REASONING ON THE WEB WITH RULES AND SEMANTICS

The objective of REWERSE is to establish Europe as a leader in reasoning languages for the Web by

- networking and structuring a scientific community that needs it, and by
- providing tangible technological bases that do not exist today for an industrial software development of advanced Web systems and applications.

Impact

The community networked and structured by REWERSE

- develops a coherent and complete, yet minimal, collection of inter-operable reasoning languages for advanced Web systems and applications;
- tests these languages on context-adaptive Web systems and Web-based decision support systems selected as test-beds for proof-of-concept purposes;
- brings the proposed languages to the level of open pre-standards amenable to submissions to standardisation bodies such as the W3C.

REWERSE develops Education and Training activities targeted at Universities as well as Technology Transfer and Awareness activities targeted at the European industry on reasoning languages for Web systems and applications.

REWERSE’s main innovation

For the full exploitation of the Semantic Web it is necessary not only to describe meta-data but also provide languages and methods to query and to automatically reason over these data, i.e. to derive new not explicitly stated information from existing data using various forms of rules.

REWERSE is developing a format, or markup, for rule languages, approaches to specifying policies, i.e. high-level specifications for complex Web systems, methods for composing and typing Web rule and query languages, a query language for Web and Semantic Web data, rule-based approaches to specifying reactive behaviours of Web systems. In addition, REWERSE develops methods for expressing and processing temporal and location data, semantic approaches to Bioinformatics, and methods for personalisation.

REWERSE’s results so far

The focus of REWERSE is the definition of languages and support tools for reasoning on the Web and the application of these technologies in different application domains. In its first months REWERSE has defined requirements and base components for the different technologies accompanied by thorough state-of-the-art surveys. At the end of year one use cases for the respective technologies have been defined that all require rules and reasoning for satisfactory realisation. In year 2 REWERSE has been implementing first prototypes of the respective technologies. More concretely,
the languages, use-cases, prototypes and applications that are worked on concern: rule markup languages, policy specification, typing and composition of rules, querying and transformation, reactive behaviour and evolution of information, geotemporal and geospatial reasoning, bioinformatics data integration and personalisation on the Web.

These research results can be followed on http://rewerse.net; in particular the results are documented in the deliverables and research publications available at http://rewerse.net/publications.html. At month 20 REWERSE members have contributed to over 200 internationally reviewed publications showing that REWERSE’s focus is perfectly targeted to current research needs. Demonstrations of prototypes developed within REWERSE are available at http://rewerse.net/downloads_demos/.

REWERSE has organised three major dissemination events in year 2: the first “Reasoning Web” Summer School (July 2005, Malta), the industry awareness event “Semantic Web Days” (October 2005, Munich) and the research workshop “Principles and Practice of Semantic Web Reasoning” (PPSWR’05) (September 2005, Dagstuhl) (cf. http://rewerse.net/project_events.html).

Since October 2005 REWERSE holds a consortium membership in the W3C and has a dedicated standardisation task force. REWERSE members actively participate in standardisation activities, in particular in the W3C Rule Interchange Format Working Group and in the W3C Semantic Web Health Care and Life Sciences Interest Group (HCLSIG). Details of the standardisation activities can be followed at http://rewerse.net/standardization.html.

More details

- REWERSE Website: http://rewerse.net
- Deliverables and research publications: http://rewerse.net/publications.html
- PR material and demos (e.g. Project Flyer, Workpackage Fact Sheets, Project Presentation, Annual Public Reports, Demo descriptions etc.): http://rewerse.net/downloads_demos/
- Project events, e.g. scientific or technology transfer conferences:
  - Overview: http://rewerse.net/project_events.html
  - Reasoning Web Summer School 2005: http://reasoningweb.org/
  - Semantic Web Days 2005: http://www.semantic-web-days.net/
  - PPSWR 2005: http://rewerse.net/PPSWR05/
- REWERSE Research and Application Working Groups: http://rewerse.net/workinggroups.html
- REWERSE Dissemination and Standardisation Activities: http://rewerse.net/activities.html

REWERENCE’s upcoming work

In the future, REWERSE will further work on the above mentioned issue and deliver research reports and prototypes. In particular, in year 3 REWERSE plans to refine and test its demonstrators and prototypes thus showing the power of the new paradigm for rules and reasoning on the Web.
The dissemination of the results will be further extended via the annual summer school Reasoning Web, refinement of university and industry teaching material and infrastructure, technology transfer events, and the research workshop PPSWR. Furthermore, REWERSE is actively participating in W3C Standardisation activities.

Administrative details

Project Reference 506779
Framework FP6
Priority Priority 2, IST
Action Line Semantic-based knowledge systems
Contract Type Network of Excellence
Start Date 2004-03-01
End Date 2008-02-29
Duration 48 months
Project Status Execution
Project Funding
EU Commission part 5 150 000 Euro
Swiss part 360 720 Euro
Participants 27 from 14 European countries
WWW http://rewerse.net

List of participants

<table>
<thead>
<tr>
<th>Short Name</th>
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Skövde  Högskolan i Skövde  Sweden
St. Gallen  Universität St. Gallen  Switzerland
Tekniker  Fundación Tekniker, Eibar  Spain
Telefonica  Telefónica Investigación y Desarrollo, Madrid  Spain
Turin  Università degli Studi di Torino  Italy
Venice  Università Ca' Foscari Venezia  Italy
Vienna  Technische Universität Wien  Austria
Warsaw  Instytut Podstaw Informatyki Polskiej Akademii Nauk  Poland
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Events in connection with the project

2005

Semantic Web Days 2005
Date: October 6-7, 2005
Location: Munich, Germany
www: http://www.semantic-web-days.net/
Type: Technology Transfer to industry – Workshops targeted at industry

Workshop PPSWR 2005 ("Principles and Practice of Semantic Web Reasoning")
Date: September 11-16, 2005
Location: Dagstuhl, Germany
www: http://rewerse.net/PPSWR05/
Type: Research dissemination – Scientific workshop

Summer School Reasoning Web 2005
Date: July 25-29, 2005
Location: Malta
www: http://reasoningweb.org
Type: Education and Training – Summer School
REWERSE at ESWC 2005 Industry Forum
Date: May 30, 2005
Location: Heraklion
www: http://rewerse.net/TTA/NewsandEvents/event.htm
Type: Technology Transfer to industry – Co-organisation of industry forum

REWERSE at CeBIT Future Match Event
Date: March 10-16 2005
Location: Hannover
www: http://rewerse.net/TTA/NewsandEvents/event.htm
Type: Technology Transfer – Presentation of REWERSE at Future Match event

2004

REWERSE presentation at KM Europe
Date: November 9, 2004
Location: Amsterdam, Netherlands
www: http://rewerse.net/TTA/NewsandEvents/event.htm
Type: Technology Transfer – Stand, demos, presentation

Workshop PPSWR 2004 (“Principles and Practice of Semantic Web Reasoning”)
Date: September 8-9, 2004
Location: St. Malo, France
www: http://www.pms.ifi.lmu.de/PPSWR04
Type: Research dissemination – Scientific workshop

2003

Workshop PPSWR 2003 (“Principles and Practice of Semantic Web Reasoning”)
Date: December 8, 2003
Location: Mumbai, India
www: http://www.kbs.uni-hannover.de/~henze/PPSWR03/
Type: Research dissemination – Scientific workshop

Last updated: 30/01/2006