Cloud: SOA, Semantics and Data Science

Semantics in the Mainstream – Process Modeling and Design Center (PMDC) for the Department of Veterans Affairs

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Bringing the Legacy to Reality
2009 - 2013
PMDC Technical Achievements

Demonstrated the value of Process-Based Enterprise Service Design Patterns
- IAM/MVI Service Consumption
- VLER Gateway Pattern
- Resolving proprietary process patterns into standards-described patterns, i.e. IBM “pseudo-synchronous”

Demonstrated the method and value of End-to-End (E2E) Veteran Service Processes
- Compensation Process Narrative/Compensation Service (CS)
- Education/Outreach CS Integration

Demonstrated the applicability and flexibility to broad application of BPMN to OIT Process Engineering
- Enterprise Service Pattern (MVI, D2D)
- System Development Process Modeling (FCMT, VIERS, iEHR)
- Business Process Reengineering (CHAMPVA)
- Case Management Pattern (VLER MAR)
- ESS SOA/AERB Governance
- Enable VA to get to executable specifications and increased reuse via BPMN and a OneVA EA Repository

There has never been a real challenge to the use of BPMN once a business stakeholder has participated in a session

Every PMDC Session has helped to flush out gaps and ambiguities that either knowingly or unknowingly have plagued the potential solution.
Characteristics of PMDC use of BPMN 2.0

Use a Core Set of well-defined Modeling Elements

Specify Collaborations between Process Participants to Illustrate Process Orchestration (from Business Owner viewpoint) and Process Collaboration (from Enterprise viewpoint)

Describe a SOA Perspective (Service Interfaces and operations that match WSDL and XSD schema, BPMN Service Tasks, Rule Tasks and associated Message Flow)

Describe data objects, data stores, and messages to exchange data in a standard way
PMDC Operational Framework
High Level Architecture

Meetings and Interviews

PMDC/VA Boundary
PMDC

Project Data

Initial Modeling
(No Diagrams/Non-BPMN Diagrams)

PMDC/VA Boundary

VA

OneVA EA

PMDC Process Repository (BPMN XML)

XMLSpy Editor

BP Incubator
(for BPMN-2.0 rich models)

BPMN XML

Common Vocabulary Engine

Common Vocabulary Repository

EA Repository
Potential business solution candidates for the PMDC that are well beyond Milestone 1 or are very mature in the articulation of the technical solution may be at a point in the very upper right of the quadrant that the effort of the PMDC may not be well received and may potentially be duplicative to the technical development already accomplished.
PMDC View of Enterprise Services at VA

- Business Process
  - Business Process Defines Input/Output Needs that the Business System Must Satisfy (moving to ProPath Milestone 1)

- Business System
  - Business System Orchestrates Invocation of an Enterprise Service per a reusable Design Pattern (clarifying ProPath Milestone 1)

- Enterprise Services
  - Invoked Enterprise Service Orchestrates Choreographed Invocation of Related Services (clarifying ProPath Milestone 1)

- Other Enterprise Services

Areas Where PMDC Provides Assistance Using BPMN Modeling:

- PMDC helps in the Business System Design
- PMDC creates the Enterprise Design Pattern
- PMDC helps in the Enterprise Service Design
MVI Services for Identification of VA LOB System Users
MVI Services for Identification of VA LOB System Users

(MVI Pool Only – Shows Service Endpoints/Operations)

MVI process orchestrates the MVI WSDL service operations for the identity management services

Service endpoints for requesting an operation to be performed and receiving a response in return – defined by schema

Service operation (BPMN Call Activity) that responds to a request – named in the service
BPMN XML Sample for MVI Services

The BPMN Models (Start & End events) each contain the name of the XSD file used for each Service Operations

The XSD messages used by the MVI Service Operations are stored in the BPMN file

References for message payload schema for MVI Service operations
VBA Compensation Information Flow Diagram
Compensation Enterprise Process Description – Milestone View

Compensation End-to-End (E2E)
Controlled Vocabulary:
Top-Down Analysis within a Business Architecture

Define Capabilities
What is the architecture supposed to achieve?
Items:
- Objectives
- Features
- Services

Define Activities
Which processes/activities will provide the capabilities?
Items:
- Verbs

Define Resources
Which data/resources will be consumed or produced?
Items:
- Nouns

Define Performers
Who/What will be involved?
Items:
- Roles
- Systems
- Actors
### Controlled Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Capability</th>
<th>Activity</th>
<th>Resource</th>
<th>Performer</th>
<th>Source of Term/Definition</th>
<th>Creation Date</th>
<th>Modification Date</th>
<th>Deprecated Date</th>
<th>Editorial Note</th>
<th>Comment</th>
<th>Domain</th>
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</thead>
<tbody>
<tr>
<td>Analyze Critical Business Issues</td>
<td>The activity of examining key business issues to identify new services or updates to existing services in the portfolio.</td>
<td>1</td>
<td>PMDC Collaboration Session/The Open Group - SOA Governance Framework (Aug. 2009)</td>
<td>2013-06-03</td>
<td></td>
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<tr>
<td>Analyze Service Capacity Needs</td>
<td>The activity of examining capacity needs to ensure service usage needs from the service contracts can be met.</td>
<td>1</td>
<td>PMDC Collaboration Session/The Open Group - SOA Governance Framework (Aug. 2009)</td>
<td>2013-06-03</td>
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<tr>
<td>Analyze Service Change Request</td>
<td>The activity of examining the proposal for a change to or refactoring of an existing service in the service portfolio.</td>
<td>1</td>
<td>PMDC Collaboration Session/The Open Group - SOA Governance Framework (Aug. 2009)</td>
<td>2013-06-03</td>
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<tr>
<td>Analyze Service Portfolio for Service Obsolescence</td>
<td>The activity of examining the need for the retirement of existing services in the service portfolio.</td>
<td>1</td>
<td>PMDC Collaboration Session/The Open Group - SOA Governance Framework (Aug. 2009)</td>
<td>2013-06-03</td>
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<tr>
<td>Analyze Service Requests</td>
<td>The activity of examining new service needs and the business justification to identify new services or updates to existing services in the portfolio.</td>
<td>1</td>
<td>PMDC Collaboration Session/The Open Group - SOA Governance Framework (Aug. 2009)</td>
<td>2013-06-03</td>
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<tr>
<td>Analyze Service Usage Patterns</td>
<td>The activity of examining emergent usage patterns to identify shortcomings or gaps in the current service portfolio.</td>
<td>1</td>
<td>PMDC Collaboration Session/The Open Group - SOA Governance Framework (Aug. 2009)</td>
<td>2013-06-03</td>
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### 2.1.2.15 Issue Compliance Review Results

<table>
<thead>
<tr>
<th>Description</th>
<th>Activity</th>
<th>Architectural Concept</th>
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<tbody>
<tr>
<td>Artifacts Used</td>
<td>Resource</td>
<td>Compliance Approval or Rejection Notice</td>
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<tr>
<td>Responsible Role</td>
<td>Performer</td>
<td>AERB Chair</td>
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<tr>
<td>Tools</td>
<td>Resource</td>
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<tr>
<td>Standards</td>
<td>Resource</td>
<td>Applicable AERB Policies, Standards and Guidelines</td>
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<tr>
<td>More Info...</td>
<td>N/A</td>
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# Controlled Vocabulary Data Model

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<thead>
<tr>
<th>Attribute</th>
<th>Definitions</th>
<th>Type</th>
<th>Format</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Term</td>
<td></td>
<td>string</td>
<td></td>
<td>In Use</td>
</tr>
<tr>
<td>Definition</td>
<td></td>
<td>string</td>
<td></td>
<td>In Use</td>
</tr>
<tr>
<td>Author/Source</td>
<td></td>
<td>string</td>
<td></td>
<td>In Use - current Sessions</td>
</tr>
<tr>
<td>Session Name</td>
<td></td>
<td>string</td>
<td></td>
<td>File Name</td>
</tr>
<tr>
<td>Version</td>
<td>File Name</td>
<td>string</td>
<td>(Starts @ V 0.1 + 0.1 (increments))</td>
<td>File Level, will change with each change</td>
</tr>
<tr>
<td>Created date</td>
<td>Term Creation date</td>
<td>date</td>
<td></td>
<td>2013-05-13</td>
</tr>
<tr>
<td>Modified date</td>
<td>Term Modification date</td>
<td>date</td>
<td></td>
<td>2013-05-14</td>
</tr>
<tr>
<td>Deprecated date</td>
<td>When ever a term is retired in CV while working on it. Should go away at time of final delivery.</td>
<td>date</td>
<td></td>
<td>2013-05-15 Term Level</td>
</tr>
<tr>
<td>Editorial Note</td>
<td>Written By Author of the CV- General comments by team and should go away at time of final delivery.</td>
<td>string</td>
<td></td>
<td>Term Level</td>
</tr>
<tr>
<td>Comment</td>
<td></td>
<td>string</td>
<td></td>
<td>Term Level- this can also be used for showing relationships</td>
</tr>
<tr>
<td>Domain</td>
<td>Business segment, Portfolio, LOB eg- End to End -Compensation</td>
<td>ENUM</td>
<td>VBA, VHA, NCA</td>
<td>Business Segment, Portfolio, LOB eg- End to End -Compensation</td>
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</tbody>
</table>
PMDC Tipping Moments for VA:

Base year Lessons-Learned have exposed the moments that will achieve change through the use of the PMDC.

1. Use of E2E Milestone-Level Processes as the context for current and transformed Veteran support operations.

2. Linking PMDC with Pre-MS 0 and Product Development life-cycle efforts.

3. Acceptance of BPMN 2.0 and the Analytical Conformance Class as a VA process modeling standard.

4. Effectively integrating PMDC with Enterprise Architecture, business process reengineering and solution architecture mandates.

5. Linking the use and development of controlled vocabulary to the use and development of the Enterprise and Segment Conceptual and Logical Data Models.

6. Establishing a critical mass of BPMN conversant Product Engineering representation in PMDC staff.