Customer Data Integration: BEA-IT Case Study

Yogish Pai
CTO, BEA-IT
Agenda

- Background Information
- Our 1st Generation CDI Solution
- Key Learning
- Our 2nd Generation CDI Solution
- Execution Roadmap
2003 challenges driving investment in the integration infrastructure

1. Integration and Web Services
   - Manual processes

2. Data / Information Architecture and Management
   - Customer experience challenges
   - Information shortage
   - Ineffective spending

3. Organization and Governance
   - Limits to collaboration
# Project Objectives and Deliverables

Future State Architecture initiative

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create Integration/ Customer Data Architecture</td>
<td>Ability to build the Integrated Enterprise and fulfill the “built on BEA” vision</td>
</tr>
<tr>
<td>Define Organization and Governance Model to Execute Updated Architecture</td>
<td>Ability to manage the Architecture Enterprise-wide: more powerful solutions, technically consistent, at a lower cost to BEA</td>
</tr>
<tr>
<td>Develop Roadmap for Implementing Recommendations</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Integration Architecture High-Level Design</td>
<td>Customer Data Architecture High-Level Design</td>
<td>Integration/ Customer Data Organization and Governance Model</td>
<td>Integrated Implementation Roadmap</td>
</tr>
</tbody>
</table>
Agenda

- Background Information
- Our 1st Generation CDI Solution
- Key Learning
- Our 2nd Generation CDI Solution
- Execution Roadmap
Findings from the Future State Architecture Initiative

The symptoms:

- BEA was unable to follow a customer across (and sometimes within) functions
- Answering simple questions often required manual intervention, e.g.:
  - “What purchases did this customer make last year?”
  - “To what service levels is this customer entitled?”
  - “What were the top technical issues that my customer faced last month?”
  - “How many of our leads translate into sales?”
  - “Who did my customer send to training recently?”
  - “What professional services projects are in process at my customer?”
Findings from the Future State Architecture Initiative

The cause:

- Customer processes are poorly integrated from end to end, and so is the underlying technology:
  - 30+ systems deal with customer data
  - 12 entry points that create or update customer data
  - Considerable amounts of manual customer data re-entry
  - Duplication and disparity between various representations of same customer
Business Benefits of a Single View of the Customer

- Clarity around customer data
  - Levels (i.e. Company -> … -> Contact)
  - Scope (i.e. IDs, Identifiers, and Reference data)
- Improve data quality to avoid actions/decisions on incorrect data
- Ability to follow a customer through the lifecycle across the systems
Customer Data Opportunities Identified as part of the FSA analysis phase

<table>
<thead>
<tr>
<th>Business Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
</tr>
<tr>
<td>• Customer DB</td>
</tr>
<tr>
<td>• Customer hierarchy</td>
</tr>
<tr>
<td>• Referential Data (D&amp;B)</td>
</tr>
<tr>
<td>• Integration with Customer Repository</td>
</tr>
<tr>
<td>• Revenue DB</td>
</tr>
<tr>
<td>• Use of Enterprise Customer ID</td>
</tr>
<tr>
<td>• Integration with Customer Repository</td>
</tr>
<tr>
<td>• Siebel</td>
</tr>
<tr>
<td>• Matching rules tuning and maintenance</td>
</tr>
<tr>
<td>• Data Cleanup</td>
</tr>
<tr>
<td>• Two-way customer data synchronization</td>
</tr>
<tr>
<td>• Account rep assignment maintenance</td>
</tr>
<tr>
<td>• Knowledge Express</td>
</tr>
<tr>
<td>• Use of Enterprise Customer ID</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
</tr>
<tr>
<td>• Kana / eMA</td>
</tr>
<tr>
<td>• Integration into Customer Data repository</td>
</tr>
<tr>
<td>• Customer Data Matching rules</td>
</tr>
<tr>
<td>• Two-way customer data synchronization</td>
</tr>
<tr>
<td><strong>Services</strong></td>
</tr>
<tr>
<td>• eLicense</td>
</tr>
<tr>
<td>• Use of Enterprise Customer ID</td>
</tr>
<tr>
<td>• Integration with / into Customer Repository</td>
</tr>
<tr>
<td>• CIB</td>
</tr>
<tr>
<td>• Use of Enterprise Customer ID</td>
</tr>
<tr>
<td>• Integration with / into Customer Repository</td>
</tr>
<tr>
<td>• Additional levels of customer (e.g. contact) needed</td>
</tr>
<tr>
<td>• eSupport</td>
</tr>
<tr>
<td>• Use of Enterprise Customer ID</td>
</tr>
<tr>
<td>• Integration with / into Customer Repository</td>
</tr>
<tr>
<td>• Clarify</td>
</tr>
<tr>
<td>• Matching rules tuning and maintenance</td>
</tr>
<tr>
<td>• Data Cleanup</td>
</tr>
<tr>
<td>• Two-way customer data synchronization</td>
</tr>
<tr>
<td><strong>G&amp;A</strong></td>
</tr>
<tr>
<td>• Peoplesoft</td>
</tr>
<tr>
<td>• Integration into Customer Data repository</td>
</tr>
<tr>
<td>• Critical Customer Data security policies</td>
</tr>
<tr>
<td>• Data cleanup</td>
</tr>
</tbody>
</table>

- myBEA User Profile
  - Ties to Customer Data Repository / level of customer
  - Access to customer data
1st Generation CDI Solution: Customer Matching Approach, driven by leveraging ETL tools in conjunction with a matching engine

Key capability required to provide a Single View of the Customer
Our 1st Generation CDI solution approach

1. Extract From Source
2. I-Hub to D&B
3. D&B Matching
4. D&B to I-Hub
5. Match And Load

Source Systems

Company Tbl
D&B Staging

Customer Registry

D&B Staging

Company Tables

I-Hub Staging

Review

I-Hub to D&B

D&B Staging

I-Hub to D&B

Source Systems
Agenda

- Background Information
- Our 1st Generation CDI Solution
- Key Learning
- Our 2nd Generation CDI Solution
- Execution Roadmap
BUILD IT AND THEY WILL COME

approach does not work!!!!
Even though this approach is the right one we did not meet our objectives due to multiple reasons

**Legacy approach**
- 30+ systems deal with customer data
- 12 entry points that create or update customer data
- Considerable amounts of manual customer data re-entry
- Duplication and disparity between various representations of same customer

**Central Repository approach**
- Provide one logical representation of Customer Data across the enterprise
- Provide expanded customer hierarchy (Locations, Roles, Contacts, etc.)
- Expand to provide similar capability to other key information (Product, Pricing, etc)
- Incorporate external data (D&B, Factiva, etc.)
Reasons our 1st generation CDI solution did not meet it’s objectives

- Misalignment between scope of project undertaking and executive sponsorship
  - Lack of sponsorship from ALL the business executives
  - Sponsorship by the CIO and a couple of LOB executives was not sufficient

- Data quality deteriorated from day one due to limited capability of data stewardship
  - Developing a custom data stewardship capability is not scalable

- Most business and IT mid-management not on board with the approach
  - Educating both Business and IT organization is key
Key Learning

- Data quality vs. maintaining the context of the data
  - Data used in transactional systems have a context/usage to it that is difficult to reconcile into a single view
  - Data cleansing activities can distort how people search and use a single view of a customer (familiarity to certain accounts)

- Constant selling of the solution and its benefits
  - Evangelize in a clear and consistent message
  - Provide tangible results and examples that are achievable
Agenda

- Background Information
- Our 1st Generation CDI Solution
- Key Learning
- Our 2nd Generation CDI Solution
- Execution Roadmap
CDI: Understanding the different styles helped us develop a more pragmatic roadmap

<table>
<thead>
<tr>
<th>DATA INTEGRATION ARCHITECTURAL STYLES</th>
<th>Registry</th>
<th>Coexistence</th>
<th>Transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Creates a Global ID and linkage (cross-reference)</td>
<td>• Stores a single view of customer data and linkage (cross-reference)</td>
<td>• Single central source of customer data</td>
<td></td>
</tr>
<tr>
<td>• Master Data entities and its attributes are not created nor stored centrally in a master data repository</td>
<td>• Master Data entities and its attributes are created and stored centrally in a master data repository.</td>
<td>• Master Data entities and its attributes are created and stored centrally in a master data repository and is published to the transactional systems for use.</td>
<td></td>
</tr>
<tr>
<td>• Use linkage to dynamically construct read-only Data</td>
<td>• Create and publish a single view of the Customer</td>
<td>• The source of master data will reside in the master data repository, not with the transactional systems.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Gartner Research “Learn the Four Styles of Customer Data Integration” - John Radcliffe, 6 October 2004
2nd Generation Approach: Rapid Implementation to Deliver Point Solutions

Objectives

- Choose an implementation strategy that will allow for rapid deployment of CDI to meet the needs of specific business sponsors
- Broaden CDI scope and business sponsorship based on early wins
- Start with Registry Style CDI and expand to Transaction Style CDI -- if and when the business justification exists
- Leverage SOA (Aqualogic) for rapid deployment

Target Solution

- Customer Master Data (external persons and organizations)
- Service Renewal Solution followed by Entitlement Management Solution
Success criteria established for our 2nd generation CDI solution

- 100% of BEA data (from Siebel, PeopleSoft) loaded into the customer master repository
- Successful correlation results for top tier BEA organizations based on business defined criteria
- Successful creation of D&B (legal), Finance, and/or Sales hierarchies
- Delivery of search and display portal for master data and hierarchy
- Defined Governance structure and process to maintain data quality
Second Generation CDI Solution: Master Data Interface Design Overview

Source Systems

1. Insert/Update
   - CUSTOMER TABLE
   - Queue
   - Message Created

2. Queue
   - Message Received

3. JMS Queue
   - AquaLogic SB
     - JMS Proxy
     - HTTP/Soap

4. AquaLogic DSP
   - Java/XQuery
   - JMS Queue

5. CDI Solution (Purisima)
   - Source Data Processed
   - Master Data

- Siebel Interface - Workflow w/ Siebel JMS Queues
  - Develop a Workflow process to capture changed data events that enqueues a JMS message containing the required data using the Siebel JMS queues.

- PeopleSoft Interface - Oracle DB triggers w/ Oracle Advanced Queuing
  - Develop database triggers to capture changed data events that enqueues a JMS message containing the required data using Oracle Advanced Queuing.
Second Generation CDI: Architecture Approach for leveraging Shared CDI Services
Customer Identity Services within BEA Aqualogic (SOA) Architecture

- Search
- Get Profile
- Translate ID
- others..

Purisma

Composite Applications
- Presentation Services
- Shared Business Services
- Information and Access Services
- Customer Identity Services

Enterprise Information Systems
- Custom Applications
- Third Party Products (ERP, CRM, etc.)

Data and Middleware
- Databases
- Middleware Interactions
  (TUXEDO, MQ Series, etc.)
EXECUTION ROADMAP
Components of the Solution

- Source Systems
  - KANA
  - PNET
  - SBL
  - EIS
  - PSFT
  - CLFY
  * For Master Data

- Master Data Processing
  - Cleanse
  - Match
  - Profile
  - Enrich

- Master Data Repositories
  - Organization Master *
  * Other types of masters (such as product) to be added over time

- Master Data Management

- Business Applications
  - a.k.a. workbenches, portals, etc.

- Governance

- Customer Data Integration – CDI

- Enterprise Data Warehouse

- Analytics/Reporting

Legend
- Data Flow
Why did we choose Purisma as our CDI Platform?

- Extensive Vendor Evaluation
  - Over 20 CDI vendors evaluated
  - 3 week hands-on technical evaluation for final candidates

- Why Purisma?
  - Best data stewardship capabilities
  - Flexible, rapid deployment (1st phase implemented in 7 weeks)
  - Best support for corporate accounts with hierarchy management
  - Foundation for growth to MDM Transaction Style implementation
  - Integration with D&B
  - Experienced team
## EXECUTION ROADMAP

### Overview of the Enterprise Data Initiatives

![Roadmap Diagram]

#### FY06 Q4 - FY08 Q3

<table>
<thead>
<tr>
<th>Feb ‘06</th>
<th>Feb ‘07</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Data Initiatives</strong></td>
<td><strong>Product Data Initiatives</strong></td>
</tr>
<tr>
<td>CDI Initial Release</td>
<td>Product Data Assessment</td>
</tr>
<tr>
<td>On-going Customer Data Integration Initiatives</td>
<td>Product and Pricing Master</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Entitlement Data Initiatives</strong></th>
<th><strong>Business Intelligence Initiatives</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Entitlements Gap Analysis</td>
<td>BI Initial Release</td>
</tr>
<tr>
<td>Initial Release</td>
<td>On-going BI Initiatives</td>
</tr>
<tr>
<td>PMO to manage quarterly release cycle</td>
<td>PMO to manage quarterly release cycle</td>
</tr>
</tbody>
</table>

*Note: The diagram shows a timeline from February 2006 to February 2007 with milestones and initiatives organized into Customer Data, Product Data, Entitlement Data, and Business Intelligence categories.*
Customer Data Integration: BEA-IT Case Study

Yogish Pai
CTO, BEA-IT