



LarKC in a nutshell

The aim of the EU FP7 Large-Scale Integrating Project LarKC is to go beyond the limited storage, querying and inference technology currently available for semantic computing. The fundamental assumption is that such an infrastructure must go beyond the current paradigms which are strictly based on logic. By fusing reasoning with search and taking seriously the notion of limited rationality we aim for the paradigm shift that is required for reasoning at Web scale.

Main Innovations

The aim of this project C is to develop the Large Knowledge Collider (LarKC, for short, pronounced "lark"), a **platform for massive distributed incomplete reasoning** that will remove the scalability barriers of existing reasoning systems for the Semantic Web. This will be achieved by:

- **Enriching current logic-based Semantic Web reasoning** with methods from information retrieval, machine learning, information theory, databases, and probabilistic reasoning.
- **Employing cognitively inspired approaches and techniques** such as spreading activation, focus of attention, reinforcement, habituation, relevance reasoning, and bounded rationality.
- **Achieve scalability through giving up completeness.** Partial reasoning results are useful in many domains of application. Significant speedups can be obtained by incompleteness in many stages of the reasoning process, ranging from selection of the axioms to incomplete reasoning over those axioms.
- **Achieve scalability through parallelization.** Different possibilities will be explored either through tight integration of parallel processes on a high-performance computing cluster, or through much looser coupled wide-area distributed computing ("computing at home").

Result

We will not build just a single reasoning engine that is supposed to be suited for all kinds of use cases, but instead build a configurable platform on which different components can be plugged in to obtain different scale/efficiency trade-offs, as required by different use cases. The resulting plug-in architecture will allow intra-consortium and extra-consortium researchers and users to experiment with different forms of parallel and approximate reasoning, through building and combining their own plugins.

Use cases

The platform, together with a set of pre-engineered plugin components, will be demonstrated in three use-cases: real-time analysis and interpretation of the data concerning a city infrastructure, data integration for early clinical drug development, and the production of reference works on carcinogenic risk factors.

More details

For more information about the project please visit <http://www.larkc.eu/>

Administrative details

Start	April 2008
End	September 2011
EC contribution	€ 7 million
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Participants

