Web Services
Interoperability

Mandar Bhagwat
Technology Innovation Leadership Group
Agenda

- WS Interoperability
- Industry Efforts
- Our Experience
- Guidelines
Accidental Architecture

Rigid, Costly and Difficult to Operate

- Silos of information and Islands of integration — Done “Once in a Row”
- Proprietary technologies and skill sets
- Multiple communication infrastructures
- High cost of license, consulting and ownership
- Complexity of inter-organizational collaboration
What can help?

Overcoming obstacles to business agility

- How can I speed deployment and reduce cost of new integration projects?
- How can I make changing business process involving interrelated applications faster and easier?
SOA Vision

- Broad-scale interoperability
- Modularity / reuse
- Incremental deployment
- Flexibility

Applications:
- Internal applications
- External applications
- .NET App
- J2EE App
- Legacy App
- Remote Office
- Partner
- Firewall
- Packaged App
- Management Tools
- Service Repository
- Portal App
Implement a SOA

- Internal applications
- External applications
- .NET App
- J2EE App
- Legacy App
- Management Tools
- Service Repository
- Partner
- Remote Office
- Firewall
- Packaged App
- CRM
- Finance
- Order Entry
- Remote Office
- Partner
- Portal App
- Enterprise
- Orchestrated process
Web Services

Standard interfaces are major step forward

- Provides standards-based services interface
- Designed for remote access, across heterogeneous platforms
- Hides implementation details and enables reuse
We b Services

But have we solved the whole problem?

- How do you change business process?
- Is it reliable, scalable and secure?
- How do you manage and monitor distributed services?
- How do you mediate between services?
“Interoperability is the ability of two or more systems or components to exchange information and to use the information that has been exchanged.”
SOA and Web services

**SOA**
- Service Orientation
- Layered and modular approach for design
- Service Delivery
- Service Governance

**Web Services**
- Basic standards for core protocols
- Specifications and standards for advanced WS
- WS profiles – logical grouping
- Product Support

Ability to create interoperable SOA
WS-* Specifications Stack

Applications
- Business Processes
  - WS-BPEL
  - WS-Choreography
  - ...

Security
- WS-Security
- WS-SecureConversation
- WS-Trust
- WS-Federation
- Liberty Alliance
- Etc.

Reliability
- WS-ReliableMessaging
- WS-Reliability
- Etc.

Transactions
- WS-Coordination
- WS-AtomicTransaction
- WS-BusinessActivity
- Etc.

Messaging
- SOAP
- WS-Addressing
- MTOM (Attachments)
- Etc.

Metadata
- WSDL
- UDDI
- WS-Policy
- WS-Discovery
- Etc.

XML
- XML
- XSD
- Etc.
WS Standards' lifecycle

Lab initiatives
Multi-vendor initiative

Vendor Specification

Early publication
Industry feedback

Draft Specification

W3C
OASIS

Submission to Standard body

WS-I
Liberty Alliance

Form a Profile

Industry guidance
Inclusion in
Best practices Architectures

Industry Adoption
Adoption drives Maturity
Overall value

Stability & Interoperability
Product Maturity
Interoperability workshops

Product Implementation
ISV support
Interoperability Specifications

- Basic Inter-op: Discovery, Description, Messaging and Security
  - Core Specifications: XML, SOAP, WSDL, UDDI
  - WS-I Basic Profile 1.0 (and 1.1)
    - Covers Messaging, Description, Discovery, Security
    - Specifies specifications to be used for different features
    - Guidance on how to use specifications together
    - Usage Scenarios, sample application, testing tools
    - Solid Foundation for building interoperable Web Services
- Inter-op across advanced abilities (QoS): Management, transaction, federation, and more.
Complexities and Complications
Multiple Statuses

- **SOAP Message Security v1.1**: OASIS standard
- **WS-Addressing v1.0**: W3C Candidate Recommendation
- **WS-Policy**: only a formal submission to W3C
- **WS-Atomic Transaction**: Not Submitted

Author's Note: The statuses of various specifications mentioned above or elsewhere in this presentation are the statuses at the time of writing. But, these statuses keep changing and may be different at the time of reading.
Competing Specifications

- **WS-Choreography Description Language v1.0**: W3C CR
  - Novell, Oracle etc.

- **WS-Reliability v1.1**: OASIS Standard
  - Sun, Oracle etc.

- **Liberty Alliance Identity Framework ID-FF**

- **WS-BPEL v2.0**: OASIS Committee Draft
  - BEA, HP, IBM, Microsoft

- **WS-Reliable Messaging**: Not submitted
  - BEA, IBM, Microsoft, TIBCO

- **WS-Delegation**
  - BEA, IBM, Microsoft
Why Interoperability is difficult to achieve

- Tools support and maturity: Standards specifications leave many things to developers
- Competing Standards and specifications
- Standard release statuses and availability of products
Interoperability: Guidelines
Guidelines

- Supported specifications and their version
  - Product Support for same specifications / standards
  - Versions of the Specifications

- Configuration for older version, if necessary
  - Versions of dependent specifications
  - Patches and Refresh Packs after careful evaluation

- Differences in schemas, namespaces and WSDLs

- Aware of Partial implementations

- Tools and debugging techniques
Roadmap for WS-I adoption

- Start by using WS-Basic profile
  - Verify conformance using testing tools
- Implement WS-* specification one-by-one
- Leverage information available on the Internet
  - Others' findings and samples
  - Blogs of vendor's key employees
  - Verify if the issue can be addressed in current versions
Resources

- Further information about the Basic Profile at its homepage:

- SOA Web Services Journal:
  http://webservices.sys-con.com/read/314083.htm

- Web Services Interoperability (WS-I) Organization
  http://www.ws-i.org/

- Liberty Alliance
  http://www.projectliberty.org/