TIBCO MDM:
An Introduction to Master Data Management

SOLUTION OVERVIEW

TIBCO® MDM provides the data governance process needed to build and effectively maintain a comprehensive and unified "single version of truth" about customers, suppliers, assets, organization, partners, products, materials, employees, etc.

By consolidating, de-duplicating, and cleansing information located in multiple and disparate application siloes scattered across the enterprise, users can access centralized intelligence in real time to make better and more informed business decisions, as well as:

- Effectively plan and support new product offerings
- Increase the profitability of new product launches
- Amplify cross-channel analytics and track customer net value
- Assess customer upsell/cross-sell opportunities
- Deliver a higher quality of service that is tailored to customers' specific needs
- Reduce risk when acquiring new businesses

TIBCO's Differentiation

- **Deep Integration:** TIBCO offers a comprehensive platform for multi-entity master data management (MDM). Able to interlink with business process management (BPM) solutions, service-oriented architecture (SOA) capabilities, and analytics tools, our service-oriented approach delivers the capabilities organizations need to effectively manage master data business-wide.

- **Architected for Change:** Companies require business process flexibility. More importantly, this need for agility will accelerate as the demand for more automated business processes increases. TIBCO's open platform (data, process, events) can not only meet the immediate needs of an organization, it has the capability to adapt and scale to support future change (even when new business process solutions are introduced).

- **Flexible Data Model:** Master and reference data features can accommodate the unique requirements of a diverse range of stakeholders, including cross-entity relationships (between brands, divisions, vendors, customers, etc.) and rules-based or free-text similarity searches. Also providing event-based synchronization and process management, external users and systems can be alerted throughout process choreography. Collectively, these capabilities clean master data and eliminate duplicate data entries throughout the information ecosystem.

- **Diverse Support:** TIBCO MDM excels at both collaborative and operational architectures. In collaborative environments, a rich set of governance capabilities can facilitate the creation and maintenance of master data. In operational infrastructures, master data can be served to and consumed by multiple applications and users with very high throughput.

- **Established Platform:** As a leading provider of SOA solutions, TIBCO has long based its technology on a distributed, open, real-time, and event-driven platform; it's in our DNA. If used on an SOA framework, our MDM solutions can seamlessly leverage existing applications and data, as well as provide IT with the ability to rapidly rollout new service-driven business processes.

- **Open Assimilation:** TIBCO MDM adopts a leave, layer, and leverage approach – easily integrating with existing applications (and both TIBCO and non-TIBCO infrastructure investments using standard technologies, such as Web services, XML, JMS, GDS and AS/2).

- **Proven Methodology:** TIBCO's teams have successful track record of implementing solutions that require a high degree of scalability in exceptionally complex environments. Having worked with all major service, application, and infrastructure providers, our teams bring the deep technology expertise and experience required to efficiently support multifarious and elaborate infrastructures.

A LOOK INSIDE TIBCO MDM

TIBCO MDM is an event-driven solution designed specifically for fast-paced, multi-party, and multi-tier distribution environments. Combining an extensible master data repository and real-time data synchronization with a robust rules-based workflow engine, this solution can quickly comply with ever-changing requirements, while automating existing manual business processes involved with managing master data.

Out-of-the-box functionality includes support for multi-party, multi-tier collaboration (all parties that need to create, manage, and synchronize master data), enabling organizations to implement and start using the application quickly – key to accelerating time-to-value and return on investment (ROI).

How it Works

TIBCO MDM ensures master data is accurate, consistent, and complete across the entire organization and with trading partners by employing four key functional areas:

1. Master data management

2. Business process management spanning the entire customer ecosystem

3. Intra-enterprise and inter-enterprise data synchronization

4. Reporting and business intelligence
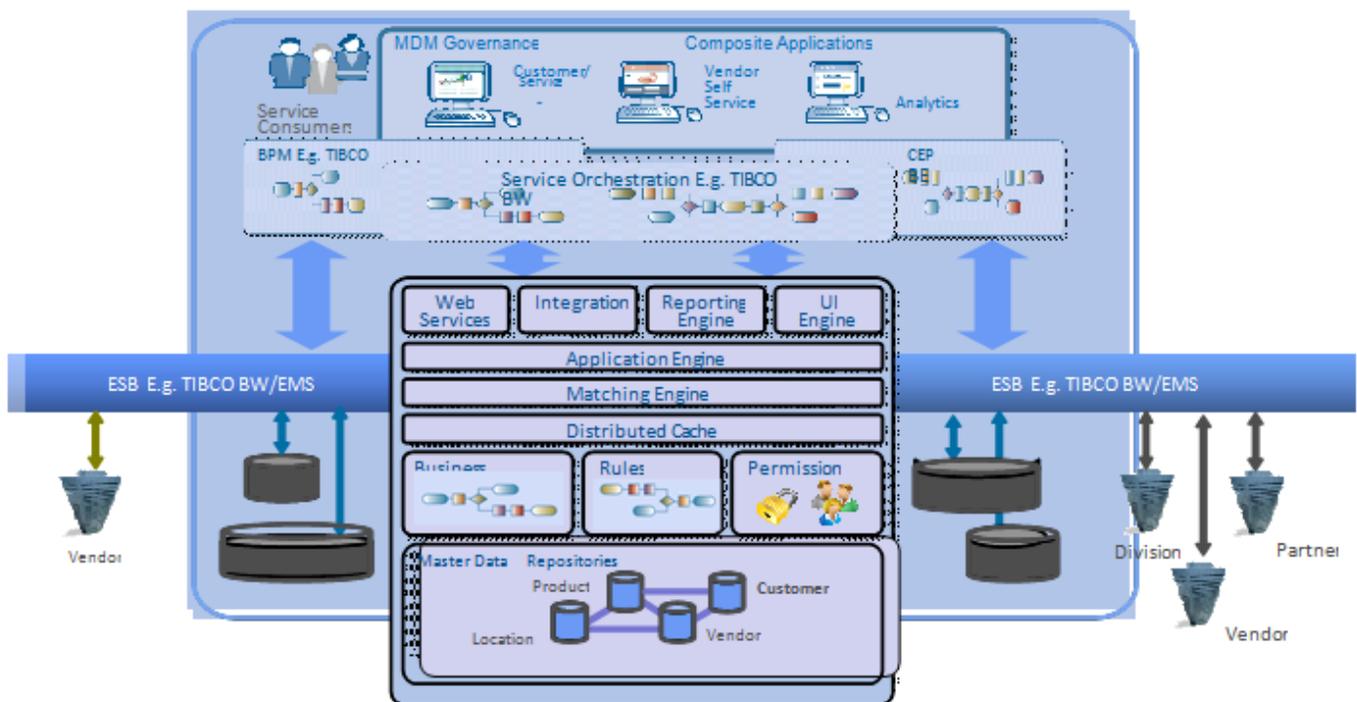
## A Single, Extendable Master Repository

Aggregating multiple sources of information (both internal and/or external), TIBCO MDM constructs a central master data repository where timely intelligence can be accessed and leveraged across an organization and its value chain.

In addition to providing the functionalities necessary to manage complex data hierarchies and relationships, TIBCO MDM supports:

- Multiple master data domains and subject areas, including customers, suppliers, assets, organization, partners, products, materials, employees, etc.

- Both structured and non-structured data (including, add, copy, compare, etc.)

- Diversified customer-specific hierarchies (classification schema)

- Extensive attribute level, context specific, and data validation rules

Understanding that business users need to readily access and manage master data, this solution was built with their use in mind – allowing them to easily add, search, and update repository information (including mass edit, update, etc.).

Through versioning, TIBCO MDM also keeps track of changes by auditing all data and processes (marking every change to every data element by every user or process). Additionally, this solution supports complete lifecycle management – enabling users to organize and publish all master data content to any channel (print, digital advertising, online, social media, or any other future technology needs).
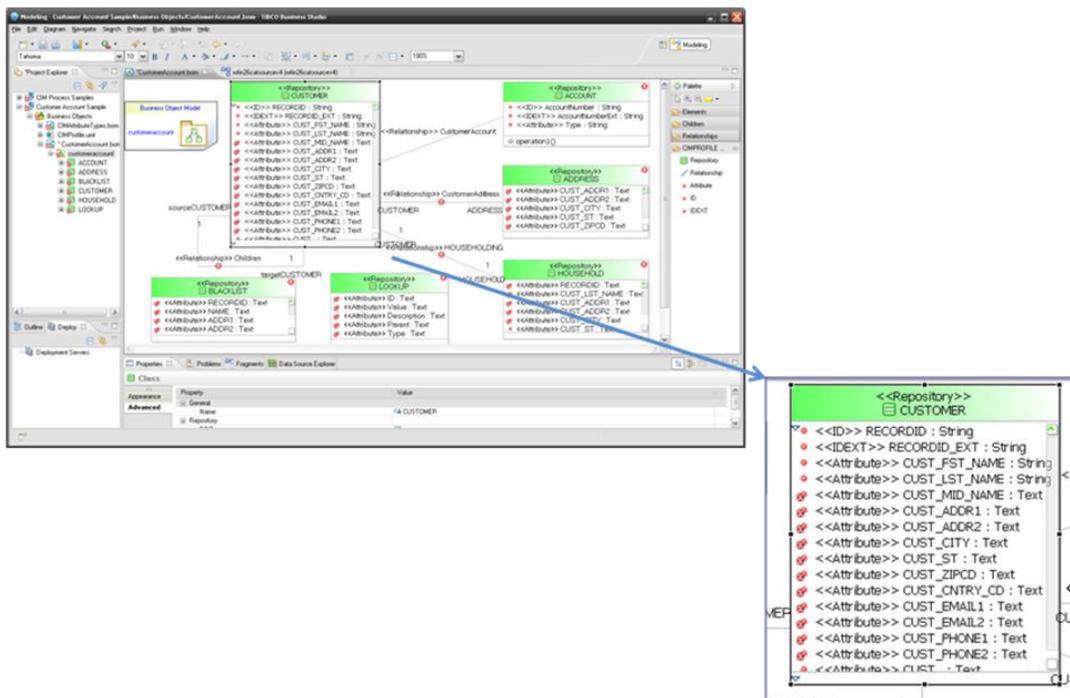
Business Collaboration Management

Based on a flexible business process automation framework, TIBCO MDM employs user-configurable business rules and workflow tools to streamline the master data management processes. In addition to providing strong system-to-system workflow capabilities, this solution allows users to create and support:

- Rule-based complex workflows (including serial, parallel, and long-standing conversations with external systems)

- Role-based security with appropriate CREATE, READ, UPDATE, DELETE (CRUD) authorization. TIBCO MDM also integrates with the leading LDAP and single sign-on products

- Calendar-based workflows – including the ability to dynamically recalculate reminders and notifications, such as changes to a product launch date (notifications are sent via email)

TIBCO MDM also provides service templates, making it easy for multiple parties to set up, modify, and synchronize information with master data repositories (including customers, suppliers, partners, etc.).
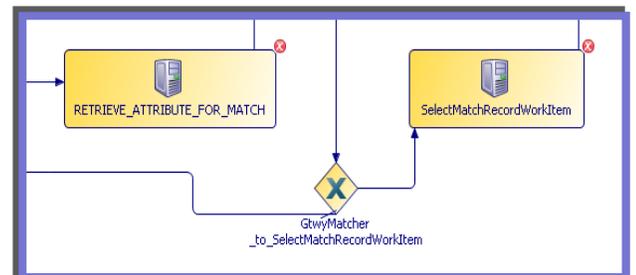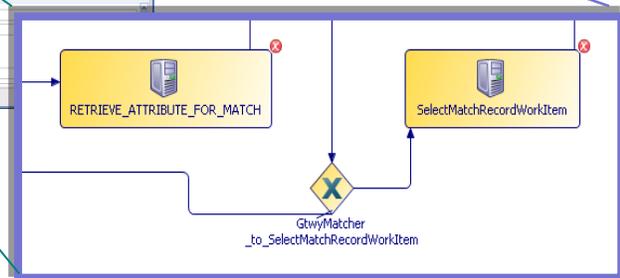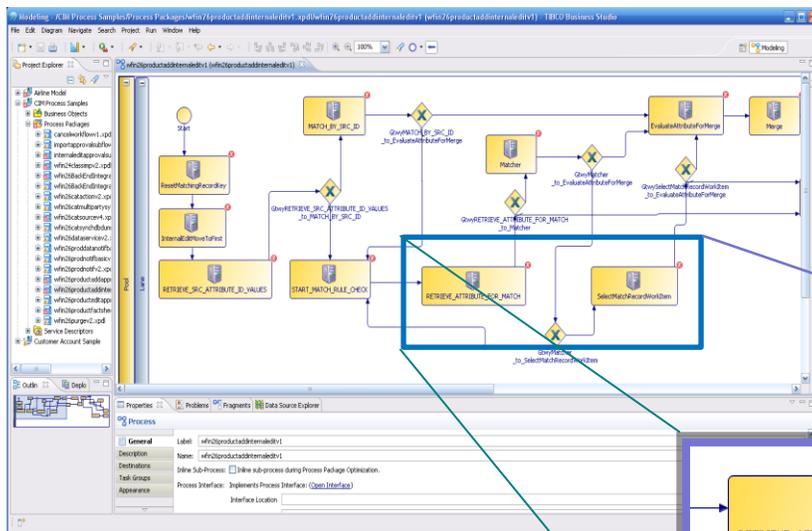
Real-Time MDM

Working in conjunction with the multiple, heterogeneous systems that affect or use repositories, TIBCO MDM ensures master data remains accurate and consistent throughout systems (including those that extend across the value chain).

It also provides real-time visibility into the effectiveness of business processes and performance measures, as well as maintains the status of all synchronization – both with internal systems and external trading partners (state-full synchronization).

Functionality Includes:

- Strong and flexible capability to integrate (via push or pull) to internal applications:
    – Real-time integration with a customers' EAI/ESB infrastructure
    – File-based integration using FTP (other mechanisms also supported)

- Automated external data synchronization with vendors through multiple channels:
    – TIBCO web-based interface
    – Direct communication with external parties via a variety of data formats and transport protocols (ASCII, XML, .CSV. Excel, etc. via FTP, HTTP, SMTP, etc.)

Visual MDM

When it comes to data, visual representations can shine light on previously overlooked insights. By providing dynamic access to all master data management activity, TIBCO MDM can help organizations gain greater visibility into business drivers, such as data acceptance rates, process effectiveness, and new data introduction success rates.

Reports can also be generated to provide real-time visibility into the effectiveness of business processes (including performance measures, data quality, and data evolution). The solution audits all changes to data and events along the way, logging human and system activity that can be reported on through the applications user interface or through other analytics reporting tools (including TIBCO Spotfire®, IBM Cognos, and SAP BusinessObjects) for process improvement, data lineage, quality audits, and compliance.

TIBCO MDM analytics also provides standard views using the data and processes being used by the application.
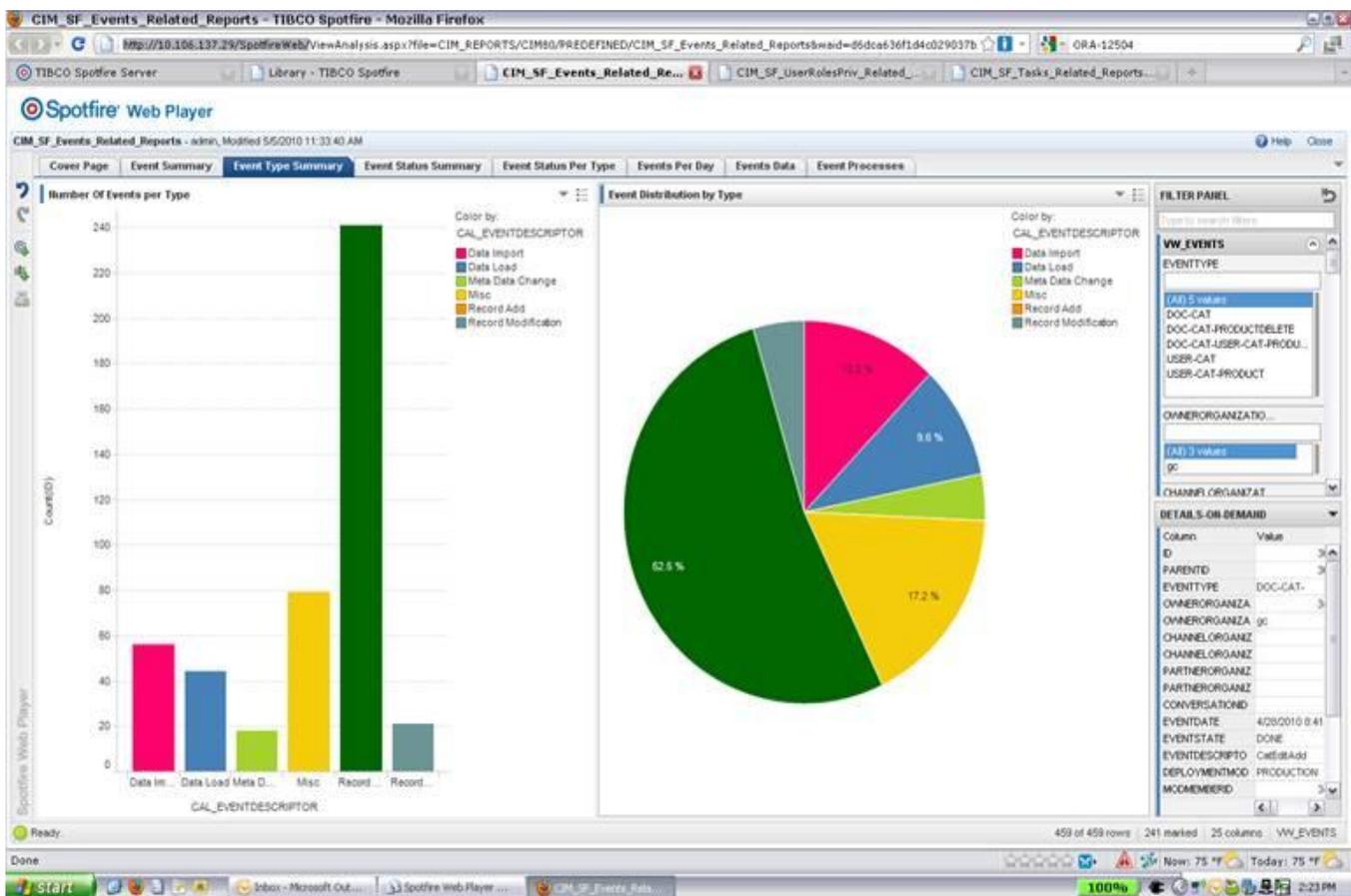
MDM FOR BIG DATA

Behind the scenes, TIBCO MDM plugs seamlessly into any standard integration bus to connect MDM with other enterprise systems. It is also used to decouple components and guarantee data is delivered to and from systems in an asynchronous manner.

With this bus-based integration approach, data located in external systems and sources can access and populate master data repositories. To ensure data is similarly formatted, information structure is analyzed and transformed as it flows up or downstream to various systems.

As data volume in today's ever-changing world ebbs and flows, TIBCO MDM can scale both horizontally and vertically to accommodate and meet future data demand:

- **Horizontal Scaling:** Application performance can be boosted by adding more memory and/or more processing power. In practice, we have observed near-linear scaling of application performance by the addition of more processing power.

- **Vertical Scaling:** As TIBCO MDM is a unified database, workflow and integration solution, additional applications, organizations, and data domains can be added without an impact on production performance.

Technical Details | TIBCO MDM:

- Is a standard J2EE application built on top of a relational database with a relational schema; no proprietary technology or schemas are used. As the application is completely metadata driven, standard app server and database scaling techniques can be applied.

- Embeds a cache that can be distributed across app server instances to further boost querying and validation throughput.

- Architecture is event-based and supports calling out to external services and applications. Additionally, TIBCO MDM web service API provides support for external apps to leverage the application's data and functionalities.

- Embedded JMS client can leverage enterprise service bus' (ESB) for scalable bus-based integration and distribute data loads, rather than multiple point-to-point interfaces.

- Provides various integration touch points for external applications like data quality tools to interact with the application in a scalable and standard way.

Leveraging the company's leadership and expertise in SOA environments, TIBCO has culled its strength in distributed, open, real-time, and event-based technologies to form the architecture of TIBCO MDM. As extensive web services API exposes the data, metadata, and application functionality to external services, TIBCO MDM services can to be included within a composite application.

Further, an embedded distributed cache supports high throughput of data for importing and exporting of large record sets, validating large record sets, and serving up of information in high volume – critical to supporting high-volume, distributed environments common to an SOA.

Additional Unique Features:

- **Extensible Data Model:** Providing extendibility in both data model structure and services (a key area of strength for TIBCO), we offer a configurable data model designed to meet an organization's specific needs.

  For example: we can start by importing an industry-standard model, such as a global data synchronization network (GDSN), an ACORD-based data model, and/or any existing metadata that is required. This can then be augmented from the general user interface (GUI). Under the hood, TIBCO MDM automatically generates the necessary tables and columns to reflect the logical model created.

- **Multi-Repository Relationships:** TIBCO MDM not only supports relationships with a single repository, but also across multiple (a unique capability of this solution). Thus, users can create customized and specific relationships between records located in the same repository or across multiple repositories.

  Rules and inheritance can create associations between parent and child (product/category) or link peer to peer (product/vendor). This can also be both 1 to 1 and 1 to many. Not only can relationships be built between a vendor and organization, this can also be extended to include products.

- **Customizable Classification:** Based on users' own unique preferences, they can customize classification hierarchy trees based on their how they want to view the data via attribute values (i.e. by organization unit, brand etc.). Featuring dynamic updating, if the data changes, the hierarchy tree will automatically shift in parallel – which means users no longer need to manually move nodes.

- **Add, Customize, or Extend Services:** As rules and processes are configurable either from the GUI or by going directly against the XML, pre-packaged services will reflect this dynamically.

- **Supports Hot Deployment:** Changes can be made on the fly and with minimal disruption to the business. Both functional and highly granular web services (including CRUD services) are provided out of the box, delivering a greater degree of flexibility in accessing and controlling functions from outside the application.

  This also yields a master data services platform to support SOA initiatives that need reliable access to accurate and consistent data. Further, web services are stateless and lightweight for high performance; they support single sign-on.

- **Unified Web Services:** A key differentiator with TIBCO MDM is that the same web service can be used across all data entity repositories including a user's unique attributes, relationships, etc. created within repositories. While the web services definition stays the same, the response from the call is different based on the parameter values sent.

About TIBCO

TIBCO Software Inc. (NASDAQ: TIBX) is a provider of infrastructure software for companies to use on-premise or as part of cloud computing environments. Whether it's optimizing claims, processing trades, cross-selling products based on real-time customer behavior, or averting a crisis before it happens, TIBCO provides companies the two-second advantage™ – the ability to capture the right information at the right time and act on it preemptively for a competitive advantage. More than 4,000 customers worldwide rely on TIBCO to manage information, decisions, processes and applications in real time.

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