



Architecture Subcommittee

2006-2007 Update

April 17th 2007

Montreal



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Our Story

- Support the business by reducing interop complexities and costs
- Implementation support
 - Implementers Forum
 - Web services guidance
 - Implementation Guide
- Increased focus 'beyond XML'
- Strategic enablement
 - Architecture roadmap



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Agenda

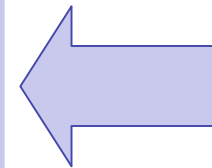
- Overview
 - Roadmap
- Web services description (WSDL) guide
- Asynchronous messaging
- Interoperability Testing tool(s)
- OpenTravel wiki
- Usage profiles
- Security guidance
- Possible future projects
- ?

Our Current Projects



Roadmap

- Interoperability testing tool
- Web services description
- Asynchronous delivery
- Security recommendations
- Wiki site 



technical
guidance

OpenTravel Architecture

Roadmap

2003-06

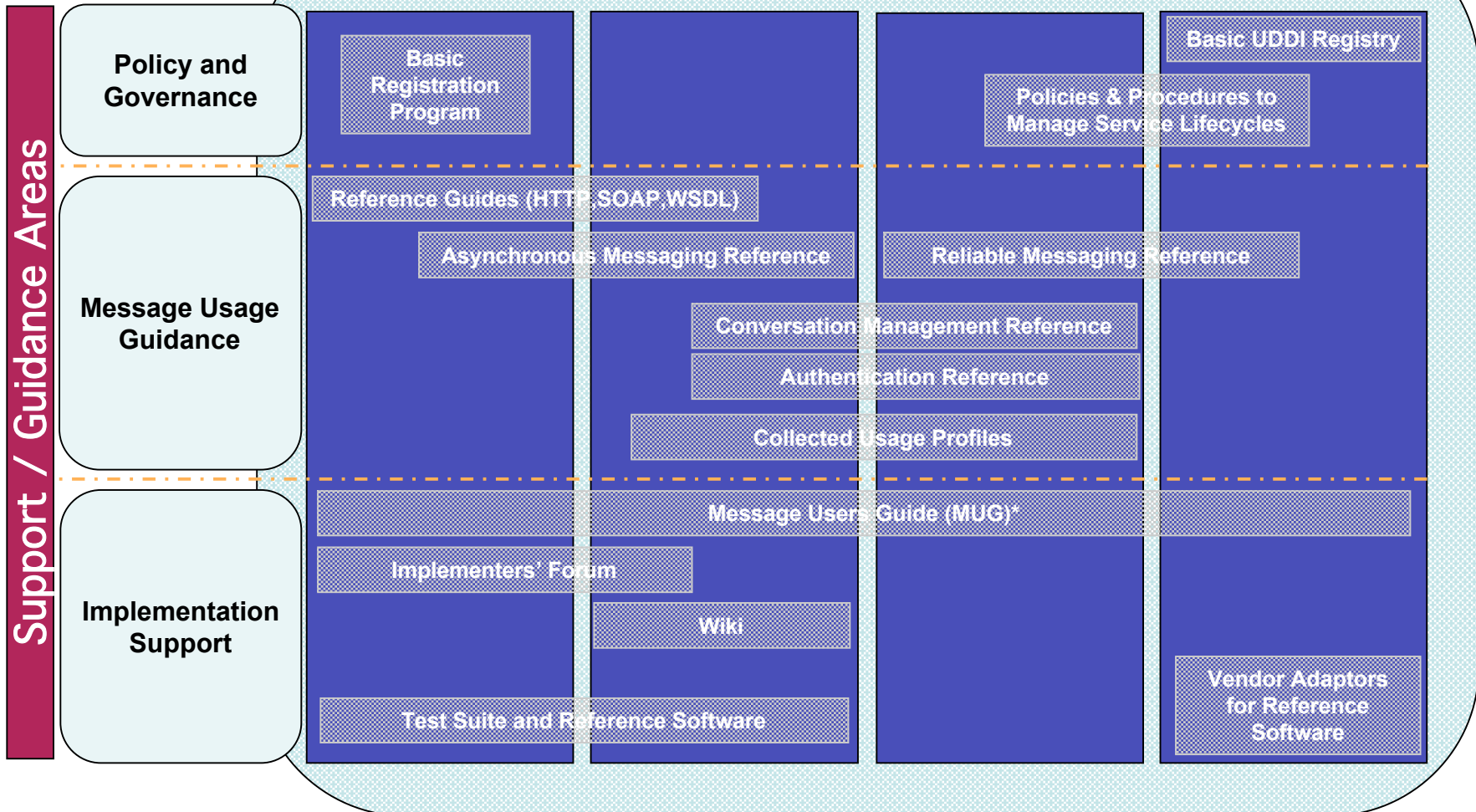
2007

2008

2009+

DRAFT

OpenTravel Specifications



* Message Users Guide (MUG) is not an Architecture 'Product', but may be migrated to Wiki

Our Roadmap

- Promote clarity of vision and planning
- Promote transparency for implementers
- 'Early signaling' to the implementer community
- Demystify OpenTravel architecture work for the business
- Ensure alignment of OpenTravel business and technology strategies



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The Architecture Table



- Table near the food
 - Team reps will be present during networking breaks, breakfast, and after
- A forum for your suggestions, questions, and input
- Live software demos !

The Architecture Table

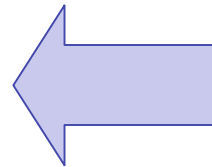
- TUESDAY

7:30 – 8:30

11:15 – 11:45

3:15 – 3:45

5:30 – 6:00



live software demos

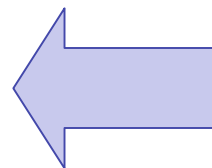
- WEDNESDAY

7:30 – 8:30

10:00 – 10:30

3:30 – 4:00

5:30 – 6:00



live software demos



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WSDL Implementation Guide
Kevin Camenzuli (AvisBudget Group)



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WSDL Implementation Guide

- The Web Service Description Language (WSDL) defines a service interface or service contract
 - WSDL is a contract defining “*How*” two parties intend to communicate with one another
- Similarly, XML Schema defines an XML message format or data contract
 - Schema is a data contract defining “*What*” information will be communicated between parties
- WSDL shortens partner implementation time
- The Implementation Guide (2006A) was intended to aid in adoption by providing guidance for WSDL creation
 - With regard to tool support; Still struggling with how to handle document style messages in WSDL (OTA style)
 - Goal to continue to expand Implementation Guide

WSDL Implementation Guide

- Since publication we became aware of issues in the .Net environment using proposed WSDL technique
 - Related to “Imported” Schema in WSDL and “Included” XML common type schemas
 - Workarounds are not consistent with best practice guidelines
- Two recommendations from Microsoft
 - Remove additional schema “Include’s” from common type schemas which are causing circular logic errors in the .Net toolkit
 - Did not solve problem
 - Retest with .Net WSDL.exe patch provided by Microsoft
 - Version issues with patch provided for .Net version 2.0
- All tests outlined on wiki
- Awaiting new patch or additional direction from Microsoft
 - All scenarios will be retested
 - WSDL Implementation Guide updated if necessary



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Support of asynchronous exchange of OTA messages
Alain Leveille (Expedia)



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Restaurant suggestions

- Chez L'Épicier on St-Paul East
- Versions Laurent Godbout on St-Paul East
- Bonaparte on St-Francois-Xavier
- L'Appartement on McGill
- Le Petit Moulinsart on St-Paul West

The challenges of Asynchronous messaging

- OTA specs based on RQ/RS pairs
- Don't adapt well to asynchronous mode, because requestor typically waits for response
- Consumes system resources
- When do you stop waiting?
- Need to provide feedback on request delivery

The applications of Asynchronous messaging

- Bulk data transfer
- Batch processing
- Different priorities
- Manual processing
- Different system sizes

Status of the project on Asynchronous messaging

- Study project to identify alternatives
- Conclusions of this study
 - The OTA specs should recognize 2 methods to support asynchronous exchange of OTA messages:
 - at the communication level
 - at the application level using a generic OTA_Ack message
 - Each reference transport protocol covered by OTA specs should include a section on asynchronous messaging and how it should be supported with this transport protocol

Status of the project on Asynchronous messaging

- Determined SOAP as the ideal location to support asynchronicity at the comms level
- Established the requirements to be supported via asynchronous messaging
- Reviewed industry standards (OASIS WS-Reliability and WS-Reliable Messaging)
- Developed proofs of concept with some protocol used in the travel industry

Travel industry protocols on Asynchronous messaging

Type-X from SITA/ARINC

- Will likely replace BATAP in the airline industry
- Solution for Async but also covers more functionality (reliability, security, etc.)

Expedia Connect

- Widely implemented in the hotel industry
- Proven at large volume
- Meets most of the requirements but would require some addition



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Security Recommendations
John Ramos Yeo (EDS)



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Security Implementation Guide

- Task
 - Survey existing implementations
 - Recommend a standard specification
- Goal
 - Publish recommendation by OCT 07
- Benefits
 - Security specification guidance for OTA implementers



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Wiki, Interop Testing, Usage Profiles, Future
Stephen Adkins (Rubicon Group)



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Wiki: Architecture Collaboration Wiki

- <http://wiki.opentravel.org>
- A Collaboration Website for Architecture Projects
- A Means to Create a Knowledge-Base of Implementation Information
 - and thereby Solve Some Tricky Interoperability Issues
- ... and perhaps more ...

Wiki: Access Policy

- Members: Can read all pages, edit (mostly) all pages, and use advanced features
- Public (registered and logged in): Can read public pages, leave comments on the "Talk" pages, and use advanced features
- Public (anonymous): Can read public pages

Wiki: Advanced Features

- Search, Edit, Discuss
- Watched Pages
- Recent Changes
- Page History (see diffs, restore old version)
- What Links Here?

Wiki: Goals

- Be an incredibly valuable information resource for implementers
- Motivate membership
- Subject Areas: The Iceberg Model
- Content Creation: Give and Take

Interoperability Testing

- A Multi-Period, Ongoing Project
 - An Interoperability Test Tool
 - Configure Your Tests
 - It Gives a Report Card
 - [Future] An Activity Where We Learn How Interoperable We Are or Can Be
- Reraises the Issue of Usage Profiles

Interoperability: What is the Test Tool?

- A Test Client
 - Configurable so you can test your server (regardless of any compliance to standards)
 - Produces a Report Card on Success of Tests Attempted
- A Test Server
 - Configurable so you can test your client
 - Makes Substitutions From Request to Response so Response is “Realistic” (not canned)
- Test “Fingerprints”
 - While configurable, these tests can be positively identified

Interoperability: Observations

- This is not Certification.
 - This is giving you information about your implementation.
- This is not Required.
 - This is about serving implementers by putting a useful tool in your hands and making it easier to conform to standards than deviate from them. This is about serving implementers by putting a useful tool in your hands and making it easier to conform to standards than deviate from them.
- This is Powerful.
 - This gives us new formal ways to talk about how our implementations behave and allows us to answer questions of conformance which were unanswerable before.

Interoperability Testing: Tool Status

- Alpha-worthy Test Tool Now Enlisting Users
 - Stop by the Architecture Table to Learn How to Install It and Engage With Its Development
- Follow Progress on the Wiki
- Test Client Works. Test Server Almost There.

Usage Profiles: Background

- The OpenTravel Specification is deliberately open-ended on certain issues
 - which fields are required for which messages
 - some messages have multiple uses with different fields filled in
 - how to exchange the messages
- This leaves a difficult challenge to achieve Interoperability
 - What are all of the ways that a given message can be used?
 - Which of the “optional” fields do I need to fill in to get the result?
 - What are the possible response messages I could get, and what fields would be filled in?

Usage Profiles: Three Flavors So Far

- Defined by Descriptive Text
 - Partially addressed by the Message Users' Guide (MUG)
 - Exists today in implementer documentation
 - Not formal or actionable for working toward interoperability
- Defined by Further-Constrained XML Schemas
 - Optional fields become mandatory/illegal
 - Fields are more finely restricted in their types
 - Nice, formal representation.
 - Never implemented. Not very useful for working toward interoperability.
- Defined by XPath-style Test Script
 - Used by the Interoperability Test Tool
 - Easy to Read and Compare

Usage Profiles: Next Steps

- Join Us on the Wiki
- Implementers Can Shed Light by Making Their Documentation Available for Review by Members
 - Continental, Sabre, Omni
- Currently Driven by the Interoperability Test Tool

Future: Security Recommendations

- Which field(s) to use for a username? password?
- How do member companies do it now? (Requirements gathering/confirmation)
- How might it be done if member companies wanted to build highly interoperable systems?
- What methods do software tools and middleware support now? Soon?

Future: Session Management

- Terminology: Sessions, Conversations need definitions
- Which field(s) to use for a session/conversation ID?
- How do member companies do it now? (Requirements gathering/confirmation)
- How might it be done if member companies wanted to build highly interoperable systems?

Future: Reliable Messaging

- Reliable Messaging:
 - asynchronous message delivery
 - guaranteed message delivery
 - duplicate message elimination
 - message ordering
- Full-blown Reliable Messaging requires middleware, bought (\$) or built (\$\$\$)
- How do member companies do it now? (Requirements gathering/confirmation)
- How might it be done if member companies wanted to build highly interoperable systems?
- What methods do software tools and middleware support now? Soon?

Future: TypeX

- A protocol enhancement which can be applied to SOAP to enable reliable messaging.
- Created by SITA/ARINC for IATA.
- Some OpenTravel members may find it valuable to see how they would suggest solving the problems of Reliable Messaging.

How Can You Help?

- Stop by the Table. Register on the Wiki. Engage and stay engaged.
- Do you have implementation documentation you would like to make semi-public?
- Do you want to run the Interoperability Test Tool? Open a test system up to someone who will run it for you?
- Do you have suggestions for implementation issues that you see a need for guidance on?



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