Frameworx Standard

Business Process Framework (eTOM)

Cognizant

TM Forum Frameworx 20.0 Certification

Business Process Framework (eTOM)

Self-Assessment Process Mapping Report

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Process Decompositions & Descriptions

1.3. Customer Management Domain

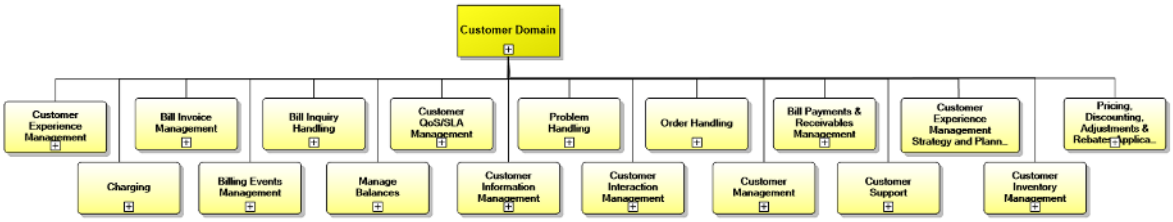


Figure 1 1.3. Customer Management Domain

1.3.6 Customer Information Management

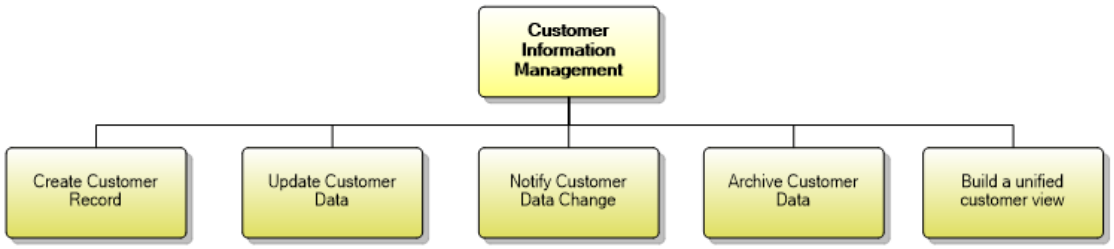


Figure 2 1.3.6 Customer Information Management

Create Customer Record

Process Identifier: 1.3.6.1

Brief Description

Create a new customer record in the customer inventory.

Extended Description

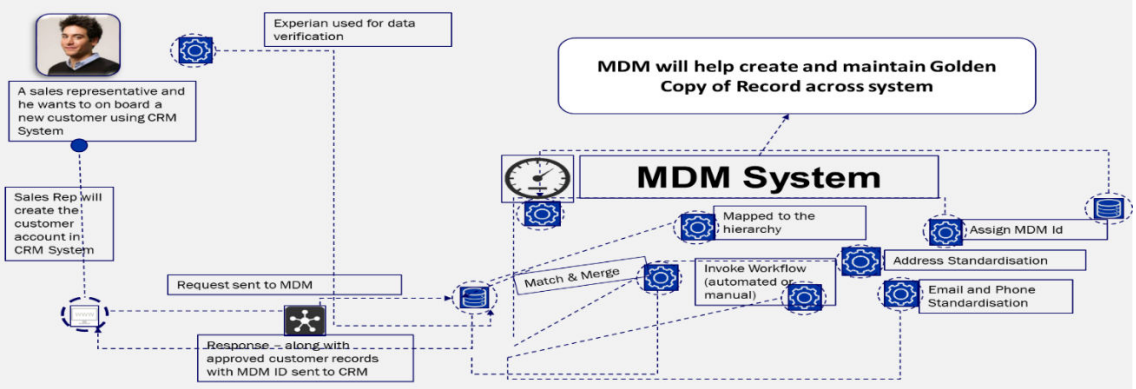
The purpose of this process is to create a new customer record in the customer inventory. This process follows the processes in Establish Customer Relationship that make sure that a single record is created for each customer, and it persists the customer data in the customer inventory. **AM**

Cognizant's solution will have Customer MDM as center stage for creating and unifying by creating golden record of customer across multiple disparate systems. Unified Golden record will be used for validation by any system which is responsible of on-boarding a customer.

Golden copy of customer record will also enable downstream system in Enterprise, with unified 360 degree view of customer profile. With unified customer profiles systems will be able to get insights which will help to

improve customer experience, pricing strategy, customer service experience etc. Customer Onboarding process will have embedded workflow to integrate with Customer MDM for Golden Copy of records.

In Below example, customer is on boarded into Customer Relationship Management (CRM) system and Golden copy of record is generated using Customer MDM system.



As depicted in diagram above, whenever a new customer is ***on-boarded*** in CRM or any Other System, it will be validated against the Golden Copy Records in the MDM system. If the record in MDM system exists, approved customer record with MDM id will be send to the source (CRM) system.

In Master Data Management (MDM) a golden copy of records are created by sourcing data from different sources, to create a Golden Record with unifying customer definition from different source systems.

Key Components of the MDM Systems for creating golden copy of customer records are as follows:

- Integrating data from different sources.
- Standardize the data received like Address Standardization, Phone & Email Standardization
- Match & Merge algorithms based on Survivorship
- Data Model to store customer records and changes
- Outbound Integration through APIs & File System

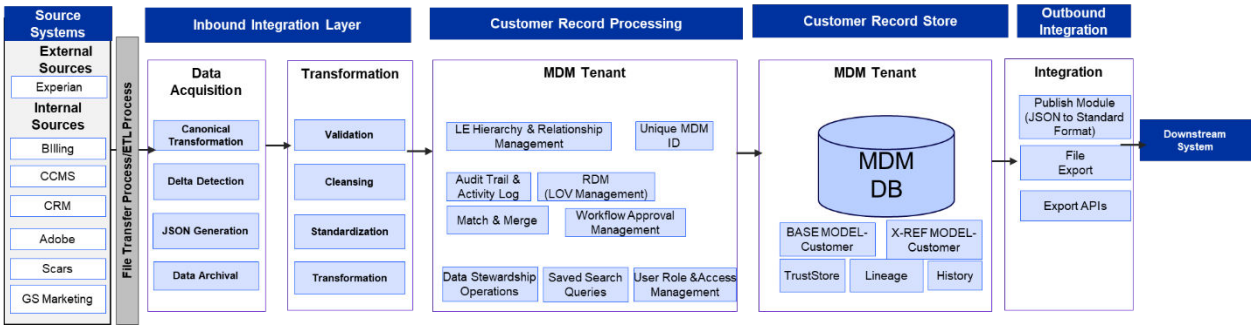
Unified Customer Records will be used by system to improve customer experience management, Bill Invoice Management, Bill Inquiry Handling, Problem Management, Order Management, price improvement etc.

~~Extended~~ Detailed Support ~~Description~~

For Telecommunication companies, customer data is more often than not scattered and maintained in multiple systems (CRM, ERP, Billing, etc).Without trustworthy data and insights, companies can't provide the personalized and consistent experiences individuals and businesses have come to expect.

Customer Master Data Management (Customer MDM) will consolidate customers by consolidating, cleansing, enhancing and governing customer data. MDM system will enable deeper insights into consumers' history and preferences, while providing end users a consolidated view of their direct and indirect customers.

Architecture diagram shows the creation and management of customer records in Master Data Management (MDM)



- Customer Data is sourced from different source systems (Experian, CRM, Billing, CCMS, ERP, Adobe Campaign, GS Marketing database) either in batch(scheduled as per desired frequency e.g. daily/weekly) or in real time (Rest APIs). Deltas are identified from source system to process records incrementally.
- Business Rule framework will be implemented in transformation layer to have the rules defined that is configurable based on entities, attributes/fields and source system as per needs. The rules will be configured based on different channels and universally. These rules and corresponding data changes will also be stored in integration layer for analysis purpose.
    - Record Standardization rules to standardize address, names.
    - Data quality cleansing rules from different source systems are applied to identify and cleanse duplicate records. Data Profiling will setup the cleansing and standardization rule to be applied on customer records
    - Identification of suitable segment will be done by rule engine at the inbound integration layer based on demographic information
    - Define Data Quality Metrics for monitoring of data quality and identifying anomalies and apply solution fixes to improve data quality in real time.
    - Each Legal entity can be identified in solution to indicate the role of it in the legal/corporate family tree i.e. Ultimate parent, parent, headquarters, subsidiary i.e. organizational decomposition, functional decomposition or location-wise decomposition. This role will help to build the hierarchy of the corporate family tree of the corresponding Legal Entity
- Survivorship framework will enable source priority to survive either the entire master data record or any of its attributes.
- Solution will use match & merge framework identifies the matches' records and merges automatically based on the configured rule type and survivorship framework to aggregate data coming from different sources and create Golden Customer Record. These entities will have their corresponding identifier information coming from different source in addition to the basic information, address, communication etc. Different states of both entities will be maintained in an attributes field 'Status' e.g. Active, Inactive, Out of Business; black listed (due to sanctions) etc.
- The Golden records and X-Ref records will be stored in the MDM data model. The data model will have the fields/attributes to store all the mentioned information and the same will be available in UI for data stewards to view and analyses based on their access/privileges. This information will also be published to downstream applications in batch or real-time (through API).

- Role and Security' framework will be implemented for access/privileges on entities to data stewards based on roles. In addition to that, there will be rule defined whether these entities will be updated directly or through approval process based on these states/status.
- Solution also maintains an audit trail information stored in integration layer to identify how the data changes are happening based on the rules with version control.
- Solution has file based (batch) and API for Outbound Integration with source and downstream systems

Update Customer Data

Process Identifier: 1.3.6.2

Brief Description

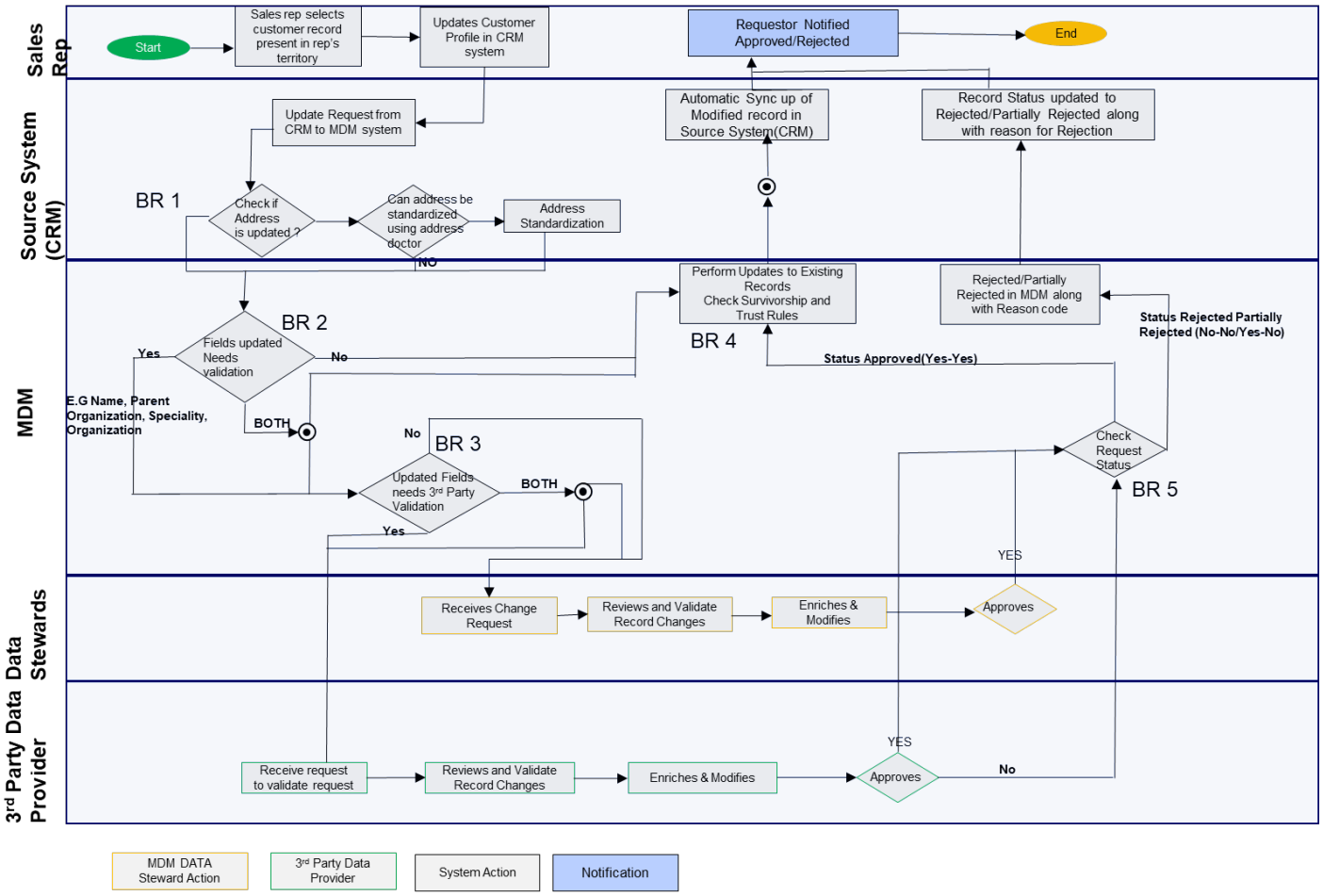
Update the customer data in the customer inventory.

Extended Description

The purpose of this process is to update the customer data in the customer inventory. This can happen as a result of direct notification from the customer, as a result of information gathered as part of other processes (such as selling and order handling) or as a result of back office processes (such as customer data cleansing) .

AM

Cognizant's solution has a process flow that captures how customer profile changes/updates are made by system owners/sales rep in source systems like CRM and how they are validated in MDM in order to store and maintain the latest, standardized customer profile which is used across systems. Steps in Managing Customer process flows as follows:



- Change Owner of source systems for example Sales Rep selects customer and its profile present in their territory and makes updates/changes to the editable fields in the source system.
- This triggers an Update process in MDM system by the source system through an API (integration with CRM/Other systems)

- If address field update is found, it is first standardized using address doctor in markets where address doctor is available
- MDM checks if the changes requested are for fields needing additional Approval/Validation
- If additional Approval/Validation is required (for attributes such as Professional registration number, etc.), MDM then checks whether 3rd Party Data Vendor Validation is applicable for the request
- If additional Approval/Validation is not required (for attributes such as phone number, email, fax, etc.), the updates are automatically applied in MDM and auto-synced with source system such as CRM
- Depending on the validation requirements, the update request is either sent to MDM Data Steward Team or to 3rd Party Data Vendor for Review, Enrichment and Validation (Approve or Reject the request)
- Updates in MDM are auto-synced with CRM for customer records with existing CRM ID
- Validation Rules applied are defined in the below table.

Validation Rule No	Rule Type	Validation Rule	Auto/ Manual
BR-1	Check Address Update	Check if address fields have changed: **Street Address, City, Zip code**	Auto
BR-2	Validation Check	Check changes for attributes needing approval: **First Name, Last Name, Registration No, Academic Title, Specialty, Additional Specialty, Parent Org Name, Address, Additional Org Name** Auto-approve attribute changes for: **Salutation, Segment, Sub-segment, Phone, Email ID, Fax, Extension**	Auto
BR-3	Validation Check	Check attribute value changes for 3rd Party Data Vendor maintained fields in 3rd Party Data Vendor Markets: **3rd Party attributes – First Name, Last Name, Specialty, Parent Org Name, Address** **Customer Market/Country - Reference list of 3rd Party Markets/Country in MDM:** • UK & Ireland • Germany & Europe • Benelux	Auto
BR-4	Trust and Survivorship	Check update override – Trust level and Survivorship rule by Source: • **3rd Party Data Vendor – MEDIUM** • **CRM (Sales Rep) - HIGH**	Auto
BR-5	Request Status Check	Check Request Status before Update or Reject: • **"Update", if request Status "Approved" by both MDM Data Steward and 3rd Party Data Vendor** • **"Reject"/"Partially Reject", if request Status "Rejected" by either or both MDM Data Steward and 3rd Party Data Vendor**	Auto

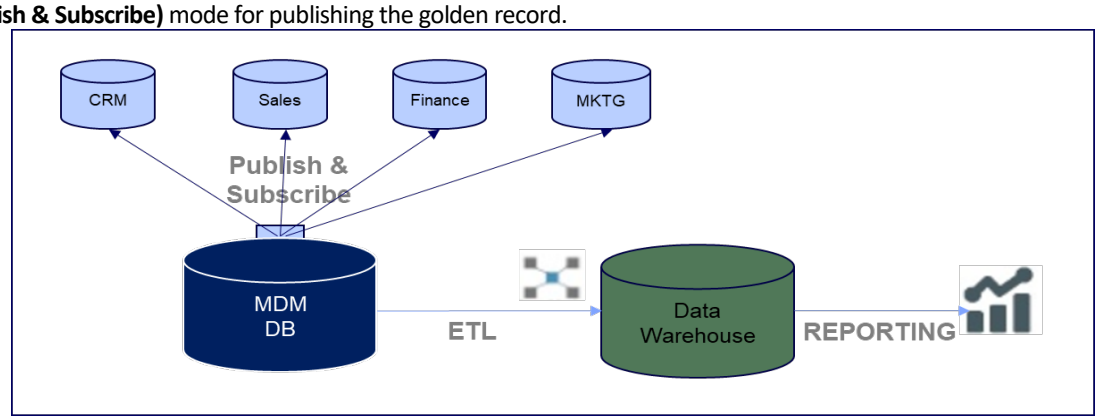
Notify Customer Data Change

Process Identifier: 1.3.6.3

Brief Description
Notify other processes that customer data has been changed

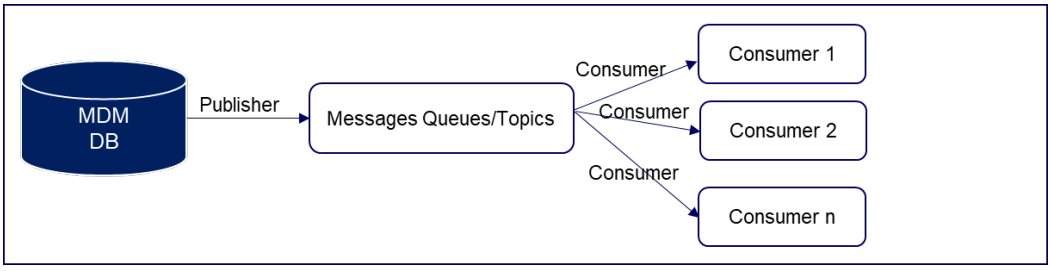
Extended Description
The purpose of this process is to notify other processes that customer data has been changed. Other processes (mostly long-lived processes) might need to know about such changes in order to adapt to such changes. In addition some processes which gather the data for centralized systems (such as Data Warehouse or Master Data Management) should be notified about such changes. **A**

Cognizant solution interfaces with downstream systems (Source &DWH) in both Batch (**ETL**) and Real Time Integration **(Publish & Subscribe)** mode for publishing the golden record.



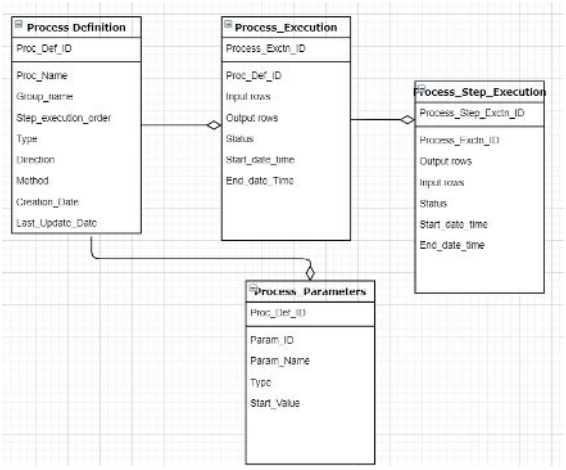
Real Time Integration (Publisher and Subscriber)

Cognizant solution uses pub-sub integration mechanism for real time integration with downstream system. We will push data from MDM tenant to a common publish layer from where all the consuming systems subscribed to the topic can receive the publish data.



It provides an event-driven architecture where events taking place within the MDM (create, edit, delete, merge, unmerge), generate messages that are published to a queue or can be in multiple queues. Consumers receive messages from the queue or poll the queue for unprocessed messages. Clients can connect to the queuing service securely any time, subscribe to a queue they are interested from MDM (for example, to a MDM Customer events queue) and consume messages with CRUD events.

There will be audit trail information stored in integration layer to identify how the data changes are happening based on the rules with version control in the MDM Tenant.



Batch Integration (Publisher and Subscriber)

Batch data load is one of the most common types of integration used by MDM for integration with DWH (Data warehouse systems), which are typically not real time systems (if DWH is real time, it can use Pub/Sub mechanism as described above). ETL Systems identifies the Delta events from Customer Events and publish canonical format in delimited flat files/json to shared storage for consumption by the DWH system. It is important to execute batch operations on a scheduled basis (Nightly/Intra Day). Notification is generated once the file is extracted from MDM System and file is successfully transferred to Storage area accessed by the DWH system (Various notification methods can be applied e.g., Email Notification, CTL Record)

Build a unified customer view

Process Identifier: 1.3.6.5

Brief Description

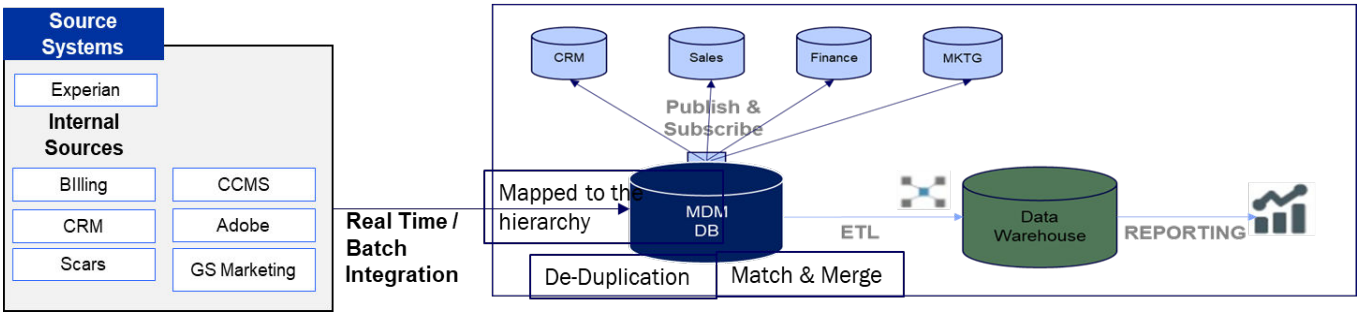
Create a single customer record from the information stored in multiple systems and present a single, most updated record of the customer information. **A**

Extended Description

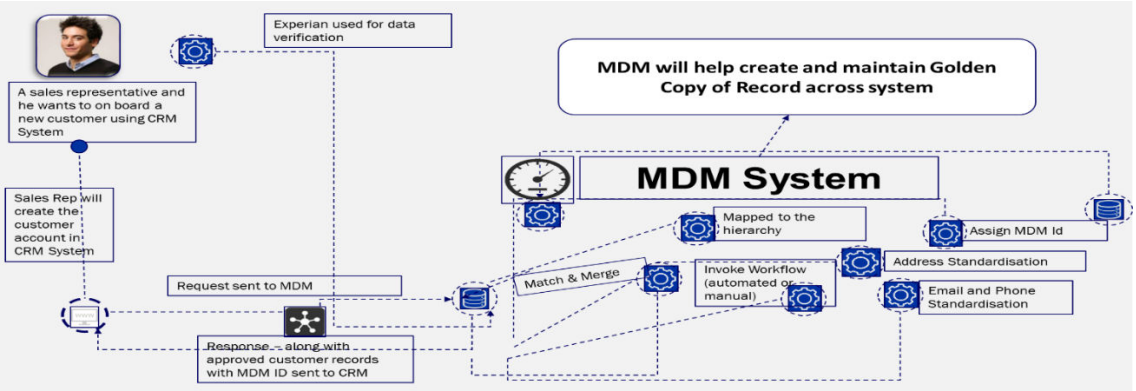
The purpose of this process is to create a single customer record from the information stored in multiple systems and present a single, most updated record of the customer information. This process invokes business rules in order to reconcile the customer data in a single accurate record. This process may be activated immediately upon any update of customer data or may be invoked on request to retrieve the customer data. This process may replicate data from other systems or calculate the unified record on the fly without persisting any customer data. **A**

The importance of 'single source of golden records' will enable customer achieve a single version of truth for their customer across the different line of business. Customer solution will generate a 360o view and will help other systems to use a standardized and common definition across the organization. Integration with clean and standardized customer record, improves decision making with the help of accurate and reliable information with all relations and associations. The solution will enable preferential treatment of the high valued customers, identify cross-sell and up-sell opportunities, enable single consolidated bill for all the services to increase customer satisfaction, single targeting per campaign per customer and enable common credit ratings.

Customer Master Data Management (Customer MDM) system will integrate data from disparate source systems and create a unified Golden Customer record aka Single Customer View (SCV), customers by consolidating, cleansing, enhancing and governing customer data. MDM system will enable deeper insights into consumers' history and preferences, while providing end users a consolidated view of their direct and indirect customers.



Different systems consuming Customer Unified Record (SCV) will be able to subscribe to the MDM system with published APIs in near real time and batch. An example of real time integration with the CRM system is described below: Customer is on boarded into the Customer Relationship Management (CRM) system and a Golden copy of record is generated using Customer MDM system.



As depicted in diagram above, whenever a new customer is ***on-boarded*** in CRM or any Other System, it will be validated against the Golden Copy Records in the MDM system. If the record in MDM system exists, approved customer record with MDM id will be send to the source (CRM) system.