DAML Project Activities
SRI International

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Areas

- Semantic Web Services
- Security (for SWS)
- OWL-S Editor
- Time and Space Ontologies
- Axiomatic Semantics
- Composition of Services
■ Goals and Deliverables 2004:
  • Consolidated security ontologies
    ◆ Including use cases
    ◆ Integration with SWRL
  • Document and ontologies describing tie-in with WS-* standards
  • Client-Server framework for matching and enforcing privacy and authentication policies
    ◆ Using semantic security services for encryption, signing, etc.

■ Current functionality
  • Ontologies supporting security annotations of web services, including
    ◆ high-level requirements and capabilities such as protocols supported, credentials provided, etc.
    ◆ enforced authorization, privacy and confidentiality policies
  • Deployed semantic security services
Current IP status

- All ontologies, papers, and use cases are publicly available
- Deployed security services are publicly accessible

Project status at end of 2004

- Suite of ontologies and use cases demonstrating security annotations and policies for OWL-S services
Goals and Deliverables for 2004
- Implementation of OWL-S editor as plug-in to Protégé-2000

Current functionality
- Design / prototyping stage
  - Design of look-and-feel of OWL-S plugin
  - Preliminary tests with prototypical implementations

Current IP status
- Mozilla Public License 1.1

Software Deliverables on SemWebCentral
- OWL-S editor project established
- All deliverables will be available on SemWebCentral
Project status at end of 2004

- OWL-S editor supporting editing of all four modes (service, profile, atomic/composite process, grounding)
- GUI for composite process editing
- Consistency checks between modes
Ontologies of Time and Space

Jerry Hobbs

(recent developments)

- “Entry” subontology of Time with essential elements, in OWL
- Treatment of temporal aggregates
  - “every 3rd Wednesday”
- Treatment of temporal arithmetic
  - Jan 31 + 1 mo. + 1 mo. = Jan. 31 + 2 mo.?
  - Integration with OWL-S
- Ontology of topological aspects of space
  - Dimension, topological shape
First-order axiomatic OWL theory formulated in Kestrel’s Specware environment.

Theory + SNARK is OWL-Full Reasoner.
  - Conjectures and test cases proved by SRI’s theorem-prover SNARK.

SNARK searches for inconsistencies in OWL theory or (potentially) OWL ontologies.

Establishes conclusions not expressible in OWL (e.g., with quantifiers).
  - Supported by Kestrel under Lockheed Martin UBOT project and SRI under SRI’s DAML project.
Automatic Composition of SAP Business Services

- Formulate axiomatic theory of business services.
- Capabilities of services
  - Extracted from OWL-S services descriptions.
  - Advertised by axioms in theory.
- Task expressed as theorem in theory.
- Composition of services to achieve task extracted from proof of task theorem.
  - Tentatively supported by SAP
Composition of Business Services

User’s Query

Natural Language Parser (Gemini)

Query in Logical Form

Service Requests

Theorem Prover (SNARK)

Service Results

Answer Presentation Instructions

SAP Service Theory

SAP Data Services

Visualization and Reporting Tools

Table, Chart, and Report Writers

Management  Agriculture  Education  Health  Entertainment

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.