WSMX WG Presentation

WS Architecture (WSA)

http://www.w3.org/TR/ws-arch/

Overview for WSMX Working Group

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Overview

- What is it
- WSDL and Semantics
- Organisation
- Some relevant concepts
- WS Arch from Stakeholders Perspective
- Summary

What is it

- W3C Description of Conceptual Model for Web services and what must be present to guarantee interoperability
- Work in Progress – Working Note, 11/2/03
- Two main sections
  - Concepts & Relationships
    - What are the concepts and relationships between them
  - Stakeholders Perspectives
    - What in the architecture might achieve a certain goal

Semantics

- WSDL provides contract for mechanics of interaction - syntax
- Semantics provide contract for meaning & purpose of the interaction
- Semantics usually an *implicit* agreement
- WSA envisages inclusion of semantics to Web service description

Organisation

- Concepts & Relationships provide a conceptual architecture for WS
- Four architectural models
  - Message, Service, Resource and Policy
- WSMO should consider the relationshiop of WSA to Chris Preist conceptual model?
- Concepts in each of the models might include concepts under-defined for WSMX e.g.
  - Message: transport, correlation
  - Service: agent, sender, receiver, organisation, policy

Some Relevant Concepts

- Recognition of need for MEP and Choreography but unresolved whether they are not the same thing
  - MEP can span independent Web service interactions e.g. 1.A&B; 2.B&C; 3.A&C
  - Suggests a tight binding and possible overlap between chor. and invocation
- Choreography is task-oriented: sequence and conditions under which multiple agents co-operate and exchange messages to achieve a task
- Orchestration almost same defn but only a single agent is involved

Some Relevant Concepts

- Resource Oriented Architectural Model
  - Describes discovery and discovery service but suggests no implementation design
  - Resources are something with an ID that is owned and that can have policies applied
  - WSA Representation concept describes a resource‘s state
  - WSA Service description = WSMO Service interface
  - WSMO Service description = WSA Service description + WSA Resource description

Stakeholders Perspective

- SOA
  - Logical view of a system
  - Message oriented
  - WS face same problems as other dist. systems and may not always be the best choice e.g. COM or CORBA may be more suitable
    - Latency
    - Partial failure scenarios
    - Concurrent access to remote resources etc.
- Web Services Technologies
  - XML, SOAP, WSDL
- Using WS
  - Initiation can be from requester or provider
  - Req and prov. agree on syntax & semantics (informal)

Stakeholders Perspective

- WS Discovery
  - Locating description of a service that meets functional criteria
  - Functional Description is machine processable desc. of functionality that may be in a SW language but this is not prescribed by WS-Arch (OWL-S is mentioned)
  - High level view very close to WSMO
  - Automatic discovery – trust can be an issue
  - Registry(UDDI), Index(Google) or P2P(Stefan‘s algorithm)?
- WS Semantics
- WS Security, P2P, Reliability, Management
- WS & EDI: Transaction Tracking

Stakeholders Perspective

- Web Service Semantics
  - Focus on messages means that shared semantics can be made visible.
  - WS Arch suggest that the SOAP header is very useful
  - Intermediaries (Proxy, Firewall) can inspect SOAP headers
  - Standards for diff tyes of headers – semantics here?
- Role of the Metadata
  - WSDL for interface, Chor desc for message flows
  - WSA sees the potential for richer meta-data to describe
    - Real world entities
    - Effects of Web service invocations
    - Relationship between requester and provider e.g. security

Summary

- Useful conceptual architecture
- Syntactic now but view to future semantics
- Relevance to WSMX conceptual model e.g.
  - Messages
  - Sender, receiver
- Discovery
- SOAP headers mechanims
  - WSMO semantics for these protocols
- Did not cover Security

Relevance to WSMX

- General
  - WSMX docs should include comparison with WSA
- WSMX Conceptual model
  - Review with WSA and Chris Preist model
- Choreography
  - WSA describes interaction between multiple services
  - WSMX describes public interface of service including msg flow
- Orchestration
- Discovery
- Security
- Reliability
- Monitoring