across organisation boundaries
- Easy to use yet powerful functionality
  - business-to-business accounting and service level agreements
  - dynamic trust and security
  - distributed file transfer, storage and processing
  - distributed database access using OGSA-DAI
  - distributed inter-domain workflow composition, enactment and publication using Taverna/Freefluo
  - cross-platform (Windows, Linux) and interoperable (.NET)
  - developers kit for new managed application services
- Available free and open source from http://www.gria.org

A typical enterprise scenario

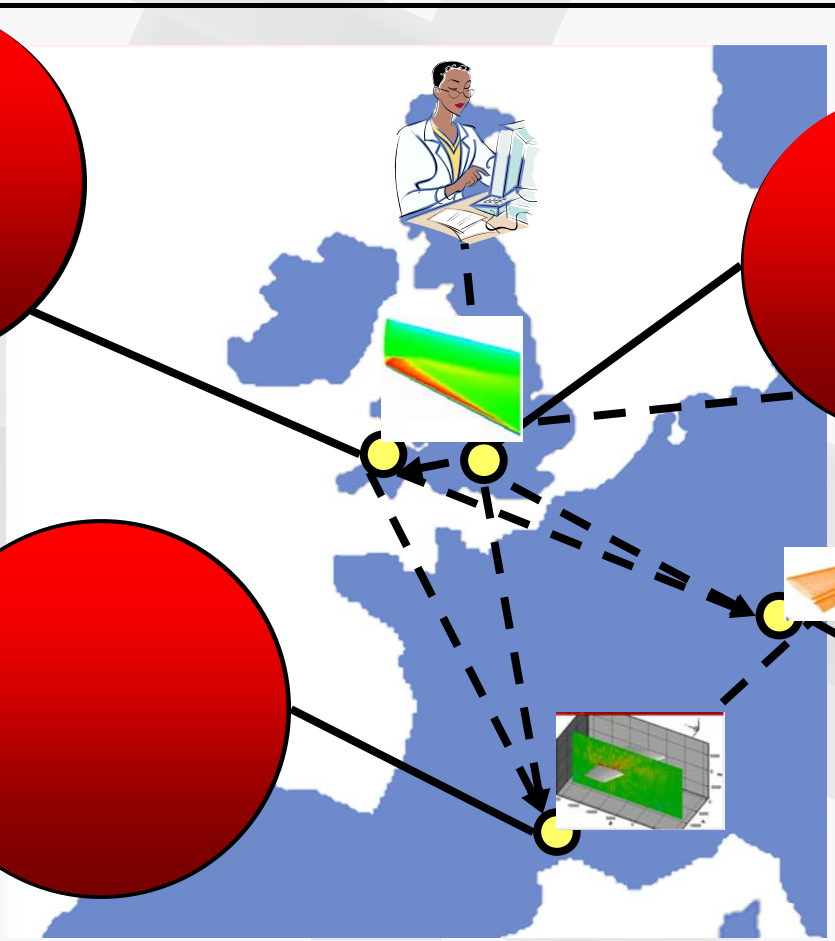


(Model Center, SunGridEngine, GRIA)

(Matlab, OGSA-DAI, Condor, GRIA)

(iSightFD, Torque/LSF, GRIA)

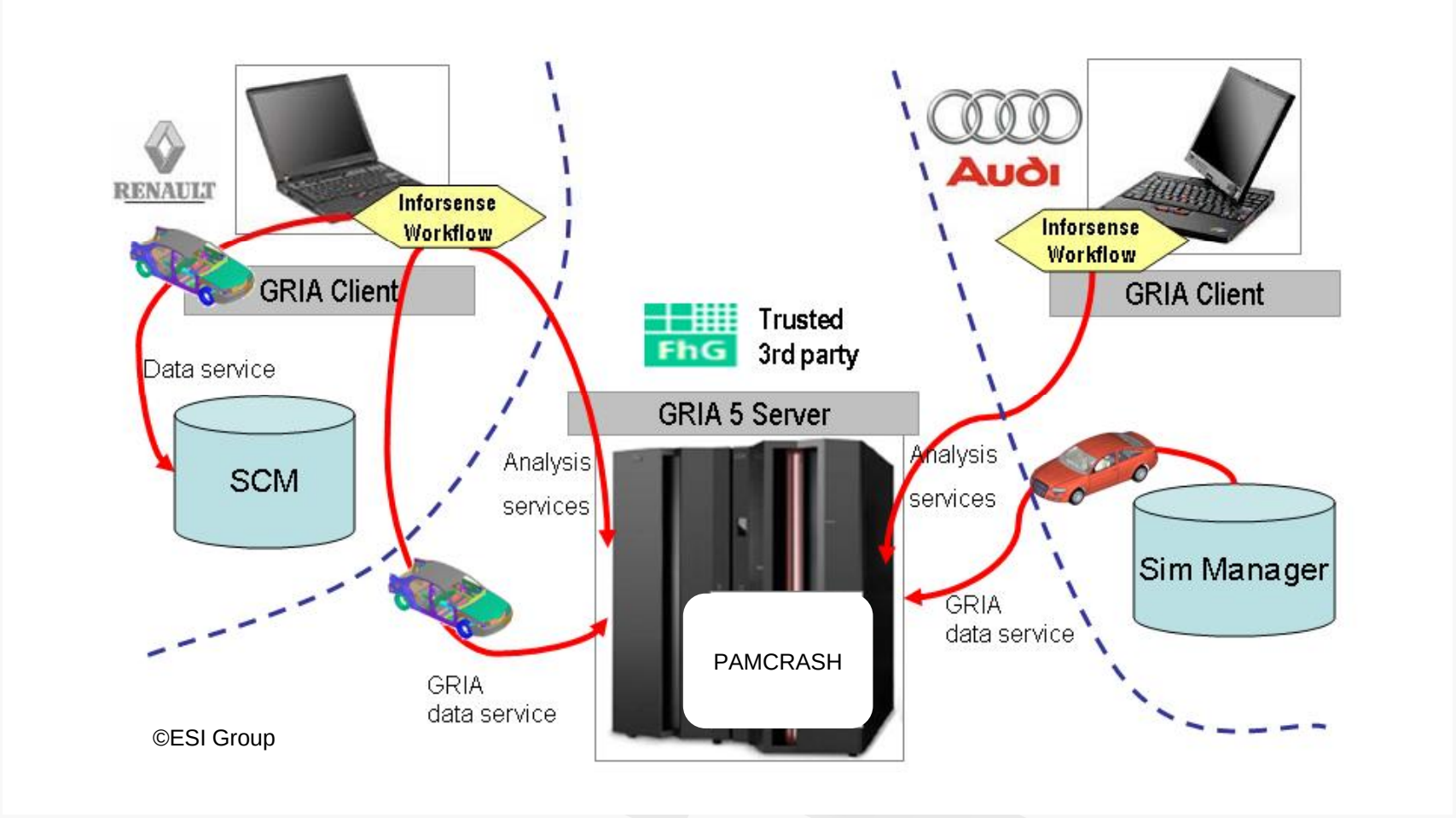
(Patran, GRIA)



SIMDAT

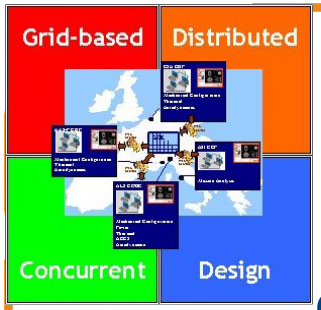
Information Society Technologies

Future scenario:
Automotive Crash Compatibility Testing

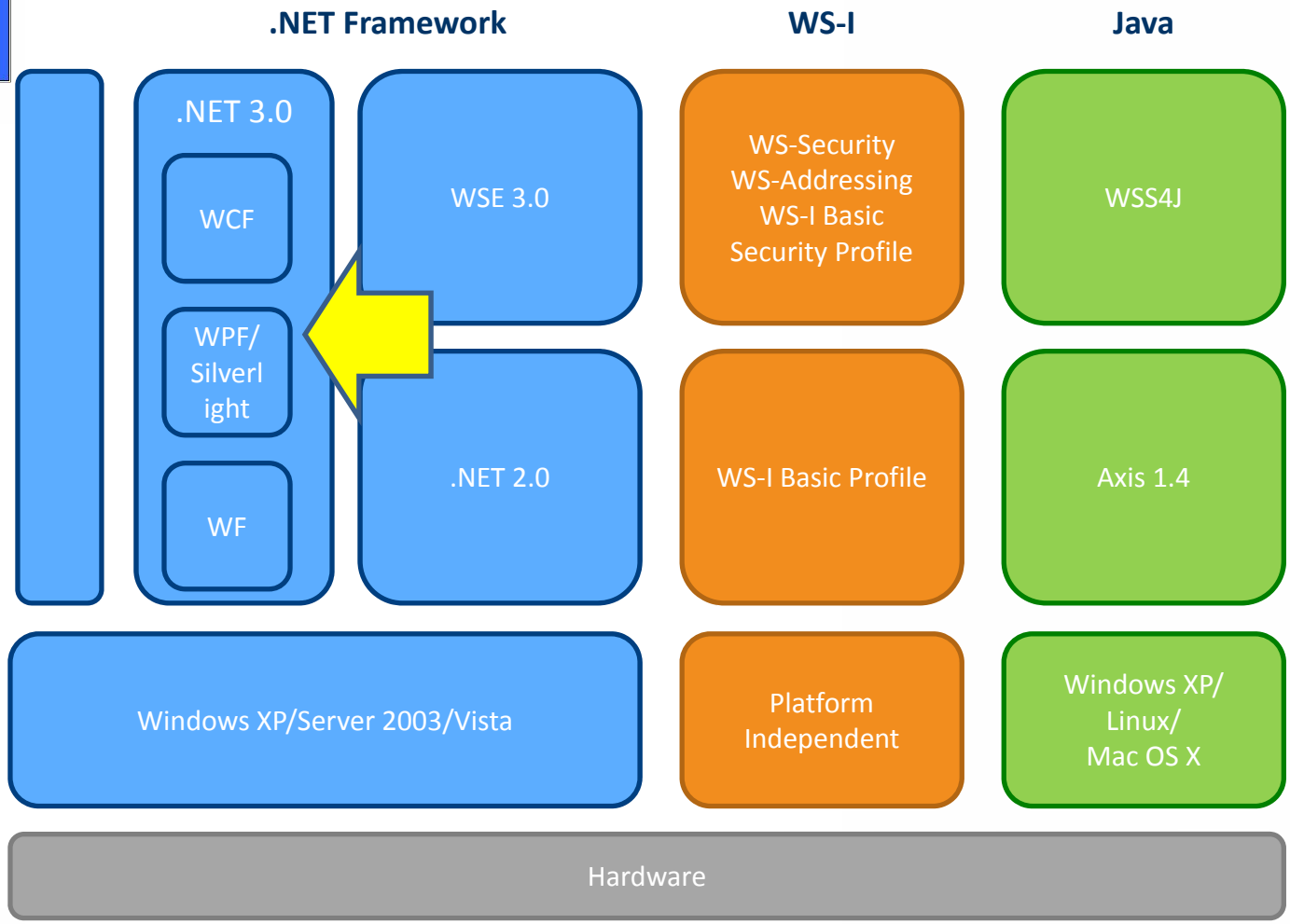


SIMDAT

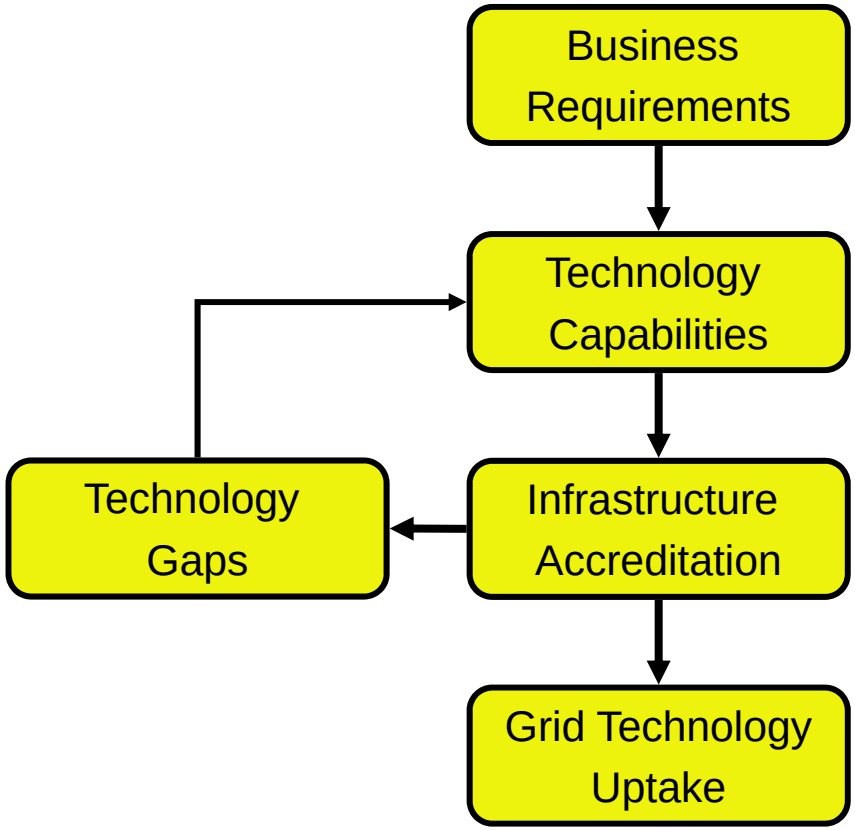
Information Society Technologies



Standards and interoperability



Validation through accreditation



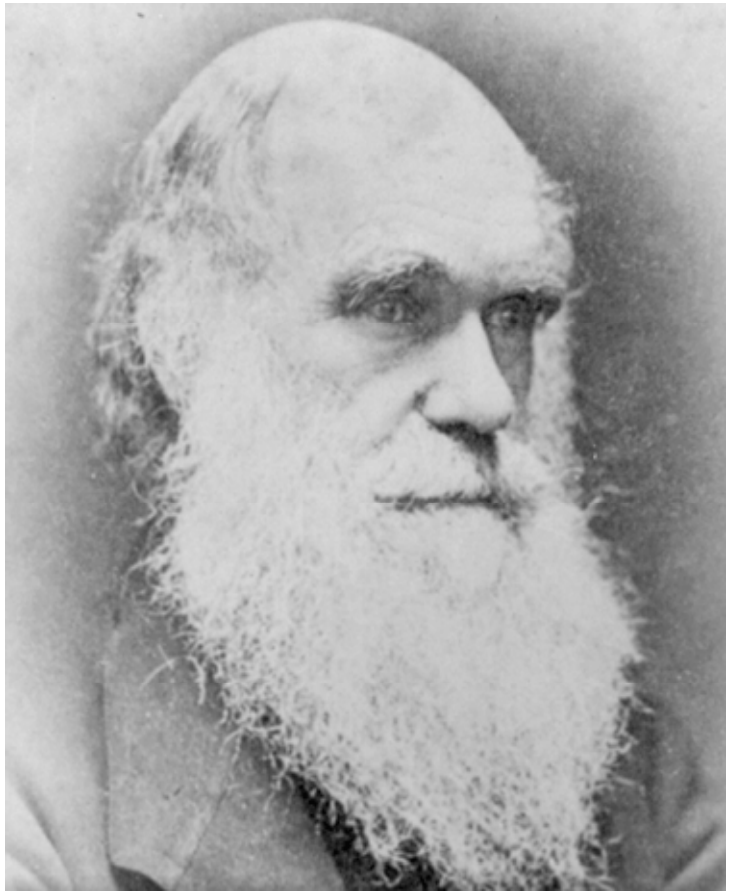
- Collaboration patterns
- Operational security policies

- Dynamic trust and security
- SLA management and accounting
- Contextualised discovery

- Transatlantic Secure Collaboration Programme (www.tscp.org)
- Risk analysis

...and the prognosis

- Theory of evolution applies
- Enterprise Grids were solved a few years ago
- Inter-enterprise service-oriented infrastructures are largely solved
- Some operational and cultural challenges remain
- Production deployment will be seen within the next 12 months in some industries



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http://www.gria.org/