

Data grids for process and product
development using numerical simulation
and knowledge discovery

SIMDAT and Grid Standards

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SIMDAT ##



partners

- Audi
- BAE SYSTEMS Limited
- Deutscher Wetterdienst
- European Aeronautic Defence & Space Company
- ESI Group
- EUMETSAT
- European Centre for Medium-Range Weather Forecasts
- Fraunhofer Institute AIS
- Fraunhofer Institute SCAI
- GlaxoSmithKline Research and Development Ltd.
- IBM United Kingdom Limited
- IDESTYLE Technologies
- InforSense Limited
- Intel GmbH
- IT Innovation
- Lion Bioscience Limited
- LMS International N.V.
- Météo-France
- MSC.Software GmbH
- NEC Europe Ltd.
- Ontoprise GmbH
- ORACLE Deutschland GmbH
- Renault
- UK Met Office
- Universitt Karlsruhe
- Université libre de Bruxelles
- University of Southampton

context

- Development of industrial and large-scale products and services pose complex problems
- The processes used to develop these products and services typically involve a large number of independent organisational entities at different locations grouped in partnerships and supply chains
- Offering connectivity plus interoperability, Grids are a major enabler of improved collaboration and of virtual organisations

context

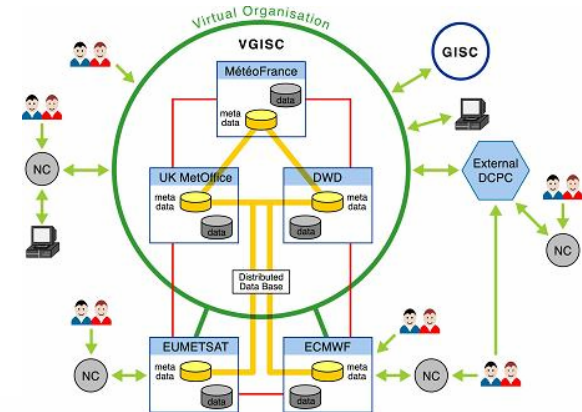
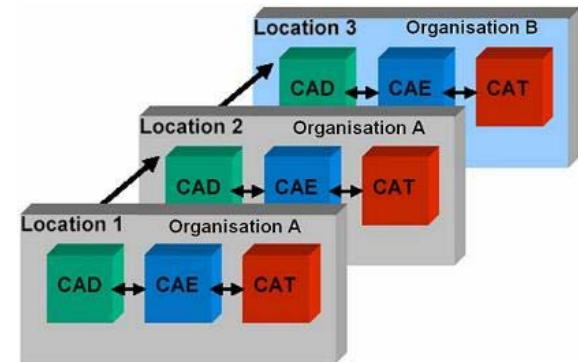
- Grids have the potential to reduce substantially the complexity of the development process, thereby improving the ability to deal with product complexity
- Applications and associated computing power are central to the product development process; however, data is the heart of the issue
- Grid technology is needed to connect diverse data sources, to enable flexible, secure and sophisticated levels of collaboration and make possible the use of powerful knowledge discovery techniques

objectives

- To test and enhance Grid data technology for product development and production process design
- To develop federated versions of problem-solving environments by leveraging enhanced Grid services
- To exploit data Grids as a basis for distributed knowledge discovery
- To promote de facto standards for these enhanced Grid technologies across a range of disciplines and sectors
- To raise awareness of the advantages of Data Grids in important industrial sectors

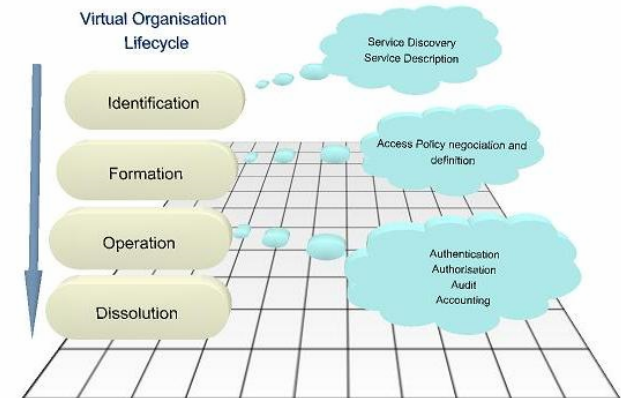
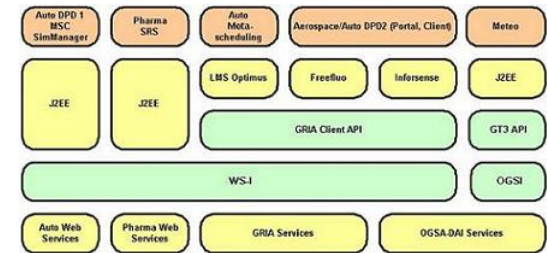
applications

- SIMDAT focuses on four application areas:
 - Product design in:
 - Automotive industry
 - Aerospace industry
 - Pharma industry
 - Service provision in meteorology



technology layers

1. An integrated Grid infrastructure
2. Transparent access to data repositories on remote Grid sites
3. Management of Virtual Organisations
4. Scientific workflow
5. Ontologies
6. Integration of analysis services
7. Knowledge services

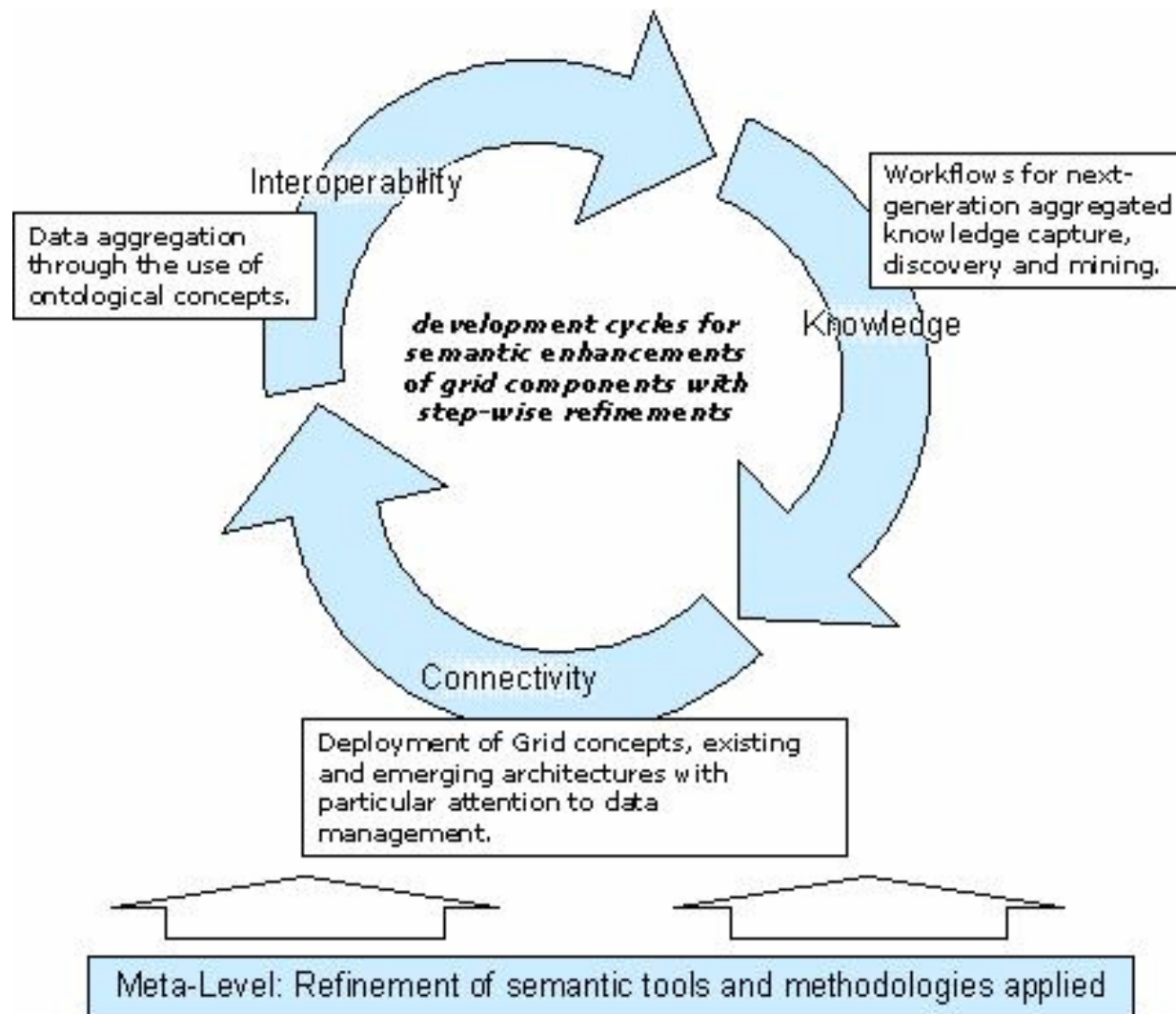


standards

- Resources they have invested?
 - GSCG, me 😊
- Standards or community processes that have benefited their work?
 - *SIMDAT consumes standards*
- Standards they have contributed to?
 - *Not yet!*
- Assessment of the process and future plans

future

- Three areas:
 - Grid Infrastructure
 - Data Exchange
 - Knowledge/Semantic Grid
- Current focus is connectivity
- Focus will shift onto the Knowledge/Semantic aspects after PM 12
- Long term focus will be a combination of last two
- *What will GGF offer in these areas?*



semantics

- To incrementally enrich the distributed environment with the integrated view and access of distributed heterogeneous sources in form of a semantic integration layer that data is passed through or in form of mediation services supporting data integration
- To enhance the management of services with functionalities helping to retrieve, select and combine available services with the help of ontology-based meta-information that is provided in addition to the registry data

study

- Perform a critical review of the current situation vis-à-vis standards and technologies in areas relevant to the Semantic Grid
- For semantic developments of the "Next Generation Grid" identify future needs of industry and business in terms of technologies and standardisation
- With a view to increasing take-up of semantic developments of the "Next Generation Grid" outline recommendations for improving the representation and influence of European players in relevant standardisation activities

Summary

- Consumer of standards, need to track them
- Will generate grounded solutions at Data Integration and Semantics layers
- Link between domain standards and Grid standards