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OpenTravel Schemas

Getting Started

John Lambe, CTO
OpenJaw Technologies

OpenTravel Body of Work

- OpenTravel XML Schema Design Best Practices
 - Contains OpenTravel Schema naming and design rules
- OpenTravel Message Users Guide
 - Description of each OpenTravel message
 - Sample use cases
 - Sample XML instance documents



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OpenTravel Body of Work

- OpenTravel XML Schema Definition files
 - Formal definition of the specification in W3C XML Schema
 - Download from OpenTravel public website at <http://www.opentravel.org/>
 - The XML Schemas are cumulative and contain all of the business messages defined by the OpenTravel
- Release Notes
 - The release notes detail the latest information and changes for any given release



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Specification Philosophy

- Greatest Common Denominator
 - Specification built according to needs of numerous OpenTravel members
 - Many optional data fields exist
 - Implement only what you and your trading partners need
 - Create internal documentation to support your implementation



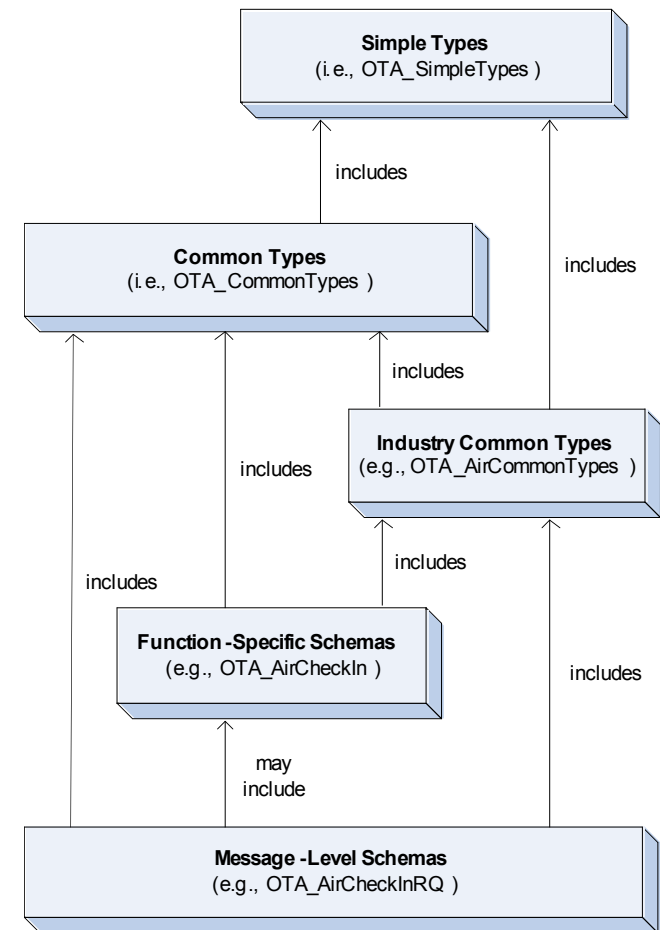
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Schema Architecture

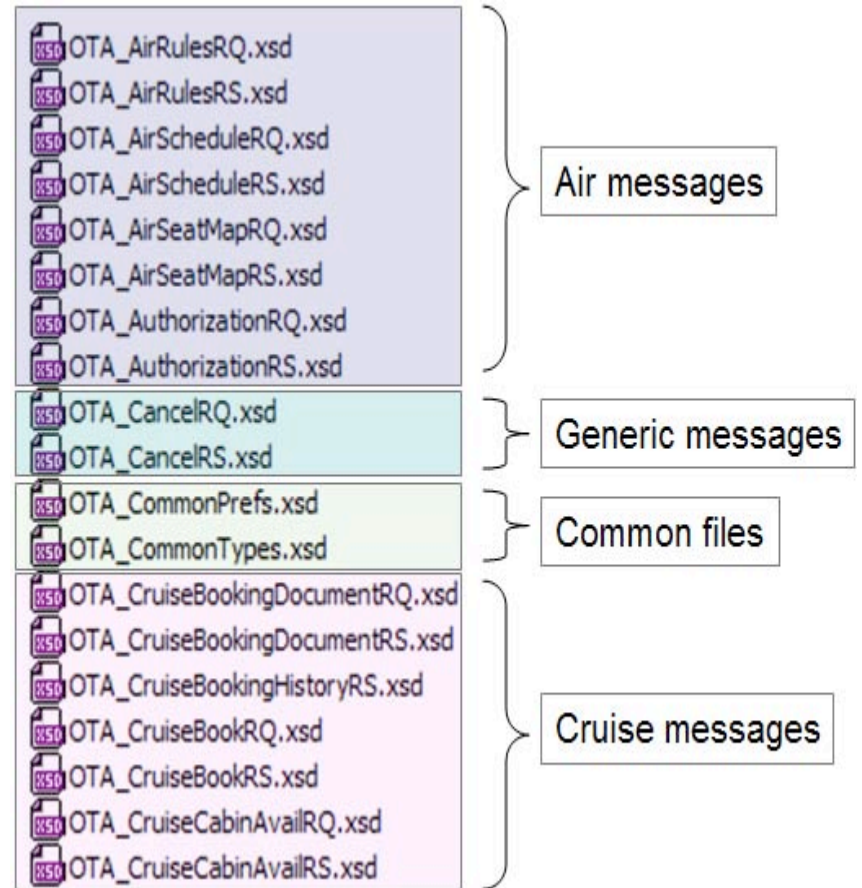
Hierarchical collection of schemas that builds from reusable simple structures into business messages

- **Message Level Schemas**
 - Represent a business transaction
 - E.g. OTA_AirBookRQ/RS
- **Function Specific Schemas**
 - Reusable functional structure
 - E.g. OTA_HotelReservation
- **Industry Common Types**
 - Complex structures for a specific vertical
- **OpenTravel Common Types**
 - Complex structures common to multiple verticals
- **OpenTravel Simple Types**
 - Simple structures common to multiple verticals



Schema Architecture (2)

- Namespace
 - Common to all messages
 - <http://www.opentravel.org/OTA/2003/05>
- File Naming Conventions
- Enumerations
 - Codified within the schemas
 - Expected to be static e.g. Days of Week
- Code Lists
 - Available as XML or Spreadsheet
 - Expected to be modified
- Success / Warnings / Errors
- Message Exchange Patterns
 - Request/Response (RQ/RS)
 - Notifications (Notif)



Approaching the Specification

- Identify Functional Requirements
- Identify Non-Functional Requirements
- Find (or Create) the Message
- Implement the Specification
- Follow up



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Identify Functional Requirements

- Document business process flow
 - Specification is primarily a set of data specifications that enable the automated exchange of data
 - Typically each data exchange will be executed within the context of a particular business process
 - Business process may affect the information exchange requirements
 - OpenTravel implementers should consider how new or existing OpenTravel messages operate within the context of a given process
 - To date, OpenTravel has not issued any formal business processes with the specifications



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Identify Functional Requirements

- Identify OpenTravel messages
 - Once the business process context is established, a company can identify the OpenTravel messages to be used
- Identify reusable content
 - When a company identifies the need for a new OpenTravel message, it will propose a new project



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Identify Non-Functional Requirements

- Identify non-functional requirements
 - Be aware of how trading partners expose and maintain their services
 - Address security, performance, and service levels
- Define service architecture
 - Leverage OpenTravel as appropriate within a service architecture



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Find (or Create) the Message

- Does a message exist that meets your requirements?
- If yes, move forward with implementation
- If not, work with OpenTravel to create the message
 - Submit project team proposal
 - Submit comments
 - Submit at any time, so as you find issues, enter a comment
 - Create draft XML schema
 - For new messages, a project champion may find it useful to submit a draft schema to jump start a project
 - Create business scenarios and instances



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Implement the Specification

- Identify usage profiles
 - Each message may be used (at runtime) in different ways by different trading partners
 - Variation reflects the particular data needs that each company has with respect to a specific, published schema referred to within OpenTravel as a “usage profile”
 - To decrease the time required to develop service interfaces, companies should consider documenting their own usage profiles for distribution to their trading partners



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Implement the Specification

- Define configuration management
 - OpenTravel publishes two specifications per year, each of which may provide incremental and useful functionality
 - Many companies find themselves maintaining multiple versions of the same XML schemas
 - Maintaining precise awareness and configuration control of schema versions running within a particular environment will be critical to success
- Test sample XML instances



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Follow Up

- Register messages
 - OpenTravel provides an online site for OpenTravel implementers to register their messages
 - Registration captures a number of data points related to a company's use of OpenTravel
- Provide feedback
 - Identify data requirements not provided in OpenTravel messages
 - OpenTravel schemas provide temporary extension points by way of **TPA_Extension** elements
 - **TPA_Extensions** are intended to serve as a provisional means to exchange data
 - Implementers should submit comments to incorporate their requirements into future publications



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Further Technical Guidance

- The Implementation Guide contains further advice on implementing the OpenTravel specification
 - Payload Transaction Management
 - State Maintenance
 - Message Transport
 - SOAP Messaging
 - HTTP Messaging
 - Web Service Description
 - Authentication
 - XML Data Binding



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Some Other Considerations



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Before you start.....

- What are you trying to achieve?
 - Replace Existing Partner Connectivity?
 - Lower Operational Costs
 - Reduce Implementation Support
 - Support new distribution channels?
 - 3rd party websites
 - MetaSearch engines
 - Existing CRS / distribution technology does not support new products/pricing?
 - 'Add ons'
 - Taxes
 - Rate types (prepaid etc.)

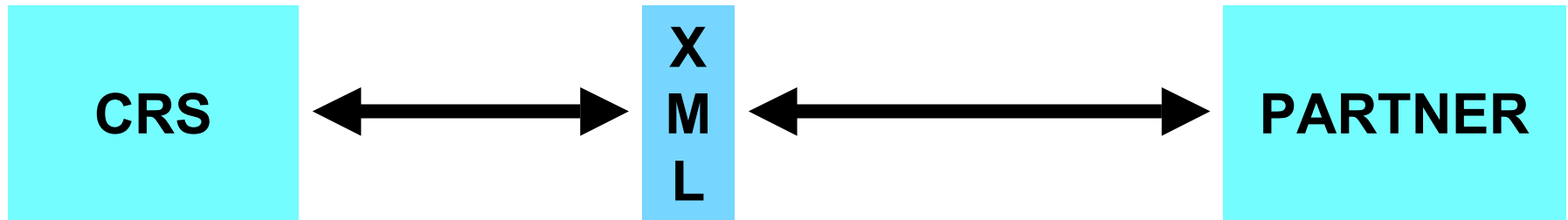


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Two Approaches

- XML Interface to existing CRS functionality



- Updated functionality in Middleware tier



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What functionality might you change?

- Hotels
 - Multiple room type search & book
- Flights
 - Flight & Fare Attributes
- All
 - Tax information
 - Service fees
 - Advanced Searches
 - Alternate results



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What do your Distribution Partners want?

- Good Quality Descriptive Content
 - Coded, not UCASE TXT FR AGNTS
 - Multiple Language Content (Coded content enables translation)
 - Notification of content changes and errata
 - Distributed in a format that allows automated processing & import (ideally XML)
 - Standard Image Sizes with option to specify custom sizes



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What do your Distribution Partners want?

- Accurate Pricing
 - Total price with full price breakdown (daily rates?)
 - Full Tax Information at search stage
 - Multiple currency support
 - Information on discounts applied (savings)
 - Cost of add-ons
 - Cancel and Modify costs



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What do your Distribution Partners want?

- Transactions
 - Booking/Cancel/Modify are typically multi-stage processes
 - Payment (3d Secure?)
 - Itinerary Storage
 - Accounting handoff
 - Other Travel Products (packaging)
 - Cross Sell items (destination activities, insurance etc.)
 - Implement 2 Phase Transaction Capability



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Best Practice Rules

- If something is complex, do it once on your side of the connection. Don't force every partner to implement the complex logic.
 - Connection Pools
 - Session Handling
 - Error Recovery
 - Searching / Booking Multiple Products
 - Cancel & Modify Cost Calculation



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Accor OpenTravel Implementations

Olivier Lamy
OpenTravel Interfaces Technical Lead,
Accor Hotels

Overview

- Number and type of trading partners
- Connectivity models
- Functional implementation (availability, booking, etc.)
- Technical Overview
- Why open standards vs. proprietary schema?



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OpenTravel Connectivity

- 1 GDS in full connectivity
- 2 Travel Web Sites
- 5 Travel Web Sites (Price Comparators, Geographical Search Engines ..) with the reservations done on the accorhotels Web Site
- Several projects in pilot phase, development or in project



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Connectivity Models

We are currently supporting different connectivity models

- Push Model : all inventory details are send to the partner. Accor receive only booking requests.
- Shopping Model : nothing in the partner database except the hotel description.
- Hybrid Model : the partner handle on his side the multi property requests.



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Messages Supported Receive Mode

Availability Search (OTA_HotelAvail)

- Multi properties search with different response modes (only prices range or detailed response)
- Single property with different response modes (all property offers or offer detail)



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Messages Supported Receive Mode

Booking/Modification/Cancellation

- Two phase commit supported (type A)
(OTA_HotelRes/OTA_HotelResModify/OTA_Cancel)
- One phase commit (type B) supported too
(OTA_HotelResNotif/OTA_HotelResModifyNotif/OTA_Cancel)



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Messages Supported Send Mode

- Availability Update : OTA_HotelAvailNotif
- Price Update : OTA_HotelRateAmountNotif
- Sales Conditions : OTA_HotelAvailNotif (FPLOS) Minimum/Maximum Stay and closed to arrival



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Messages Supported Send Mode

- Hotel Content :
OTA_HotelDescriptiveContentNotif
- Pre payment message with PSP :
OTA_PurchaseItemRQ



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Technical Overview

- Software written with Java language
- Open Source Technologies
- Transport layer for receive mode is http/s
- Transport layer for send mode http/s, ftp and scp



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Conclusions...

The specifications are so huge that there are some different ways to say the same things (IT guys called it : TIMTOWDI).

We have to build specific connectors based on a core implementation due to partners implementations.

The real benefit : most of the time we can re-use messages implementations with different partners.



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Getting Started with OpenTravel Schemas

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Platform Technical Architect
(ba.com Selling),
British Airways

British Airways PLC

- International Airline
 - 36 million passengers
 - 850,000 + tonnes cargo
 - Number of subsidiaries, BA Holidays, Open Skies
- Producer and Consumer of data services
 - Providing data to meta-search engines
 - Flight availability - OTA_AirLowFareSearch
 - Consuming data from distributors (hotels, car hire, etc) for BA Holidays
 - Internal data services, OpenSkies/ BA Holidays
 - Payment – based on OTA base types
 - Executive club member information
 - Booking creation OTA_AirBook

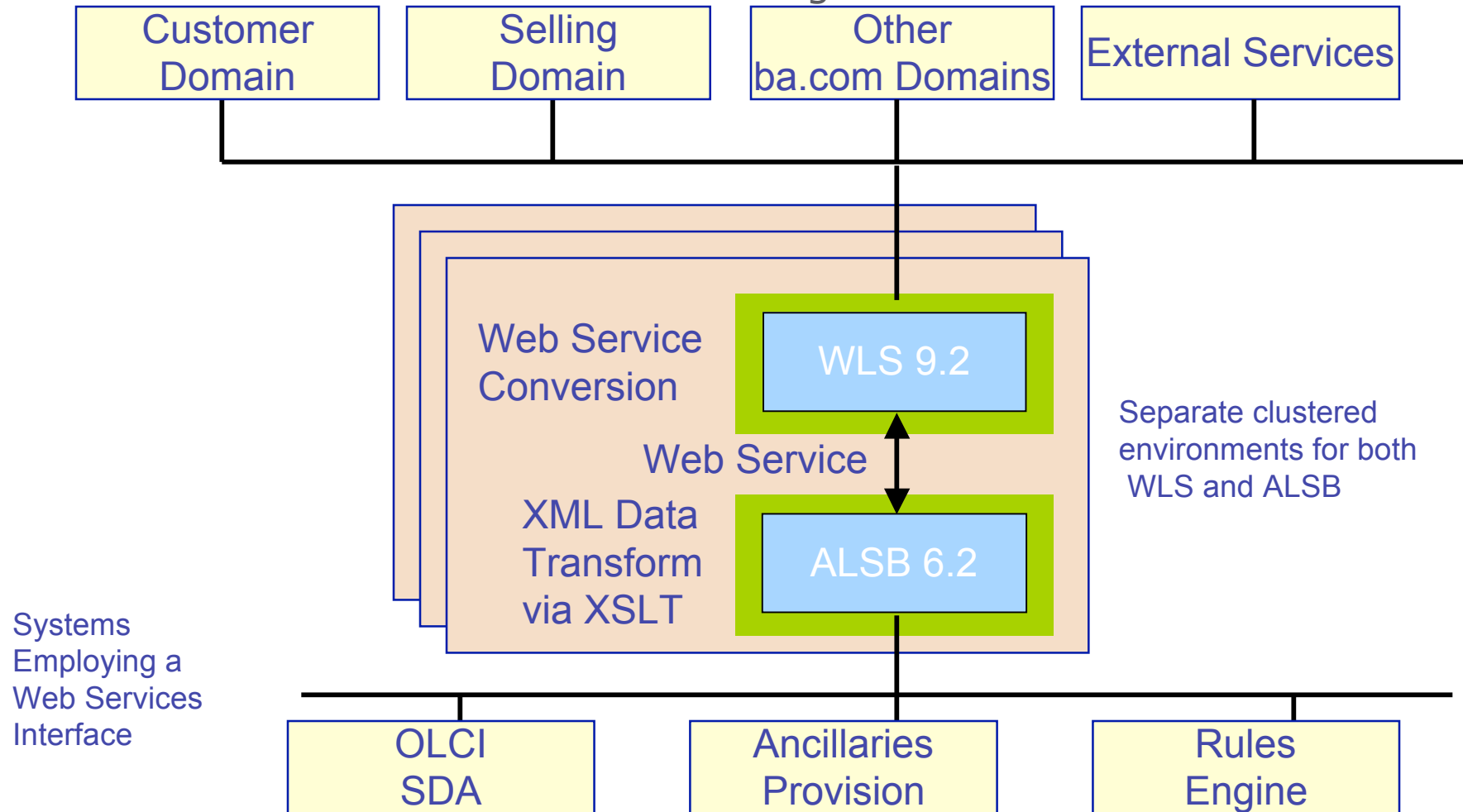


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Technical Overview

ESB - SOA -Message Mediation



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Technical Overview

- SOA based architecture
- ESB – BEA (Oracle) Aqualogic
 - Web services with mediation
 - Java based platform
 - Services available of HTTP/HTTPS
 - Throttling provided by F5 load balancers
 - Message security provided by LDAP services
- 20 OTA based messages in use



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Conclusions...

- Benefits of using OpenTravel schema
 - Lower development costs
 - Faster implementation time
- Lessons learned from implementations
 - Get to know the schemas
 - Governance and controls
- Future plans
 - More use of OpenTravel messages especially in the Ancillary arena
- It pays to adopt OpenTravel messages



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