Master Data Management (MDM)

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Worldwide Program Director, IBM InfoSphere Solutions Sales
Current Business Automation … since the beginning of Info Technology

APPLICATION AGENDA ERA …

- IT Applications built in silo to solve specific business problems (Order, billing, service, compensation, etc)
  - Line-of-business focused (by product)
  - Common data (e.g. Customer) in disparate systems resulting in duplicates and non-trusted data
## Non- Trusted Data

Common Data in Disparate Systems Cause Data Quality Problems…

<table>
<thead>
<tr>
<th>System A</th>
<th>System B</th>
<th>System C</th>
<th>Compensation System</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Name:</th>
<th>Nancy P.L. Lee</th>
<th>Nancy Chan</th>
<th>Mark Chan</th>
<th>Nancy Chan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender:</td>
<td>Female</td>
<td>F</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Marital Status:</td>
<td>Single</td>
<td>Married</td>
<td>Married</td>
<td>M</td>
</tr>
<tr>
<td>ID:</td>
<td>Passport: BA26355</td>
<td>I/C: C800801(E)</td>
<td>I/C:B630902(F)</td>
<td>I/C: C800801(E)</td>
</tr>
<tr>
<td>Address:</td>
<td>1 Main St, ...</td>
<td>1 Main Street, ...</td>
<td>No 1 Main St, ...</td>
<td>2 Main Street, ...</td>
</tr>
</tbody>
</table>

- **ARE THEY THE SAME PERSON?**
- **ARE THEY RELATED TO OTHER CUSTOMERS?**
- **IS THE CUSTOMER ALSO AN EMPLOYEE**
- **WHICH ADDRESS IS CORRECT**
Leaders Investing to Optimize Information Assets
Clients Tell Us What They Are Looking For … Trusted Data

- **Insightful**: Derive meaning from information changes
- **In Context**: Real-time delivery of relevant information when and where it’s needed
- **Complete**: Related information reconciled into a single and holistic view
- **Accurate**: Complex and disparate data transformed, cleansed and delivered
InfoSphere Solutions to provide trusted data to drive business optimization …

- Every capability needed to understand, cleanse, integrate & deliver information across heterogeneous systems
- Broad native connectivity to any data source
- Massive scalability for integrating large data volumes in batch or real-time
- Unique metadata-driven design for acceleration & business-IT alignment
Non-Trusted Data
Common Data in Disparate Systems Cause Data Quality Problems…

- **ARE THEY THE SAME PERSON?**
- **ARE THEY RELATED TO OTHER CUSTOMERS?**
- **IS THE CUSTOMER ALSO AN EMPLOYEE**
- **WHICH ADDRESS IS CORRECT**
Master Data Management
The Path to Managing and Providing Trusted Data...

- Common Data
- Directory (X-Ref) Data
- Summary Data
Master Data Management
Centralized Management of Master Data via Services to Provided Trusted Operational View of Business
InfoSphere Solutions to provide trusted data to drive business optimization …

Real-time/Near-Real-Time Connectivity Services (ESB, EAI, Web Services, MQ, etc.)

INFOSPHERE INFORMATION SERVER

Understand
Cleanse
Transform
Deliver

INFOSPHERE MDM SERVER

INTEGRATION
INTELLIGENCE
AUTHORIZATION

INFOSPHERE WAREHOUSE

INFOSPHERE INFORMATION SERVER

COMMON META DATA

Batch Load
Phased Implementation
Drive Business Optimization With Positive ROI

- **Reduce cost and improve customer satisfaction via once-and-done processing ... e.g. address change**

- **Reduce risk exposure via holistic view customer household and product holdings**

- **Improve up-sell and cross-sell with relevant offers meeting customer requirements**

- **Comply with government regulations ... privacy act, risk exposure reporting, etc**

- **Forming a customer chassis to reduce M&A integration points and improve integration speed and cost**

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- **COST REDUCTION**

- **IMPROVE RISK MANAGEMENT**

- **IMPROVE SALES CAMPAIGN**

- **REGULATORY COMPLIANCE**

- **ASSIST MERGER & ACQUISITION**

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Most organizations begin their MDM journey with a single narrowly scoped project.

In addition to a primary domain, often secondary domains are managed for a complete understanding.

Data is replicated in these isolated projects.

But **New Industry Imperatives** introduce the need to manage relationships among these domains...so MDM technology must evolve...into multiple domains!
MDM versus CIF, Call Center and Data Warehouse

MDM resolves data quality problems at source and not “after-the-fact”…
MDM Implementation Styles

Figure 1. The Four Architectural Styles of MDM

Consolidation
- Matches and physically stores a consolidated view of master data
- Updated after the event and not guaranteed up-to-date. Authoring remains distributed
- No publish and subscribe. Not used for transactions, but could be used for reference
- For Reporting, Analysis and Central Reference

Registry
- Matches and links to create a "skeleton" system of record
- Physically stores the global ID, links to data in source systems and transformations
- Virtual consolidated view is assembled dynamically and is often read-only. Authoring remains distributed
- Mainly for Real-Time Central Reference

Coexistence
- Matches and physically stores consolidated view of master data
- Updated after the event and not guaranteed up-to-date. Authoring remains distributed
- Publishes the consolidated view. Not usually used for transactions, but could be used for reference
- For Harmonization Across Databases and for Central Reference

Transaction
- Matches and physically stores the up-to-date consolidated view of master data
- Supports transactional applications directly — both new and legacy — typically through service-oriented architecture interfaces
- Central authoring of master data
- Acts as System of Record to Support Transactional Activity

Analytical Focus

Operational Focus

Source: Gartner (September 2006)
Global Experience
Case Study: Major International Bank

<table>
<thead>
<tr>
<th>Business Problem</th>
<th>Become more customer centric was/is a difficult challenge due to the five different CIF systems due to M&amp;A. Years ago, attempted to implement single CIF (Know the Customer - KTC) using Siebel CRM data model years ago but not successful.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>100+ million customers (account owners, etc)</td>
</tr>
<tr>
<td>Lines of Business</td>
<td>Online Banking, Checking accts, Savings and CD accounts, Debit and Credit Cards, Mortgages, Investment and Wealth Management offerings, Investment and Brokerage Services and Insurance related products.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>WAS on p-Series, Fast Track Server on zSeries and DB2 on z-Series,</td>
</tr>
</tbody>
</table>
Case Study: Major International Bank

As a result of significant M & A activity, current state customer data environment was duplicative (5 CIFs), complex and costly to maintain

- Current environment supports multiple customer data stores with duplicative data
- Associated processes to synchronize data between legacy systems and customer data stores is complex
- Environments and infrastructures are tied to regional and product stovepipes
- There are multiple middleware approaches which are tied to channel and location specific customer data stores
- Cost of maintaining is high
- New target is to migrate all 5 CIFs to new SOA-based CDI-HUB (CSI)
### Case Study: Major International Commercial Bank

<table>
<thead>
<tr>
<th><strong>Business Problem</strong></th>
<th>Very high growth business. Inability to understand corporate hierarchies, extent of business and business risk across the portfolio.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
<td>1 million commercial customers (lessee, vendor, mortgagee, etc)</td>
</tr>
<tr>
<td><strong>Lines of Business</strong></td>
<td>Commercial Banking, Cash Trade, F/X, Investments, Loans and ABF, Equipment Leasing, Real Estate, Cards and Corporate Finance</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>App server p-Series, Oracle server p-Series, WAS, WMQI, Oracle Integrated with 25 legacy systems, Siebel CRM front end, Data Warehouse and Custom Developed U.I.</td>
</tr>
</tbody>
</table>
Case Study: Major International Commercial Bank

Phase 1 CBG Customer Hub Architecture Overview

Customer Hub Administrator
UI (Search, View, Add, Update)

Relationship Manager
Customer Hub Portal
(Search & View only)

Product Systems
- Lease
- Loan
- CRE

Customer Hub Administrator
UI (Search, View, Add, Update)

Phase 1 CBG Customer Hub (WCC)

DWL Customer Service
- UI Dispatcher
- JMS Adapter

Customer Management Services
- Batch Framework
- DB Connect
- Rules Engine (ILOG JRules)

Customer Data
- Initial Load
- Delta Load (Phase 2)

Product & Transaction Data

ETL

WCC Database

ETL

Cleansed & Integrated Customer Data

Data Warehouse (BDW)

Address Standardization
Phase 2
# Case Study: Mid-size US-based Bank

<table>
<thead>
<tr>
<th><strong>Business Problem</strong></th>
<th>Multiple CIF’s across retail, commercial, securities, mortgage that didn’t communicate causing lost revenue opportunities and customer service challenges.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
<td>16 million customers (account owners, etc)</td>
</tr>
<tr>
<td><strong>Lines of Business</strong></td>
<td>Retail Banking, Commercial, Securities, Mortgage</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>App server p-Series, DB server z-Series, WAS, DB2</td>
</tr>
<tr>
<td></td>
<td>Integrated with new ATM software/hardware from NCR</td>
</tr>
<tr>
<td></td>
<td>Integrated to Plastic Cards legacy system</td>
</tr>
</tbody>
</table>
Case Study: Mid-size US-based Bank

Overview of TCV (Service & ODS) Target Architecture with MDM Server.
## Case Study: Major US-based Insurer

<table>
<thead>
<tr>
<th>Business Problem</th>
<th>No ability to get operational 360 degree view of customers across LOB’s. No ability to manage privacy and preferences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>16 million customers (insured, beneficiary, agent, claimant, etc.)</td>
</tr>
<tr>
<td>Lines of Business</td>
<td>Life, Property &amp; Casualty, Annuities</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>App server p-Series, DB server z-Series, WAS, WBI, DB2 Integrated with 4 legacy and existing P&amp;C CIF</td>
</tr>
</tbody>
</table>
Case Study: Major US-based Insurer

Enterprise Customer Information Broker

- Front Office Applications:
  - Internet
  - Agency Desktop
  - Call Center Desktop

- Customer Data Access Services

- Campaign Manager:
  - Real-time service/sales
  - Rule Base

- Customer Information Broker:
  - MDM Knowledge Layer
  - MDM Action Services
  - MDM Integrity Services

- Integration Hub:
  - Connect
  - Transform
  - Message

- ETL Hub:
  - Extract
  - Transform
  - Load

- Analytic Environment:
  - Data Warehouse

- Operational Source Systems:
  - General Insurance
  - Life Insurance
  - Commercial Insurance
  - Farmland Insurance
  - Financial
  - Specialty Insurance
  - Mortgage
  - Group Insurance

- Customer Data Stores:
  - Ins CIF APIs
  - MDM Service
  - Insurance CIF
  - MDM (TBD by LOB)
## Case Study: Major UK-based International Insurer

### Business Problem
Had over 60 legacy applications holding policy information. They recognised that such a complex landscape was impeding their ability to create any new and compelling product propositions. A new software architecture based on IBM SOA components has been defined with IBM MDM Server as the repository for all party information.

### Volume
400,000 customers and IFAs (New retail line-of-business)

### Lines of Business
Investments

### Infrastructure
App server p-Series, DB server z-Series, WAS, DB2, WebSphere Process Server, WebSphere Portlet Factory
Integration to Icon (LineData) Investment Administration
Case Study: Major UK-based International Insurer

Customer & Broker Channels

- User Interface
  WebSphere Portal Factory
- Process Orchestration
  WebSphere Process Server
- Party Management
  IBM MDM Server
- Integration Services
  WebSphere ESB
  Collective Investment Administration
  Icon Retail from Linedata
  Policy Administration
  Policy Administration
  Policy Administration

• Have defined a new architecture for the next generation of products. The initial phase is for new investment products.
• IBM MDM Server will initially be empty, it will be populated as new investment customers are captured.
• New policy admin systems will be introduced as new LOB product propositions are developed.

Common Support Infrastructure
(Finance, MI, Document Production, HR)
# Case Study: Major Manufacturer

**Business Problem**

One dimensional, line-of-business (4 LOBs), approach to sales and customer management. Requirement is to institutionalise opportunity capture for customers across all LOBs thru creating 360 degree multiple hierarchy view to enable common customer “scoring” and strategic pricing activity.

**Volume**

Initially 200,000 Tier One global organization customers (multiple “n” hierarchies) ultimately 2 million customers

**Lines of Business**

Aerospace, Automation and Control Systems, Specialty Materials, Transportation

**Infrastructure**

App server p-Series, Oracle, WAS, WBI, WPS

Integrated with multiple source ERP (SAP, SAP.com, Oracle Financial), CRM (Siebel, Salesforce.com) systems and D&B
Phase 1 – Architecture View

MDM Server Web-based Customer Data Steward
- Administration
- De-duplication (Merge/Split)

MDM Server Web-based Customer Dashboard
- Demographic Profile
- Product Portfolio
- Relationship/Hierarchy
- Interactions
- X-Sell Alerts

CD2 Server (AIX Server)
- Application Server (e.g. Websphere 5.0)
- Customer Master Service Layer
- Customer Master Data Store (e.g. DB2/UDB)

Portal Server
- Siebel
- SalesForce.com

Systems Integration
- Service Request
- Event Notification

SAP
- ORACLE Financial
- SBG Source Systems

Data Extract (Aerospace)
- Data Extract (Transportation Systems)
- Data Extract (Automation & Control Solutions)
- Data Extract (Specialty Materials)

Batch Load & De-duplicate

Data Warehouse
- Business Intelligence (BI) Information Delivery
- BI Reports
- Web/On-line

Case Study: Major Manufacturer
### Case Study: Dept of Health and Human Services

<table>
<thead>
<tr>
<th>Business Problem</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>This city government office was created in early 2008 as a cross-agency for Health and Human Services. Current citizens’ data is managed in different systems across nine agencies (health, legal, childcare, etc). Lack of data sharing across these systems created duplicity and inefficiencies for agencies workers and service providers.</td>
<td></td>
</tr>
</tbody>
</table>

Health and Human Services Connect (HHS-Connect) program, is a new service being deployed by the HHS office. It is designed to leverage modern and flexible technologies to improve service delivery to citizens, enable better accessibility and management of information, and increase accountability. The program will link more than a dozen city agencies so that caseworkers are able to share client information without compromising confidentiality. |

<table>
<thead>
<tr>
<th>Volume</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2+ million users in a city of 11+ million citizens</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lines of Business</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>City government providing health and human services</td>
<td></td>
</tr>
</tbody>
</table>
Case Study: Dept of Health and Human Services

Architectural Overview

- Citizen Portal
- Worker Portal
- Partner Portal

Security

Case Mgt System (Curam)

ESB)

MQ
MQ Broker
JCA
Info Integrator

Common Client Index

Federated Document Mgt

Agency Systems

Agency Systems

Agency Systems

Data

Data

Data

Data
**Case Study: Financial Services Arm of Major Retailer in Canada**

<table>
<thead>
<tr>
<th><strong>Business Problem</strong></th>
<th>Lacked a complete client portfolio. To be able to fuel future growth while becoming more customer centric, this company had to improve its risk management and ability to make customer related decisions.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
<td>3.5 million party records</td>
</tr>
<tr>
<td><strong>Lines of Business</strong></td>
<td>Personal Loans, Credit Cards (initially)</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td>Chordiant (call centre), TSYS (credit card), MQSeries, WAS (pSeries), Oracle (pSeries), Acxiom</td>
</tr>
</tbody>
</table>
Case Study: Financial Services Arm of Major Retailer in Canada

Proposed Phase I Approach using WCC

Legend
- - - Existing
- - - New
## Case Study: Major Telco in Canada

<table>
<thead>
<tr>
<th>Business Problem</th>
<th>Account centric model across land line, wireless, cable and internet business.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>12 million customers (retail subscriber)</td>
</tr>
<tr>
<td>Lines of Business</td>
<td>Wireline, Mobility, Satellite TV, Internet</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>App server Sun SunFire, DB server Sun SunFire, WebLogic, WBI, Oracle 9i</td>
</tr>
<tr>
<td></td>
<td>Integrated with legacy EDW and Web based CSR application</td>
</tr>
</tbody>
</table>
Overview of target architecture with MDM as CMF

Case Study: Major Telco in Canada

* Note: WCC data maps to Party Base, Location Address, Finance Account and Offer Subscription in Teradata’s Telco model
• Master data management across party, account, product & location data

• Centralizes and synchronizes master data across heterogeneous systems

• Enabled as an SOA Library with 800 pre-packaged business services

• High performance, high scalability foundation
• Every capability needed to understand, cleanse, integrate & deliver information across heterogeneous systems

• Broad native connectivity to any data source

• Massive scalability for integrating large data volumes in batch or real-time

• Unique metadata-driven design for acceleration & business-IT alignment
• Unified, powerful data warehouse foundation

• Advanced partitioning, data mining, retention & cubing features

• Optimized performance for operational & transactional use

• As big or as small as your business needs
• Fully attributed industry specific data model, SOA model and process model

• A set of standards for each industry
  – Common processes
  – Common business terms
  – Common communication between applications
  – Common application components

• A blueprint for application, operational data store and data warehouse development
The IBM InfoSphere Vision

An Industry Unique Information Platform

- Simplify the delivery of Trusted Information
- Accelerate client value
- Promote collaboration
- Mitigate risk
- Modular but Integrated
- Scalable – Project to Enterprise

InfoSphere™
Accelerate to the Next Level
Unlocking the Business Value of Information for Competitive Advantage
Thank You