

MDM Aware Applications

An Oracle White Paper

July 2009

Introduction

Many companies still don't have a true view of their customers, products, and suppliers, much less their inventory and financials. While they invest in new, sophisticated enterprise applications to handle business processes, the data they generate is not centrally managed. In fact, these systems often generate inconsistent and conflicting information. While efficiency may improve in specific operational functions, an overall view of the enterprise actually becomes harder to achieve. Every move a company makes depends on the data that's circulating through the operational systems. When it's unreliable, this data will affect decision making, and runs the risk of:

- Slowing new product introductions
- Creating supply chain inefficiency
- Increasing the cost of compliance
- Hiding revenue
- Reducing sales efficiency
- Misguiding marketing efforts
- Losing customer loyalty

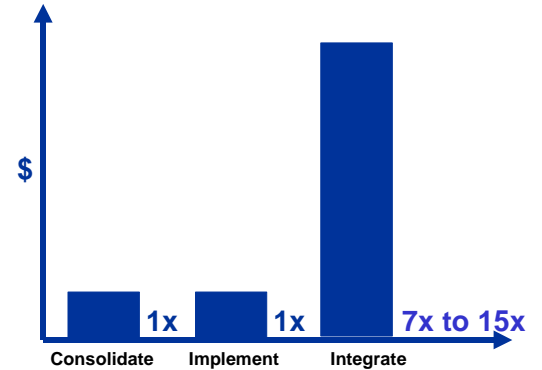
[Oracle Master Data Management](#) solutions are designed to consolidate, cleanse, and enrich key business data from across the enterprise and synchronize it with all applications, business processes, and analytical tools. When clean, accurate master data is propagated, efficiency increases in operational systems, and good corporate governance becomes easier to achieve. Furthermore, this data feeds analytics that can in turn provide a true representation of how the business is running.

Historically, enterprise applications were written with the understanding that they had total control over their own data. Today we know that key business data needs to come from authoritative sources outside of particular application domains. Today we know that enterprise wide data quality standards need to be applied to data within these applications. And today we know that critical master data within these applications needs to be shared beyond the applications' boundaries. MDM is designed to accomplish these goals, but implementation roadblocks are created by applications that are not aware of these realities. The cost of MDM implementations is negatively impacted.

The Cost of Integration

A common measure of the cost of integrating new applications into existing IT landscapes is to compare it to the price of the license for the new software itself.

The chart on the right illustrates the magnitude of the integration problem. It is normal for implementation and data consolidation costs to each equal the license software. It is integration that takes the lions share of the total price tag. It can cost an order of magnitude more than the license. When Return On Investment (ROI) is calculated, the true cost is the total of all four: software license + implementation + consolidation + integration.



“I think it saved us about 60 percent of our time and costs, doing the integration work in about two months rather than four to six.”

Jeff Hand
Zebra Technologies
Oracle Profit Magazine
April, 2009

ROI goes up dramatically if the cost of integration can be reduced. This is what MDM Aware applications are all about – cutting integration costs by more than half.

The reason for the high cost of integrating MDM Hubs is threefold:

1. MDM Hubs connect to a wide range of applications such as CRM, ERP, PLM and SCM. Point to point integration is error prone and not generally reusable. What’s needed is an open, service oriented, flexible, reusable data integration layer with built in MDM knowledge that facilitates reuse.
2. The MDM Hubs connect to a wide range of business processes such as ‘Order to Cash’ and ‘Procure to Pay’. What’s needed is the right set of composite MDM web services to make these connections straight forward.
3. Participating applications are not built to use data from outside their own domain or share their data with other applications. What’s needed are applications that understand the need to operate in a shared data environment.

MDM AWARE APPLICATIONS

When an application understands that the key data elements within its domain have business value beyond its borders, we say it is “MDM Aware”. An MDM Aware application is prepared to:

- Match and fetch key data elements and attributes from an outside master data source
- Synchronize its own data to external master data management systems
- Use outside data quality processes for data entry verification and enrichment

Master data attributes within any particular transactional application have relevance beyond the application itself.

In short, MDM Aware applications are pre-disposed to participating in the MDM processes. This dramatically speeds the deployment of Oracle MDM solutions, reduces risk, and insures quality data is distributed as needed across the IT landscape.

A REAL WORLD EXAMPLE

We will use a simplified 'Order to Cash' process to help illustrate the problem with non-MDM-Aware applications. It also illustrates the significant advantages of MDM-Aware applications and identifies the key requirements the for a solution.

Consider the three main lines of business: Sales, Order Management, and Accounts Receivable. Each department has its own supporting application. Each department manages its own customer data.

Sales

In our example, Sales is supported by a front office sales automation application. This application automates Opportunity Management with Point of Sale support. Order capture information is collected on price and discounts. Contracts are established with customers. Customer information is maintained and governed locally according to Sales Department rules.



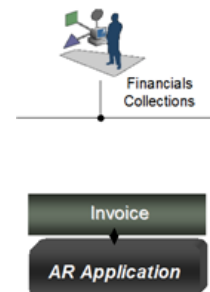
Order Management



Order Management (OM) is supported by a back office application. The OM application manages the configuration of products sold and shipping. It enables customer access to order progress and supports a Call Center. Customer information is maintained and governed locally according to OM Department rules.

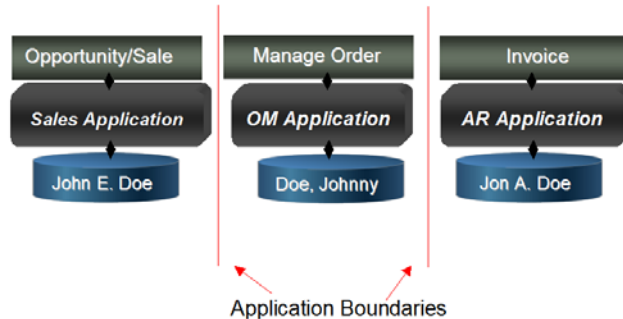
Accounts Receivable

Accounts Receivable (AR) is supported by a financial application. This application automates Invoice generation, billing, and if necessary, collections. Customer information is maintained and governed locally according to Financial Department rules.



Order to Cash

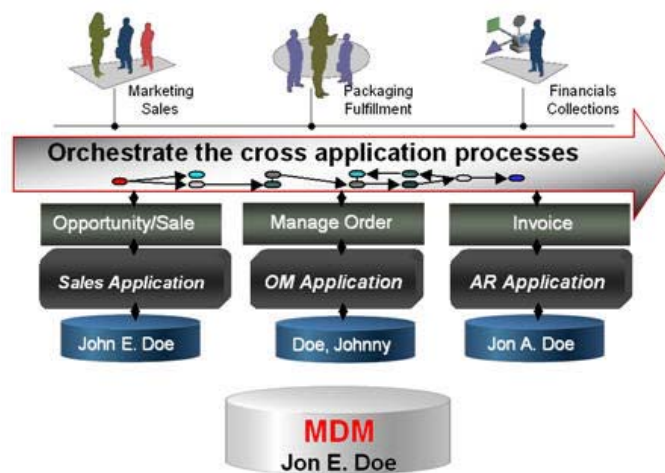
Order to Cash is the business process that starts when an opportunity turns into a sale and ends when the money is in the bank. This process crosses the Sales, OM, and AR department domains and their supporting application boundaries. Inconsistent data in these application silos severely impacts the operations of the business process. Master data, good enough to support the local operations of each department, can break enterprise processes such as Order to Cash. The following figure illustrates how Customer data can vary.



Each application has its own version of John Doe. If these differences are not correctly dealt with at the application boundaries, the business process breaks down. The product is sent to the wrong address, the bill is sent to the wrong person, or the process winds up in a slow and costly manual procedure to correct the errors.

Orchestrate the Business Processes

The following figure illustrates how an Order to Cash business process might be built across Sales, OM, and AR to create the Order to Cash process.



Although there is a Master Data Management solution deployed into the IT landscape with a complete and authoritative customer record for Jon E. Doe, the applications are not aware of it. When John E. Doe is entered into the Sales application, no check is made to see if this customer is already known to the enterprise. In fact, no check is made to see if the spelling, address, phone number, e-mail address, or other key information is

correctly entered and stored in the Sales system. The exact same thing happens when Johnny Doe is entered into the Order Management system and again when Jon A. Doe is entered into the Accounts Receivable system. What's more, the MDM hub is not informed when data entry actually includes a customer data correction. Unless significant integration efforts are included with the MDM deployment, the benefits of quality master data in the MDM Hub will be limited. Application to Application (A2A) integration will pass along local data, but A2A systems cannot know that the data they are moving is wrong. The Order to Cash process breaks down at the application boundaries creating the need for costly corrections.

Key Requirements

We see from the above example that MDM Aware applications must have the ability to synchronize data to MDM Hubs, fetch master data from MDM Hubs, and utilize MDM data quality processes at all data capture points. This is the key to turning a thousand points of data entry into a single version of the truth.

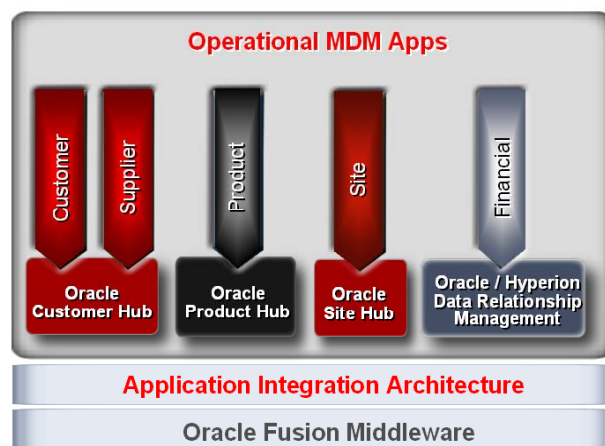
MDM aware applications must be able to:

- Understand what data is needed outside its boundaries and push that data to the MDM Hub. This involves synchronization and merge processes.
- Understand what data is needed from outside sources and pull that data from the MDM Hub. This involves match, fetch and synchronize processes.
- Apply data quality standards in real time to data being entered into their system. This involves standardization processes.

The following sections cover how Oracle's MDM and AIA software delivers on these requirements.

ORACLE SOLUTION

Oracle Applications are MDM Aware. In addition, with the recent combined MDM and [Application Integration Architecture](#) (AIA) releases, Oracle now provides pluggable user interface technology that enables non-Oracle applications to become MDM Aware as well. The following sections will cover the MDM and AIA product capabilities that make this possible.



Oracle's MDM solution is built on the AIA foundation. AIA provides the open standards based, full function integration layer utilizing [Oracle Fusion Middleware](#) with its award winning SOA Suite. The above figure illustrates this architecture.

Application Integration Architecture

AIA delivers [Foundation Packs](#) and [Process Integration Packs](#) (PIPs) with MDM data quality services built in. Foundation Packs provide a common object and shared services library with a supporting SOA programming model and best practices implementation methods. PIPs leverage Foundation Packs and provide pre-built composite business processes across enterprise applications.

MDM and Foundation Packs

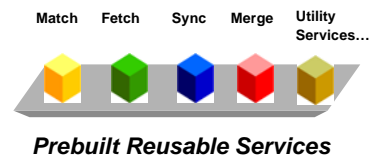
Master Data Management processes such as 'Publishing' master data to multiple subscribers is designed in. For example, customer information can be created, updated, and deleted in multiple participating applications and sent to the Oracle Customer Hub for updating, cleaning, and validation. Subsequently, the Customer Hub, as the single source of truth, publishes the customer information for multiple subscribing applications to consume. Foundation Packs are available for all application integration scenarios.

MDM Process Integration Packs

PIPs allow companies to get up and running with core processes quickly. When delivered with MDM, these complete, out-of-the-box, integrations include everything needed to gain immediate business value and increase business and IT efficiencies. Key MDM PIPs include:

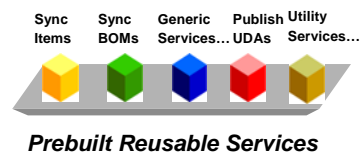
Process Integration Pack for Oracle Customer Hub - a

collection of core processes to support out-of-the-box Customer MDM integration processes across Oracle Customer Hub, Siebel CRM and Oracle E-Business Suite, as well as a framework to enable MDM integrations with other Oracle and non-Oracle applications.



Process Integration Pack for Oracle Product Hub - a collection

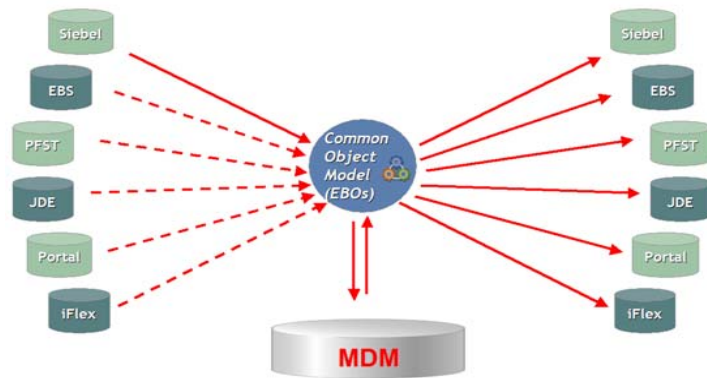
of core processes to support out-of-the-box Product MDM integration processes across Oracle Product Hub, Siebel CRM and Oracle E-Business Suite.



These PIPs support the “MDM Aware” applications methodology outlined in the following sections.

Common Object Methodology

AIA’s Common Object Methodology includes Enterprise Business Object (EBO) definitions for master data objects such as ‘Product’, and business entities such as a ‘Purchase Order’. The following figure illustrates how the common object methodology is used to integrate the Oracle Applications.



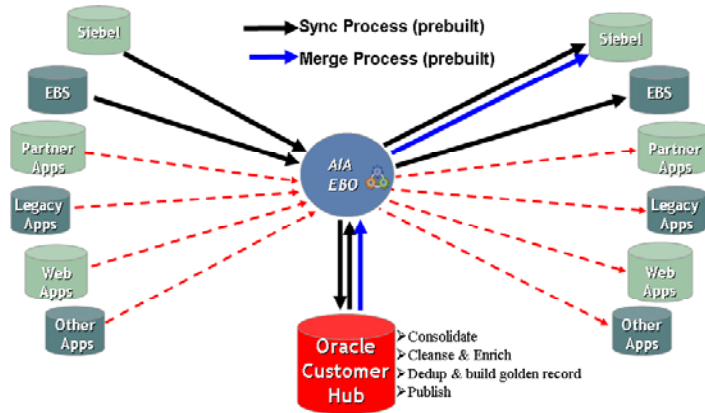
As data flows from source systems, it is transformed via provided maps into a common object model. Once the appropriate business logic is executed for a particular business process, the data is again transformed via provided maps from the common object model to the format needed by target systems. In the following sections, we will use this methodology for the key processes needed for MDM Aware applications: Sync, Match, Fetch, and Data Entry data quality.

Synchronization for Customer Data

In this mode of operation, Siebel CRM and Oracle E-Business Suite act as passive participating applications which send new or updated customer information to the hub for cleansing, deduplication and enrichment. The hub in turn publishes the cleansed golden version to all the participating applications.

The processes that operate in this mode include the following (as illustrated in the following figure)

- Synchronize Organizations and Persons from Siebel CRM to Customer Hub.
- Synchronize Organizations and Persons from Customer Hub to Siebel CRM.
- Synchronize Organizations and Persons from Customer Hub to Oracle E-Business Suite.
- Synchronize Organizations and Persons from Oracle E-Business Suite to Customer Hub.
- Publish merge messages from Customer Hub to Siebel CRM.

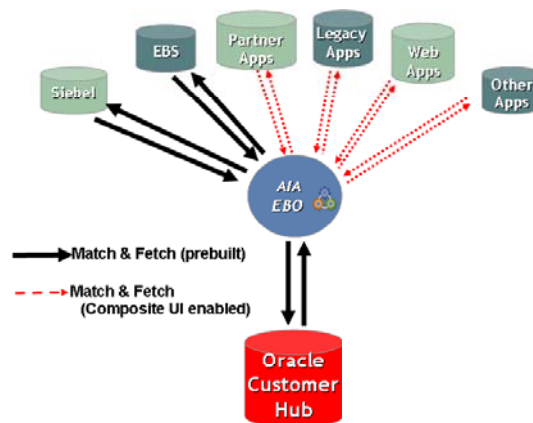


The synchronization mode flows are asynchronous. This mode of operation is non-intrusive with respect to the need to change the source and target applications. They do not assume that the hub is the data master, thereby ensuring that the authoring can be decentralized. Because of the non-intrusive character of this architecture, MDM implementations can lead to very fast project delivery.

Match and Fetch for Customer Data

In this mode of operation, Siebel CRM and Oracle E-Business Suite interact with the hub in real time by executing synchronous integration processes at the time of data entry. The processes that operate in this mode include the following:

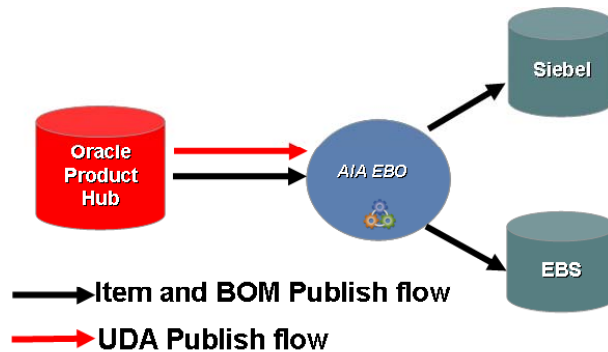
1. Match Organizations and Persons in the Customer Hub from Siebel CRM. This returns the list of candidates to a query specifying a list of selection criteria.
2. Fetch Organizations and Persons in Customer Hub from Siebel CRM. This returns the entire profile for the customer or prospect once a candidate is selected from the list in step one.
3. Sync Organizations and Persons between Siebel CRM, Oracle E-Business Suite and Oracle Customer Hub. Any new data entered at the application is synchronized back to the Customer Hub.



Match and Fetch processes are synchronous and enable a real-time interaction between Siebel CRM, Oracle E-Business Suite and the Oracle Customer Hub. Through these processes, consuming applications have on-demand access to the single source of truth for customer data, thus preventing duplicate and inaccurate data entry.

Synchronization for Product Data

In Synchronization mode, Oracle Product Hub serves as the master trusted product data repository that provides a single consolidated system of record for product data such as Items, Bill of Materials (BOMs), Attributes and Item Catalogs. The following figure illustrates these flows.

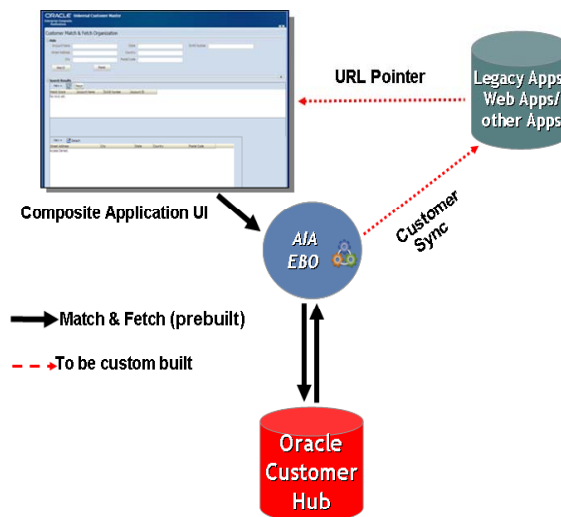


The processes that operate in this mode include the following:

- Synchronization of items from Oracle Product Hub to Siebel CRM and Oracle E-Business Suite.
 - Capability to exercise routing rules to determine if a participating application is eligible to consume an item message at runtime.
 - Ability to initiate Item publication from the Product Hub using both user-initiated publication actions as well as automatically triggered publication events.
- Synchronization of BOMs from Oracle Product Hub to Siebel CRM and Oracle E-Business Suite.
 - Includes synchronization of components and component attributes.
 - Leverages Item Synchronization process to sync items within the BOM.
- Publication of User Defined Attributes (UDAs) from the Product Hub to AIA.
 - Capability to publish any type of user defined attribute defined within the Product Hub.
 - Flexible framework to enable UDAs to be consumed by any participating application, with minimal customization, irrespective of how UDAs are modeled inside the consuming application.

Composite Application UI

With this MDM-AIA solution, Siebel CRM and Oracle E-Business Suite applications are MDM Aware. In order to make other applications MDM Aware, Oracle delivers a composite application user interface that is easily embedded in legacy and web applications. This customizable user interface layer enables out of the box integration with Oracle MDM Hubs and supports the match and fetch processes detailed above. The only remaining gap to be filled during implementation is the transformation between the AIA Enterprise Business Objects and the legacy application. The following figure illustrates the use of the composite application user interface to connect to any non-Oracle application. . It enables match, fetch and sync processes. Once implemented, all the benefits of MDM Aware applications become available for non-Oracle applications.



CONCLUSION

Pre-built, standards based, service oriented integration between applications and MDM Hubs insures the intended ROI in the applications is realized. MDM Aware applications enable faster time to value for MDM projects, lower implementation risks, and dramatically reduce MDM deployment costs. The total return on the investment in MDM is increased. With Oracle Master Data Management, customers find that supply chain and sales efficiency increases, marketing efforts improve, customer loyalty increases, business flexibility goes up, and the cost of compliance goes down. MDM Aware applications help organizations achieve all these MDM benefits faster, much faster.



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