Intro to Panel at WWW-2003: Semantic Web Services: Obstacles and Attractions

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Next Generation Web

Semantic Web Services

Semantic Web techniques

Web Services techniques

Existing Web
Semantic Web Services

- Convergence of Semantic Web and Web Services
- Consensus definition and conceptualization still forming
- Semantic (Web Services):
  - Knowledge-based service descriptions, deals
  - Discovery/search, invocation, negotiation, selection, composition, execution, monitoring, verification
  - Integrated knowledge
- (Semantic Web) Services: e.g., infrastructural
  - Knowledge/info/DB integration
  - Inferencing and translation
Analysis: High-Level Requirements for SWS

- Support Biz-Process Communication
  - E.g., B2B SCM, CRM, EAI
  - E.g., e-contracts, financial info, trust management.

- Support SWS Tasks above current WS layers:
  - Discovery/search, invocation, deal negotiation, selection, composition, execution, monitoring, verification
"Wire" Protocols  | Service Description
---|---
W3C WS Choreography Group  | SWS Initiative (SWSI) -- automate Tasks of:
BPEL4WS (Microsoft, IBM, BEA)  |  Discovery
WSCL (HP)BPML (Most but Microsoft)  |  Invocation
WSCi (Sun, BEA, Yahoo, …)  |  Interoperation
XML  |  Deal Negotiation
SOAP Blocks  |  Composition
SOAP/XMLP  |  Monitoring
XML  |  Verification
HTTP/SMTP  |  SWS Language
TCP/IP  |  Process
WSCL Extensions  |  SWSI Language effort,
WSDL  |  on top of Current WS Standards Stack
XML  |  from Current WS Standards Stack

[Slide authors: Benjamin Grosof (MIT Sloan), Sheila McIlraith (Stanford), David Martin (SRI International), James Snell (IBM)]
Some New Research Application Scenarios for Rule-based Semantic Web Services

- **SweetDeal** [Grosof & Poon WWW-2003] configurable reusable e-contracts:
  - Represents modular modification of proposals, service provisions
  - **LP rules** as KR. E.g., prices, late delivery exception handling.
  - **On top of DL ontologies** about business processes from MIT Process Handbook
    - Evolved from EECOMS pilot on agent-based manufacturing SCM
      ($51M NIST ATP 1996-2000  IBM, Boeing, TRW, Vitria, others)

- **Financial knowledge integration (ECOIN)** [Firat, Madnick, & Grosof 2002]
  - Maps between contexts using LP rules, equational ontologies, SQL DB’s.

- **Business Policies:**
  - **Trust management (Delegation Logic)** [Li, Grosof, & Feigenbaum 2003]:
SWS Adoption Roadmap: Some Strategy Considerations

• “Death. Taxes. Integration.”

• Expect see beginning in a lot of B2B interoperability or heterogeneous-info-integration intensive (e.g., finance, travel)
  – Actually, probably 1st intra-enterprise, e.g., EAI

• Reduce costs of communication in procurement, operations, customer service, supply chain ordering and logistics

• Agility/speed/flexibility in business processes, supply chains
**Panel Schedule & Protocols:**

*goal: keep it moving*

- Intro by Panel Chair
  - Also: read the handouts on:
    - 1. panel topic & background; 2. panelist bios
- Panelist presentations on Obstacles and Attractions
- Q+A:
  - Direct Question to **1** Panelist
    - You can also hand in a written question to panel chair – include your name (i.e. non-anonymous)
    - Keep brief the statement of Question – 30sec max
    - Keep brief the Answer – 60sec max
    - NO audience Comments (opportunity for that will be later!)
- Panelists interchange: Q+A *among panelists* (1-2 Q’s per)
- Comments & Q+A
OPTIONAL SLIDES FOLLOW
W3C Semantic Web “Stack”: Standardization Steps

Emerging Standards
pioneered in DARPA Agent Markup Language (DAML) program:

- RuleML
- OWL

[Diagram http://www.w3.org/DesignIssues/diagrams/sw-stack-2002.png is courtesy Tim Berners-Lee]

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