SIMDAT Architecture

Mike Boniface
IT Innovation Centre

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IST EU SIMDAT Project

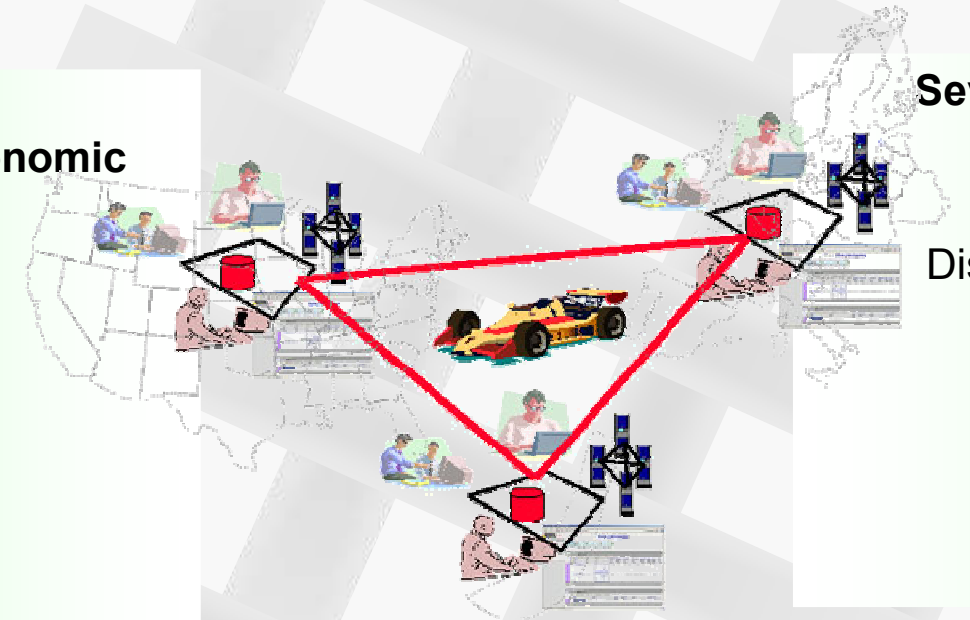
Four sectors of international economic importance:

Automotive

Pharmaceutical

Aerospace

Meteorology



Seven Grid-technology development areas:

Grid infrastructure

Distributed Data Access

VO Administration

Workflows

Ontologies

Analysis Services

Knowledge Services

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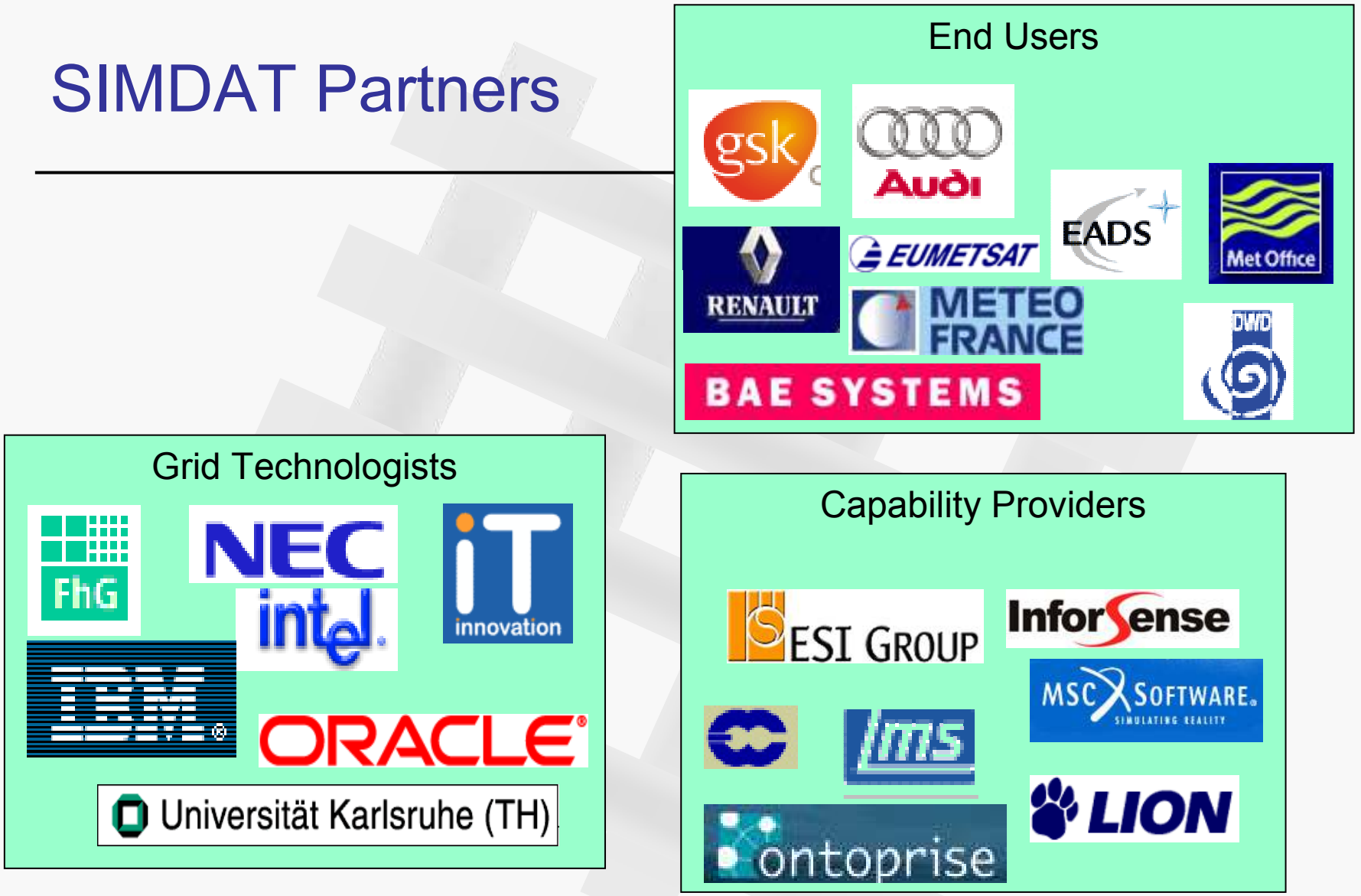
SIMDAT Partners



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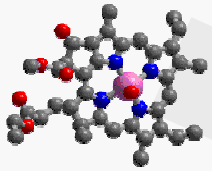
Demanding Application Drivers

- Integration of the product design process chain (CAE/CAD/CAT) including external engineering companies, developers and suppliers

- Multi-disciplinary collaborative configuration design of complex aerospace products



- Drug discovery environment managing the distribution of both public and commercial bioinformatics data and analysis services

V-GISC

- Virtual Global Information System Centre supporting the distribution and integration of large scale meteorology data providers

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We need to support dynamic business models

- SIMDAT users' are driving architectural requirements for Grid trust and resource management
- Generic business collaboration patterns identified
  - Analysis service provision
  - Data publication/subscription
  - Brokering/Supply chain
  - Grid license distribution
- Focus on export policies for IPR management and economics is critical
- Many functional services exist but tend not to be designed to be constrained in this way...

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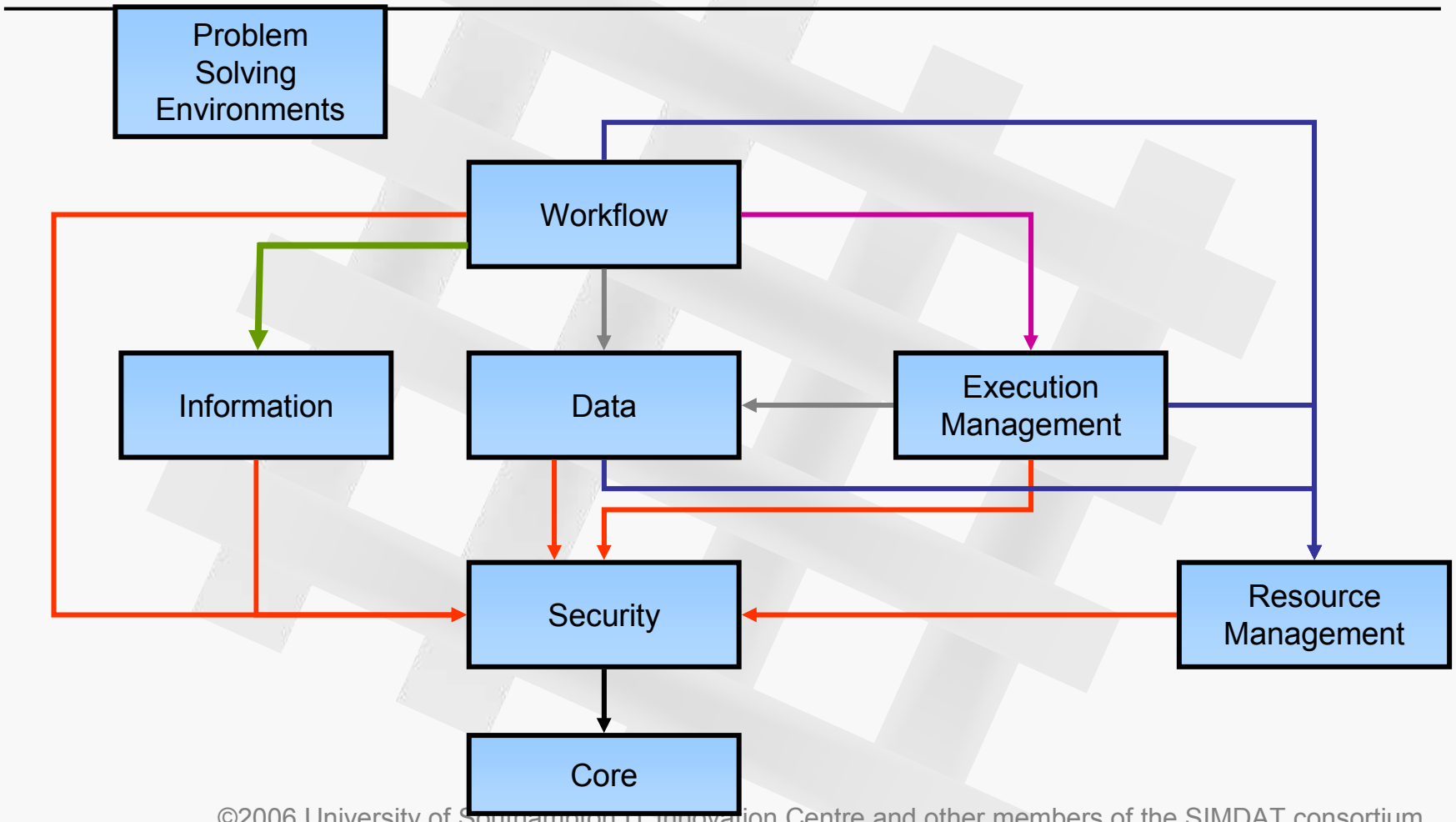

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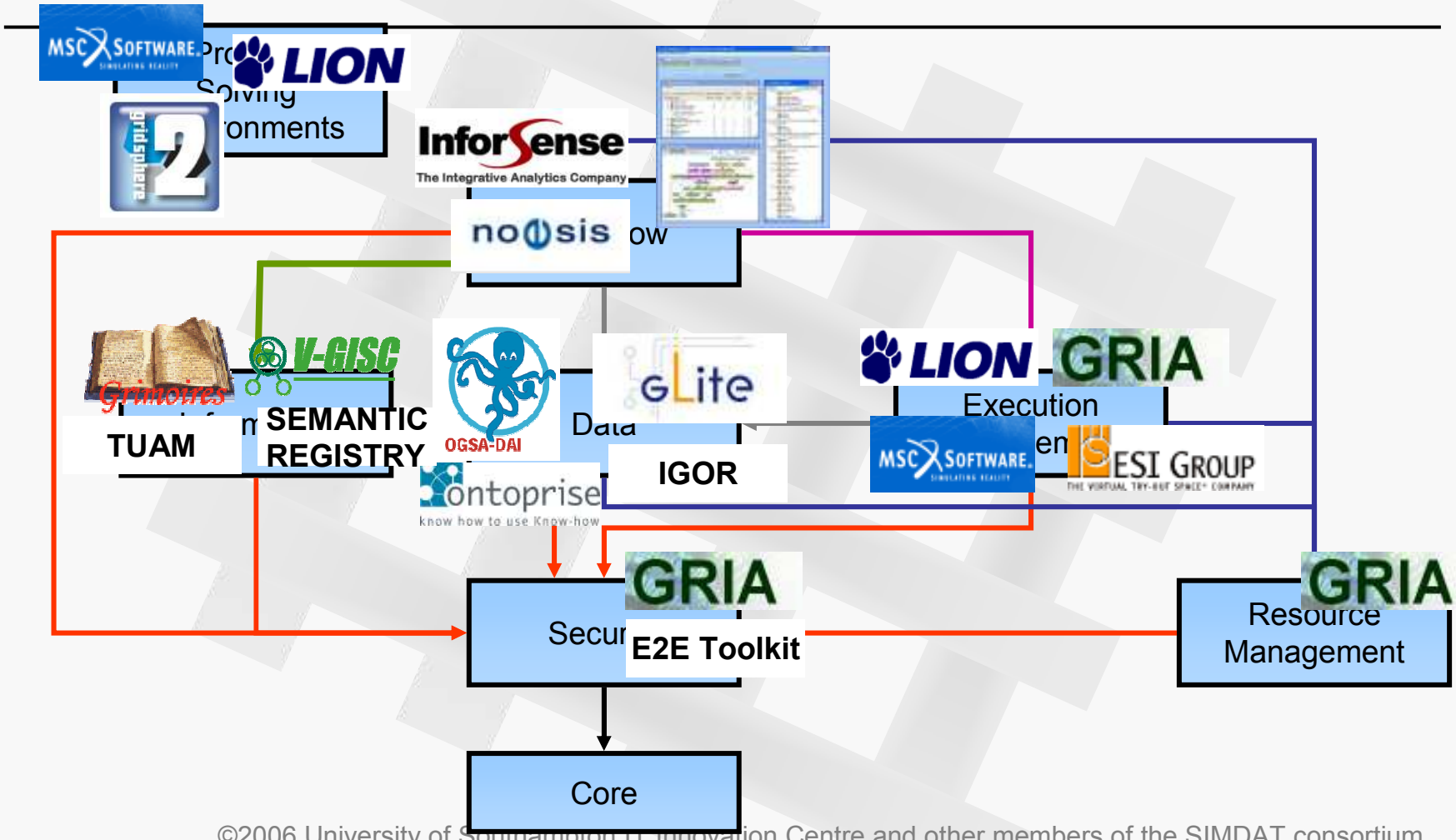

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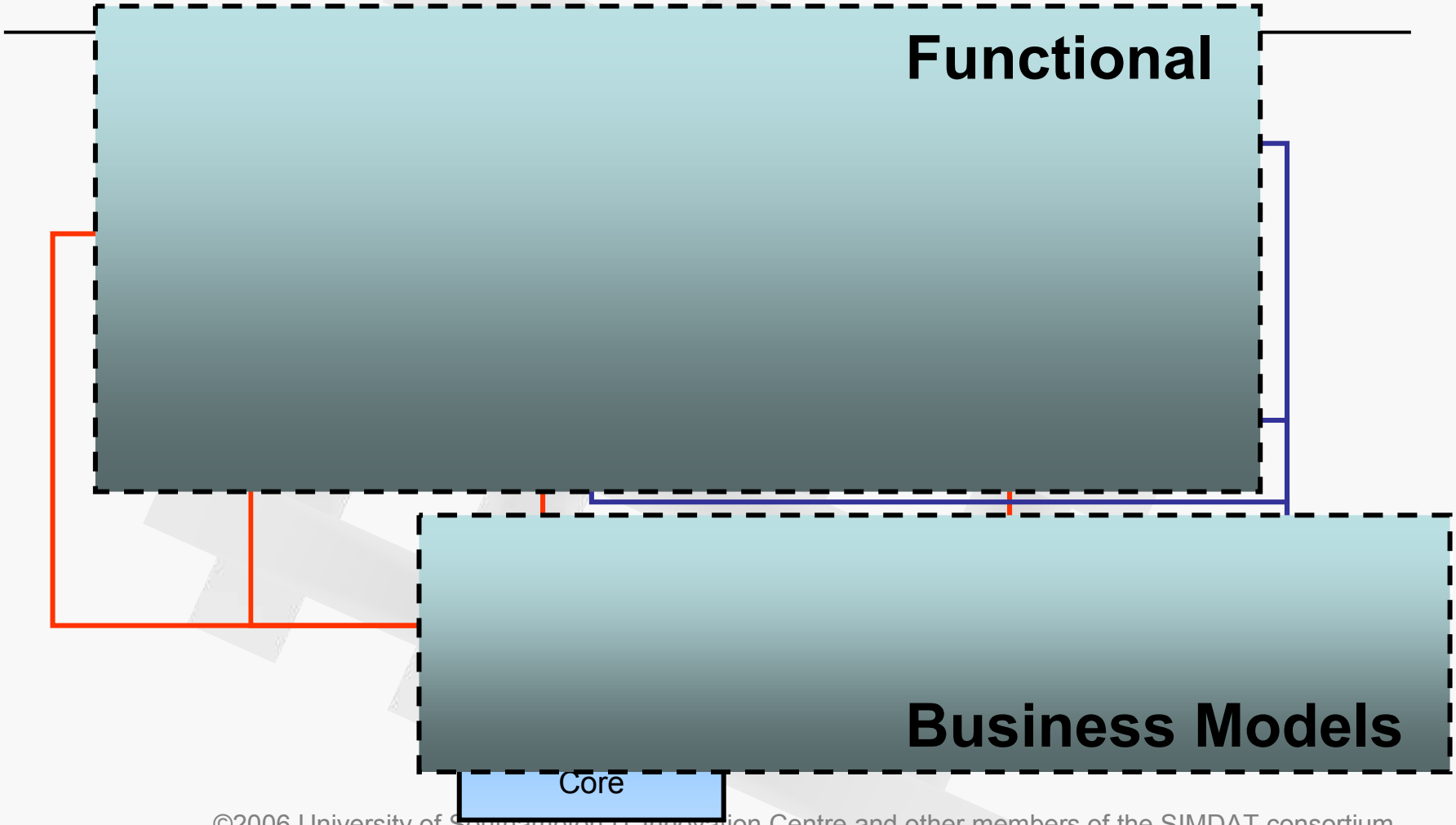
SIMDAT Interfaces



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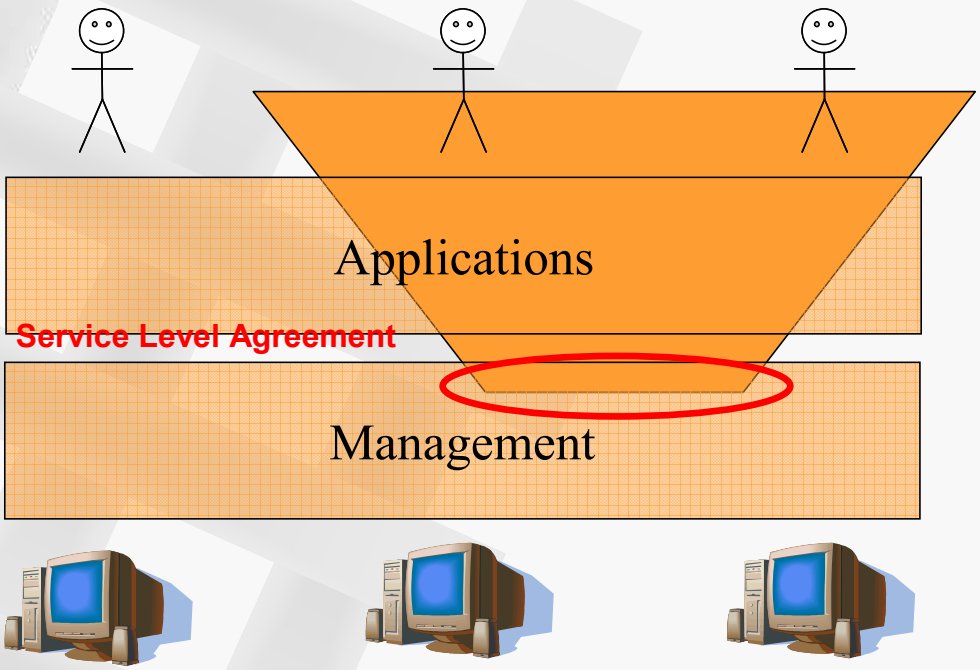
GRIA Overview

- Open source Grid middleware aimed at supporting B2B collaborations
- V4.3.0 has easy-to-use yet powerful functionality
  - business-to-business accounting and QoS services
  - distributed file transfer, storage and processing
  - OGSA-DAI database services (new in GRIA v4.3)
  - Taverna workflow tools and service also available separately
- Off the shelf security components
  - transport and message level security
  - dynamic authorisation linked to business processes and trust
  - firewall friendly
- Standards compliance
  - WS-I Basic Profile and WS-I Basic Security Profile

“Fast” Virtual Organisations

- GRIA’s dynamic federation
  - user-driven, transient
  - no prior infrastructure
  - 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



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GRIA Developments for 2006 in SIMDAT and Other Projects

- GRIA 5.0 (Q1 2006)
  - **Standardised message structure** including WSRF and WS-I doc/literal profile.
  - **Dynamic Contextualised Security** based on WS-Trust/WS-Federation security token patterns
  - **End-to-end accounting services** supporting service provider/client liabilities, client side aggregation and account token issuing/verification
  - **Simplified quality of service** model based on SLAs offering coarse grained resource promises and softer cut-offs.
- GRIA 6.0 (Q4 2006)
  - **Dynamic workflow adaptation** (GridVM) allowing service providers to publish business process appropriate to business goals that can be enacted by clients at the point of use
  - **Standardised management component** allowing service providers to flexibly configure services that are required to fulfil business goals

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Conclusions

- Grid infrastructure successfully deployed in the 1st phase
- Real world application use cases driving architecture and infrastructure developments
- Architecture based on Grid solution portfolio
- Exploring implications for dynamic trust and resource management

For More Information

- www.simdat.org
- www.gria.org
- www.ctwatch.org

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