Emerging e-business Industry Architecture

Web Services Interoperability

OMG Web Services Workshop (Europe)
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Agenda

··> Issues and challenges

··> Introduction to Web Services Interoperability organization

··> Technical highlights of WS Basic Profile 1.0

··> Projected work for 2003

Challenges

"[the] Architecture of Web services is not fully crystallized. Without guidance, standards may fragment"
Gartner Group, March 12, 2001

Part of the problem is that even at this early stage, Web services have more faces than Fu Manchu. . . . Inevitably, companies involved with Web services will define them in their own way. The term Web services will be a messy catchall phrase.
Intelligent Enterprise, June 29, 2001

"It's standards…that allow Web services to overcome the barriers of different programming languages, operating systems, and vendor platforms so multiple applications can interact."
eWeek, August 13, 2001

Issues

- **Facing solution vendors**
    - Which specifications will gain broad support?
    - Will their implementations be interoperable with those of their competitors?
    - Will they be interpreting the specifications in the same way as their competitors?
- **Facing end-users and developers**
    - Will their deployed Web services interoperate with those of their partners?
    - Will their choice of technologies be supported in their partners and customers tools and platforms?
    - Will their choice of tools and platform be interoperable with those of their partners?
- **No single SDO for Web ser vices technologies**
    - W3C, OASIS, IETF, etc.

WS-I.org

- **Industry initiative for Web services**
  - Open to any organization committed to Web services
  - Promote and accelerate adoption, deployment
- **Focused on promoting Web service interoperability**
  - Across platforms, applications, and programming languages
  - Promote a common, clear definition for Web services
- **Promote customer adoption & deployment**
  - Integrate specifications from standards bodies
  - Implementation guidance & tools for customers building and deploying Web services

WS-I Goals

- **Mission statement**

  "The Web Services Interoperability Organization is an open industry effort chartered to promote Web Services interoperability across platforms, applications, and programming languages. The organization brings together a diverse community of Web services leaders to respond to customer needs by providing guidance, recommended practices, and supporting resources for developing interoperable Web services."

- **Achieve Web services interoperability**

  Across platforms, languages and applications

- **Encourage Web services adoption**

  Among customers, industries and end-users

- **Accelerate Web services deployment**

Who is Involved?

- **Software vendors**

  IBM, Microsoft, BEA, Oracle, HP, Rational, Sun…

- **Enterprise customers**

  AT&T, Daimler-Chrysler, NTT, Fidelity, United, …

- **Integrators**

  Accenture, EDS, …

- **151 members as of October 2002**
- **All members invited to actively participate**

WS-I Deliverables

- **Use Cases and Usage Scenarios**
    - Use Case – high-level, Usage Scenario – path through Use Case
    - Formalized means of communicating requirements
- **Profiles**
    - Named and versioned set of specifications
    - Constraints and/or clarifications of underlying specs
    - First profile WS-I Basic 1.0
- **Sample Applications**
    - Demonstrated use of the Profiles as defined in the Use Cases and Scenarios
    - First sample application is a mock Supply Chain
- **Testing Tools and Materials**
    - Monitor and Analyzer tools and test assertions for profile(s)

WS-I Value Add

- **Choose practical paths through existing and emerging WS standards**

  Turn "MAY" and "SHOULD" into "MUST" or "MUST NOT"

  Choose between overlapping standards

  Provide guidance or best practices on standards implementation

  Point out shortcomings and holes in existing standards

  Provide concrete examples, objective conformance criteria and conformance test tools

- **All in the Web services community benefit**

  Simplification improves chances for interoperability

  Reduced churn and noise allows people to focus

  Single forum for discussion reduces duplicate and fragmented efforts

WS-I Status

- **Use Case and Scenario**

  Working Group Draft specifications published in January

- **Profile**

  2nd Working Group Draft published in January

- **Sample Apps**

  Working Group Draft specifications published in January

  Beta implementations in both Java and C# from a number of member companies

- **Testing tools and materials**

  Specification Working Group Draft specifications published in January

  Beta reference implementations available for Java and C#

Technical Highlights

- In all cases, base specifications are normative unless profile says otherwise

- SOAP1.1

    SOAP encoding disallowed

    "Trailers" (element content after soap-env:Body) disallowed

    Most spec ambiguity issues resolved in alignment with SOAP1.2

    Use of SOAPAction, soap-env:actor clarified

- WSDL1.1

    Limited to use of rpc/literal and document/literal

    SOAP/HTTP binding required. Other bindings out of scope, may be used

    Schema errata fixed (spec is normative)

    Exclude use of wsdl:import for XSD files

    Numerous spec clarifications

More Technical Highlights

- **UDDI2.0**
  - Require WSDL1.1 as description language
  - Established category to identify WS-I conformant entities
- **Security**
  - May use SSLv3 (HTTP/S)
  - HTTP1.1 Basic Auth
  - Identify risks and threats and countermeasures within Basic Profile
    - Mapped these risks/threats to use cases and scenarios
- **XML Schema**
  - Any valid XSD constructs may be used (all, choice, sequence, etc)
  - Recommend use of xsi:nil xs:nillable to designate NULL values
  - XSD graph encoding scheme proposed
- **HTTP**
  - Clarify use of HTTP response status codes
  - Cookies permitted but must not be required

Basic Profile Issue Distribution

Others
9%

Schema
12%

HTTP
6%

UDDI
5%
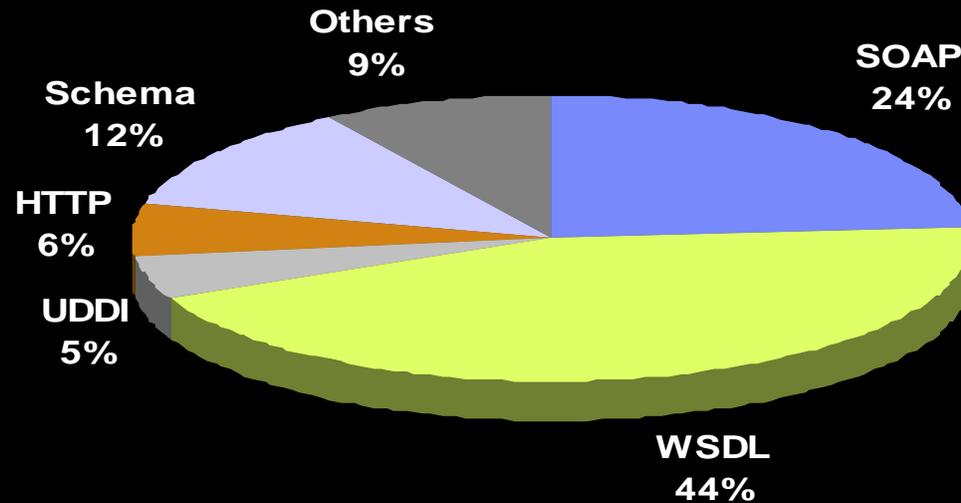
SOAP
24%

WSDL
44%

Projected work in 2003

- Profile composition and versioning strategy
- Profile certification for platforms, tools and applications
- Basic 2.0

    SOAP 1.2, SOAP Attachments, WSDL1.2, UDDI 3.0

- Security

    XML DSIG, XML Encryption, WS-Security, SAML?, WS-Policy, others?

    Security Work Plan WG chartered

- Reliable Messaging

    WS-Reliability?

Resources

- **Public WS-I website**

  http://www.ws-i.org/

  Whitepapers, membership list, member resources*

  Basic Profile 1.0 WG Draft

  http://www.ws-i.org/Profiles/Basic/2002-10/BasicProfile-1.0-WGD.htm

- **IBM developerWorks article on WS-I Basic Profile 1.0**

  http://www-106.ibm.com/developerworks/library/ws-basicprof.html