ADP Stewardship of OAGIS

OAGi Spring 2007 Meeting
May 1-3

Presenting
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CTO of Information Architecture
Enterprise Architecture at ADP, Employer Services
Agenda Overview

- **ADP Overview**: a brief introduction to ADP’s business solutions in particular Employer services
- **BOD Message Landscape at ADP**: a glimpse into the ADP nouns and what services produce and consumer them
- **Message Development Process**: a review of the development process activities, roles, reviews and artifacts
- **The Message Library System**: what are the required activities that comprise “the system”
- **Some Challenges**: some key challenges encountered over the last couple of years
- **Conclusion**
Agenda

- ADP Overview
- BOD Message Landscape at ADP
- Message Development Process
- The Message Library System
- Some Challenges
- Conclusion
ADP offers a broad spectrum of technology-based outsourcing solutions through our four largest businesses.

- **Employer Services**
  - Payroll & Tax Services
    - pays over 31 million people
    - files over 38 million W-2’s
    - files over 15 million payroll tax returns
  - Human Resource Information Management
  - Benefit Services
  - Time & Labor Management Services
  - Applicant Management Services

- **Dealer Services**
  - Largest Provider of Computerized Services to Auto & Truck Dealers
    - over 19,000 dealership clients
Employer Services

Employee Lifecycle

Recruitment

Retirement

- Applicant Tracking System
- Background Checks
- Drug Testing
- Physicals
- New Hire Reporting
- Tax Credits

- Collection Devices
- Ethernet Clocks
- Hand Scanners
- Internet
- Telephone Input
- PC Timesheets

- Neb Native
- On Demand Check Processing
- Payroll Tax Filing
- Reporting
- GL Interface
- Payroll Admin
- Garnishment Processing
- W2 Processing
- CD-ROM Storage
- On-line Pay and W2 Statements
- Visa Pay Card
- Forms Fulfillment
- Call Center

- Integrated HRMS
- Web Native Architecture
- Web Based Travel & Expense Reporting
- Unemployment Claims Mgmt
- Recruiting & Staffing
- Performance & Training
- Skill Tracking
- ESS & MSS Self Service
- Forms Fulfillment
- Call Center

- Health & Welfare Admin
- Total Compensation Statements
- COBRA/HIPAA
- TRIP Administration
- FSA Administration
- Direct Billing & Collection
- Carrier Reporting & Premium Recon
- Open Enrollment
- FMLA
- 529 Plans
- Employee Advocacy
- Forms Fulfillment
- Call Center

- 401K Plan Administration
- Non Qualified Plans
- Interface to DB Administrator
- Pension Payroll Processing
- Retiree Admin
- Retiree Billing
- Forms Fulfillment
- Call Center
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Employer Services

BOD Message Landscape

Web Services

Nouns
JobPositionOpening  JobApplication  AssessmentOrder  BackgroundCheckOrder  Screening  TaxCredit

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Message Development Process

Artifact Dependencies

Business Process
- Use cases & flow
- Input/Output reqmts

Component Architecture
- Components
- Component Interactions
- Message (Business transaction)

BOD Gap Analysis
- Scenario Analysis
- Message (BOD) Gap

Transaction/Message
- Detailed Message Input/Output reqmts

Conceptual Schema
- Logical/Domain Model

BOD Library Gap Analysis
- Reqmts Verification

Analysis Review

BOD Message Schema Design

BOD Library
- Message Components
- BODs

BOD Library Gap Analysis
- [new BOD] OR [BOD extension]

Design Review

BOD Message Schema Implementation

BOD Documentation
- Specifications
- Code Lists

BOD Library
- Message Components
- BODs

Implementation Review
Message Development Process

Where are we in Zachman’s EA Framework?
Agenda

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Processes in the “system”

- Operational Processes
  - Processes that create the primary value stream (the core business)
- Management Processes
  - Processes that govern operations
- Support Processes
  - Process that support the primary value stream

[Computer Integrated Manufacturing Open Systems Architecture (CIMOSA)]
The Message Library System

- Outputs of the Operational Processes
  - Message Schemas
  - Message Specifications
  - Flattened BODs
  - System Collaborations (Component Interactions)
The Message Library System

- Outputs of the Support Processes
  - Infrastructure
  - Development
    - Organizational
    - Requirements Management
    - Version Control
    - Issues Tracker
    - Change Request Tracker
    - Communications
    - Forward Engineering of Schema from the Logical Model
      - Logical Model is technology agnostic
      - Facilitate engineering/design process
  - Utilities
    - BOD Flattener
    - BOD Library Schema Pruner
  - Development (con’t)
    - Metadata Management Tool
      - Maintain traceability within the Canonical (Logical Model to Physical realizations)
      - Facilitate mapping of “As-Is” applications to the Canonical Model
      - Central Repository to manage Enterprise Information Assets

ADP Information eXchange Specification

AXiS
Enabling data asset management...

Canonical Map (Metadata Mgmt)

Mapping across Business, Designer, and Builder Perspectives within the Canonical

Business Terminology

Logical Model

Physical Model $_1$

Physical Model $_2$

Physical Model $_N$

e.g., UML

maps

maps

maps

e.g., XML Schema, Relational Schema

Scope Contextual

Enterprise Model Contextual

System Model Logical

Technology Model Physical

Detailed Description Out of Context

Functioning System Product

Planner

Business Owner

Designer

Builder

Subcontractor

Operations
Mapping from the Canonical To the Application Physical
Employer Services

**SOAPBOX**

**Canonical Map (Metadata Mgmt)**

*Mapping from the Canonical To the Application Physical*

- **Canonical Model**
  - Business Terminology $v_1$
  - Logical Model
    - Base Elements $v_1$
    - View $1, v_2$
    - View $2$
  - Physical Model $v_1$
  
- **Application-specific Model**
  - Physical Model $App 1, v_3$
  - Physical Model $App 2, v_2$
  - Physical Model $App N, v_1$

- Maps: e.g., UML
- Element map: $1 \rightarrow N$
- Usage maps: $N \rightarrow N$
- E.g., Message Definition
- E.g., XML Schema, Relational Schema

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### Canonical Map (Metadata Mgmt)

<table>
<thead>
<tr>
<th>Business Term</th>
<th>Logical Model Base Element</th>
<th>Logical Model View Element</th>
<th>Physical Model <em>1</em> Element (Message)</th>
<th>Physical Model <em>2</em> Element (App DB)</th>
<th>Physical Model <em>N</em> Element (App DB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Address</td>
<td>Address. typeCode = Home</td>
<td>Person Registration. Person. Address Where typeCode = Home</td>
<td>PersonRegistration. PersonRegistration-Detail.Person. Address Where typeCode = Home</td>
<td>HomeAddress</td>
<td>Residence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Person Indicative. Person. Address Where typeCode = Home</td>
<td>IndicativeAssociate. IndicativeAssociate-Detail.Associate. Address Where typeCode = Home</td>
<td></td>
</tr>
</tbody>
</table>
**SOAPBOX Meta-Data Repository (Metadata Mgmt)**

- **Support metadata representations:**
  - Technical
    - Reverse engineering of logical and physical data schemas
    - Logical model development environment
    - Canonical Maps: Logical to physical mappings (traceability)
  - Business
    - Elements/Terms, Rules, Semantics
  - Retrieval
    - Location and utilization of data items

- **Support metadata management:**
  - Administration
    - Centralized Configuration management (problems, changes, audit trail)
    - Version control
    - Multi-user
  - Analysis
    - Search, Query, Reporting
The Message Library System

- **Outputs of the Support Processes (con’t)**
  - Infrastructure
    - Operational
      - Schema Deployment
        » Facilitates physical deployment
        » Centrally deploy schemas with version management
        » Ensures applications are running the appropriate versions
      - Technology Evaluation/Selection
      - Codelist Validation
  - External Activities
    - OAGi Board Membership & Workgroup participation
    - HR-XML Membership & OAGIS Convergence
The Message Library System

- Outputs of the Management Processes
  - Message Development Consulting
  - Policies and Guidelines
    - Message Development Process
    - Data Management
    - Message Specific Versioning
    - Web Service Description Versioning
    - Web Services Description using BODs
    - Business Events Framework
      - Business Events
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Some Challenges

• **Getting the policies and guidelines documented**
  – Constraining and detailing the usage of the BOD message framework (i.e., Data Management)

• **Getting project or domain workgroups trained and “through the learning curve”**.

• **Codelists**
  – Externalization vs. embedded within the schema types
  – Context dependent

• **Supporting creation of Lite BODs for**
  – Different granularity requirements (Web Services, MOM)
  – Element relevance
**BOD “Sizing”**

**“Sizing” Techniques**

- BOD (Message Definition/Business Transaction) Granularity
  - Define finer-grain transactions
  - “Granularity is a design decision”

- BOD Sub setting
  - Fields and Components not relevant to a transaction are “pruned” from the BOD resulting in Lite BODs
  - Technology is under evaluation
Employer Services

**SOAPBOX**

**BOD “Sizing”**

*Alternative BOD Subsetting Techniques*

- Based on the BOD design (including granularity)
- Components and Nouns may be also be subset independently

**NOTES**

- Can be used to prune message elements not relevant to the business transaction
- Can be used to define finer-grain business transactions (BODs) derived from coarser-grain BODs (i.e., Web Services)
  - Two or more subset schemas
- Schema is used as mechanism for expressing association between business event and its data elements

**NOTES**

- Can be used to instantiate finer-grain messages from coarser-grain BODs
  - One schema...one to many business event/transaction
- Requires mechanism for expressing association between business event and its data elements

- Prune the BOD schema elements that are not in scope of the business event/transaction

- Do not instantiate the schema elements that are not in scope of the business event/transaction
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## Conclusion

Where does “OAGIS” and the Message Library System fit -- in realizing SOA?

- It realizes process standardization and integration
- It realizes data interoperability
- It is a “necessary, but not sufficient condition” for SOA

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[MIT Sloan Center for Information Systems Research]

[Gruman, G. “The 4 Stages of Enterprise Architecture” CIO, December 1, 2006]