

BREIN: Business objective drive Reliable and Intelligent Grids for real business

Description

Because of its apparent strengths in providing access to distributed resources, and coordinating their activities towards an overall objective, Grid computing has considerable potential to contribute substantially to the competitiveness of both commercial and non-commercial organisations. At the time of the BREIN project launch, most current Grid solutions were still not able to fulfil this aim completely because Grid technologies still lacked the capability to cope with the major challenges faced by businesses today.

Successful enterprises focus their activities on their core services. This leads to often complex supply chains involving many different organisations (up to 500 companies in the case of large airports, for example). These businesses exhibit high responsiveness, i.e. they are able to meet their customers needs quickly and to a high standard, and they adapt successfully to changing demands of and situations in their markets without losing much time. They perform their processes very efficiently. This requires them to manage intra- and inter-organisational interactions so that everyday conflicts between the conflicting aims of different parties and competition for access to resources can be resolved at low cost, and that each opportunity to maximise advantages from possible synergic effects can be seized. Finally, successful companies are able to make good decisions even in case of incomplete, inconsistent, wrong or missing knowledge. Historically, Grid technologies had not met these challenges adequately.

The BREIN project thus aimed to compensate these deficiencies by taking a more “business-centric” approach. It worked towards developing a framework involving formal representations of supply chain structures, business goals, skeleton process models, process planning and process instantiation patterns, patterns for intra- and inter-organisational interactions, formal representations of the aims, capabilities, and activities of humans as well as of technical (artificial) actors, and simulation toolkits supporting complex decision making in non-standard decision processes. To this end, BREIN aimed to combine the flexibility and stability of Grid-technologies, with the strengths of methods for business modelling and with the intelligence and adaptability of AI systems, as developed for Multiagents – in particular agency concepts, planning and optimisation strategies, with knowledge technologies especially from the semantic web, and embedding security technologies into these approaches.

To this end, BREIN built upon projects like TrustCoM, Akogrimo, NextGRID, OntoGrid and others with respect to dynamic virtual organisations, contract management, business process partitioning and enactment, security issues etc. with an explicit focus on the participant’s business needs. The consortium was carefully chosen to ensure the link to these projects and combine them with stakeholders from national research projects such as the UK Reality Grid project.

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