Welcome to the Architect Workshop

Modern Architectural Patterns for Master Data Management

Clement Laborie – Schlumberger
Barry Wildhagen - Informatica
Remy van der Kleij – Informatica

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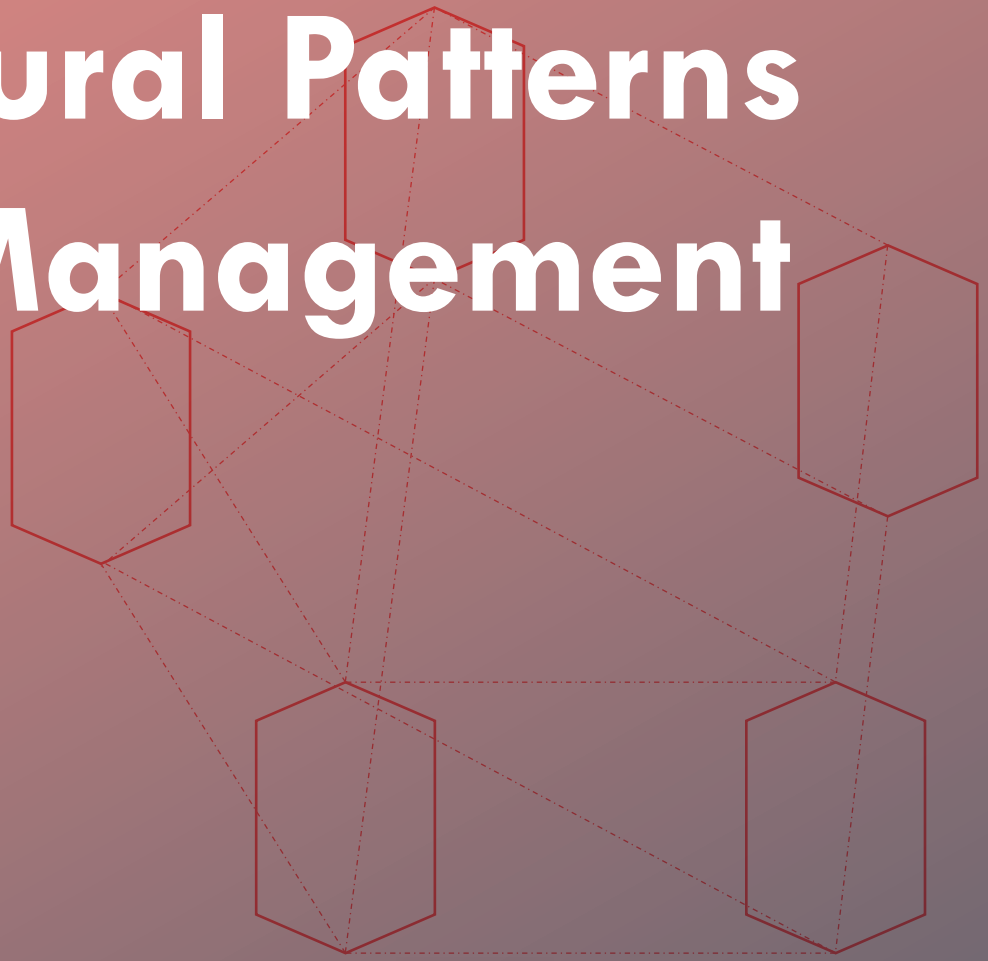
Modern Architectural Patterns for Master Data Management



Remy van der Kleij
Solution Architect
Informatica

Barry Wildhagen
Product Specialist
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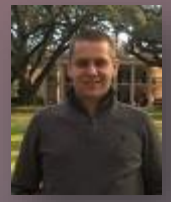
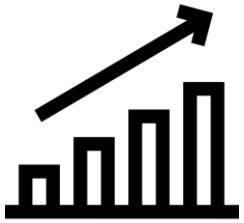
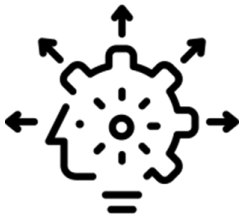


Clement Laborie
MDM - API Product Owner
Schlumberger

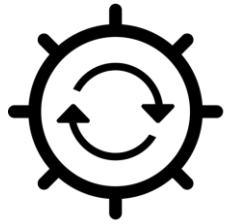
Agenda



Introduction and Evolution of MDM Architecture Patterns

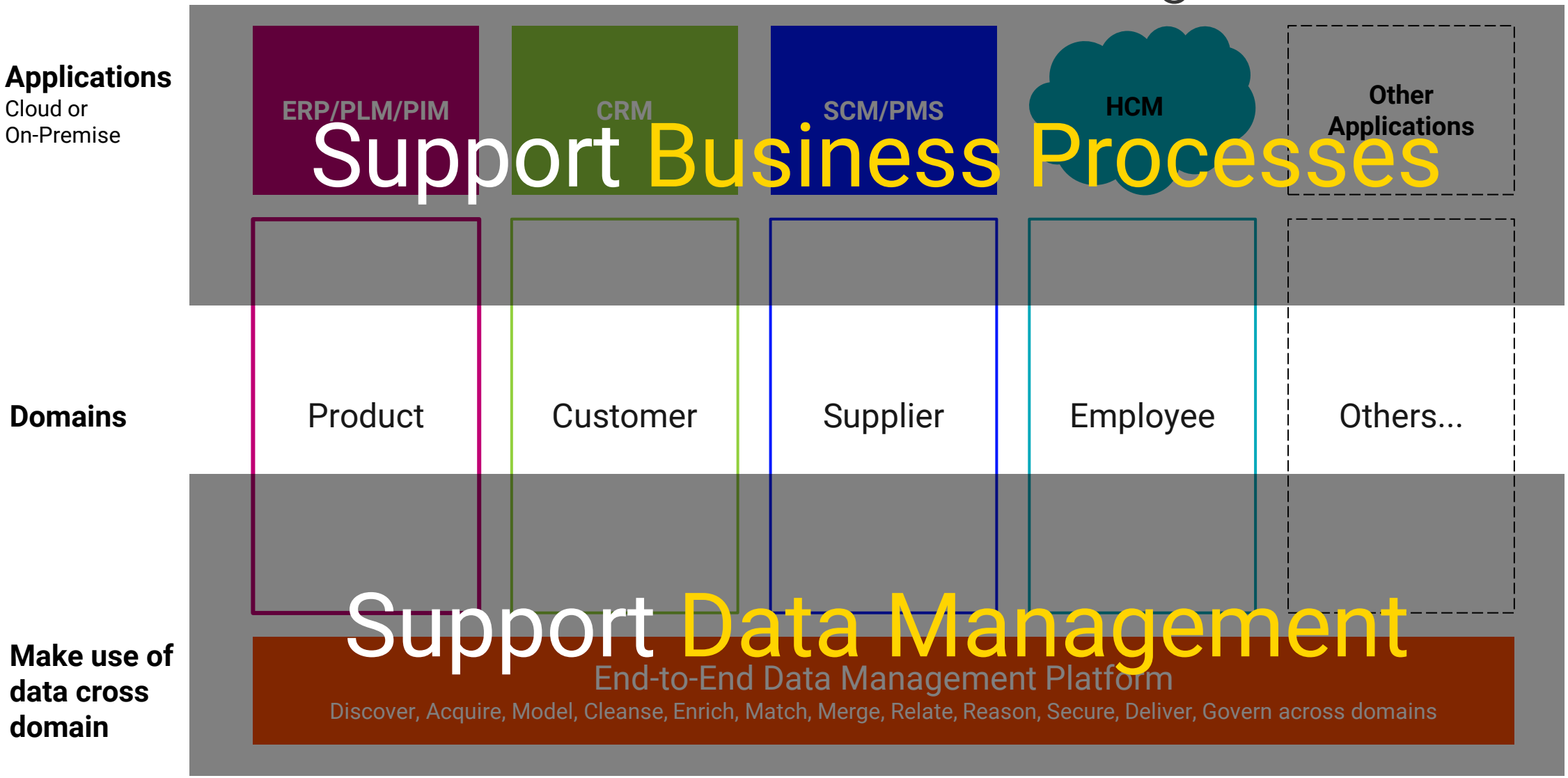


Modern MDM capabilities and implementation styles

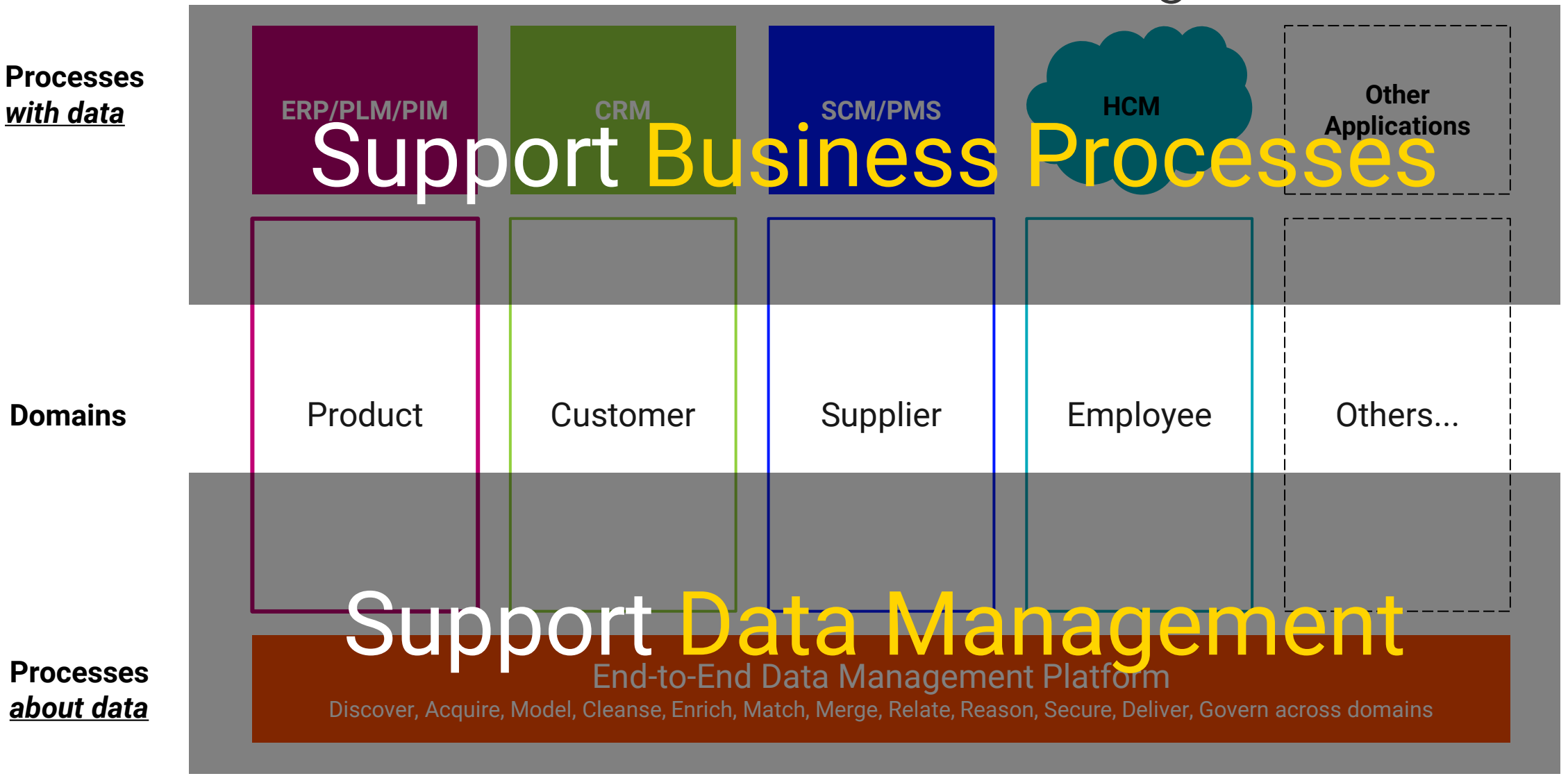


How Schlumberger modernized their MDM Landscape

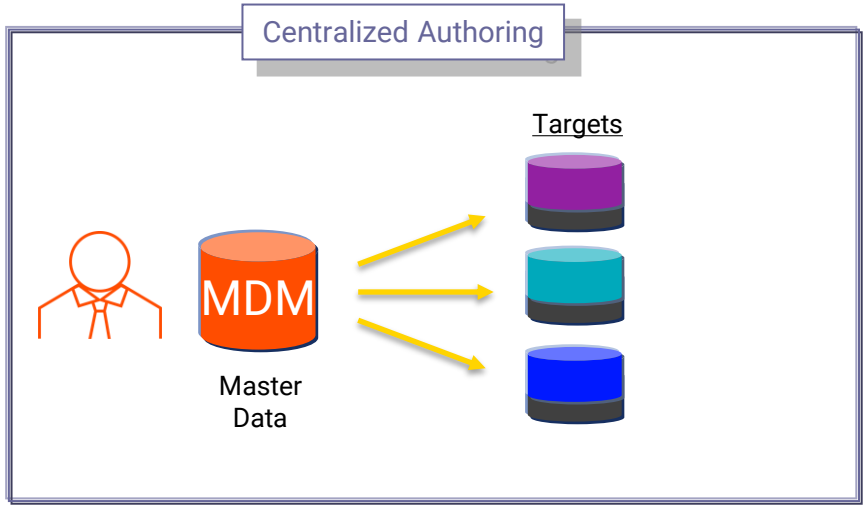
Business Process vs. Data Management

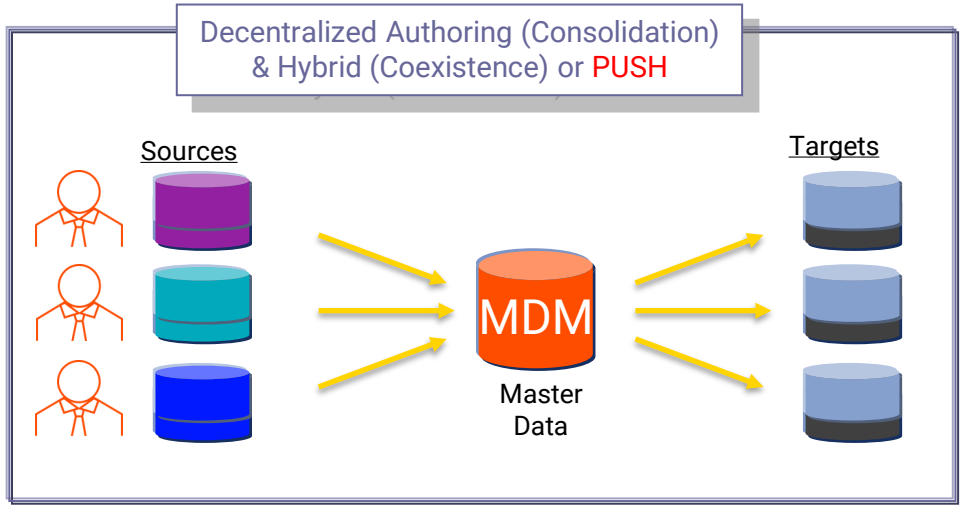


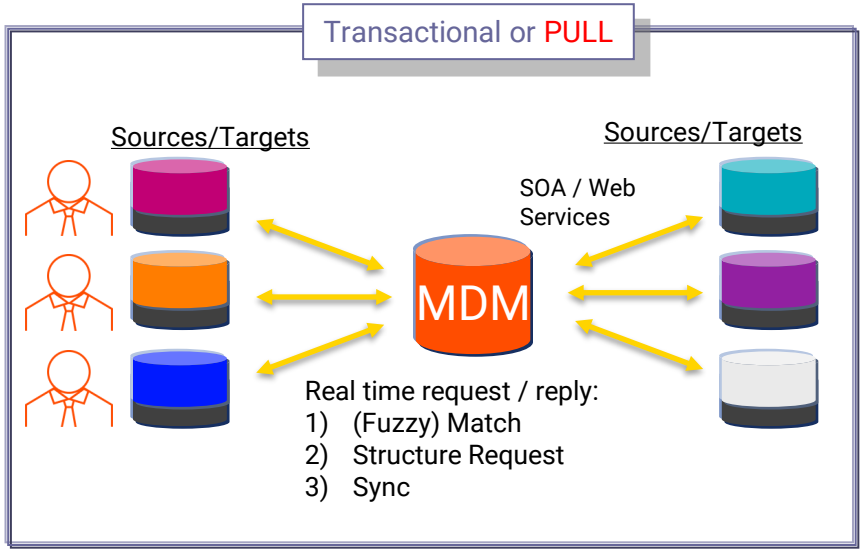
Business Process vs. Data Management

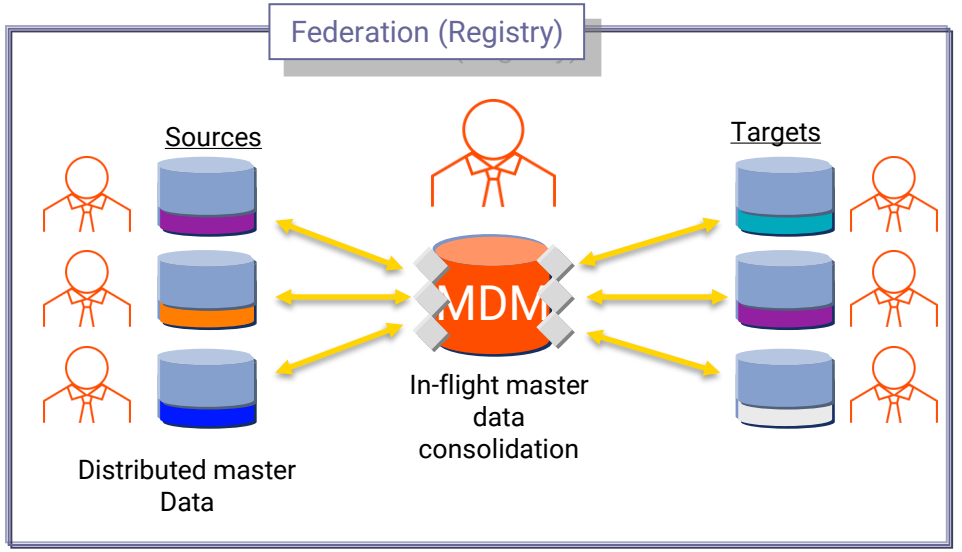


MDM – Deployment Styles









How customers implement KYC & AML with MDM

Customer wants to create a bank account

Customer fills details in Digital Portal

KYC/AML App

API

Customer KYC Checks are performed, and Customer is onboarded

In parallel the customer master is also created in MDM

Customer has multiple interactions with different internal and external applications which enhances the golden record in MDM

KYC App requests golden record from MDM

Customer wants to request for a mortgage

Customer fills Mortgage Form

KYC App

Case gets created

KYC App

Customer Due Diligence (CDD) process is kicked off

Master Data Management

Cleanse | Enrich | Match | Merge | Relate

KYC App

- CDD
- Risk Assessment
- Controls and Audits
- AML Monitoring

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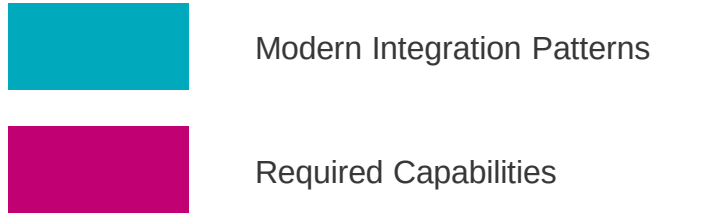
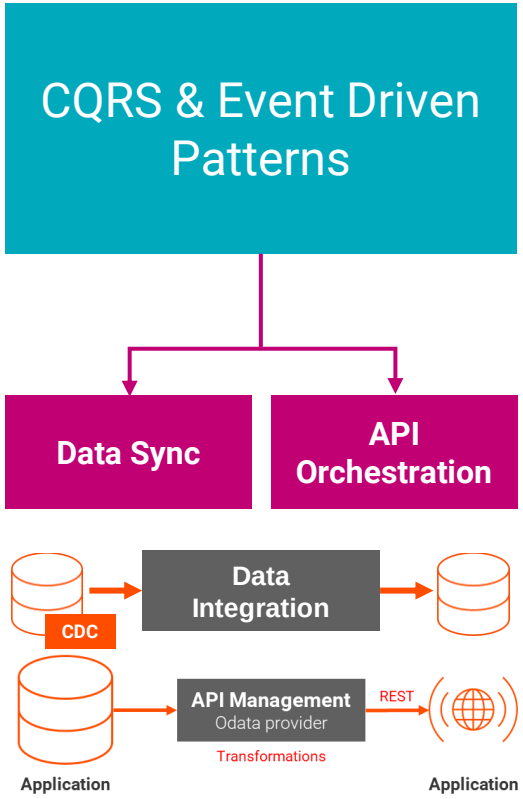
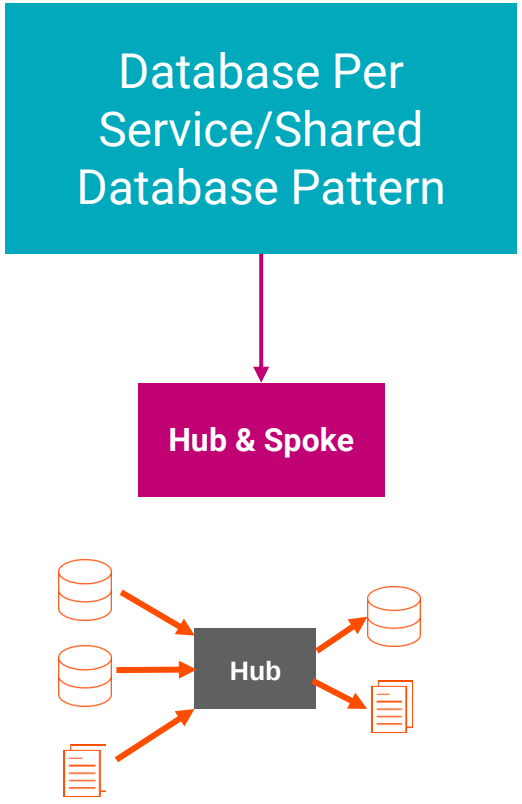
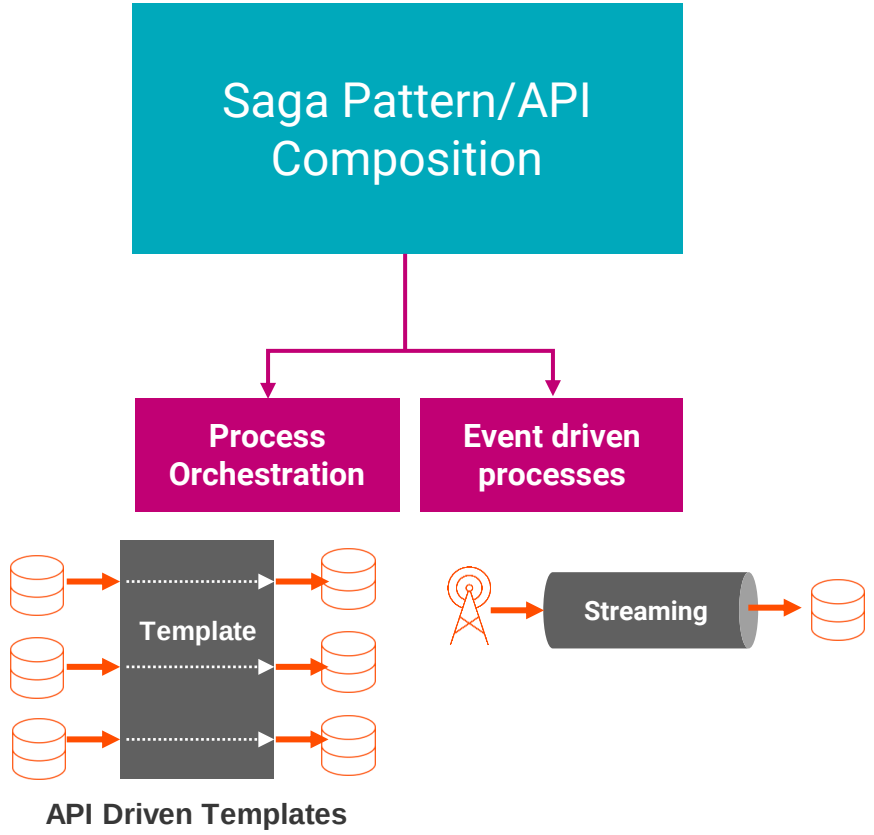
Modern Integration Patterns









May 5, 2021

Modern MDM capabilities and implementation styles

Barry Wildhagen

Principal Product Specialist

Informatica

TRACK RECORD OF INNOVATION-DRIVEN DISRUPTION

Market Need

Response

2015

Business 360
MDM shifts from IT to LoB to drive mission critical business processes

CDW, DL
Launched industry's first big data management product line running on Hadoop

2016

DG & P
Accelerating adoption of big data driving demand for indexing and organization of data lakes for analytics and compliance

Business 360
Accelerating demand for out of the box MDM driven applications for the LoB

DW, L & App Modernization
Released industry's first enterpise iPaaS delivering multi-pattern integration via CDI, CIH, CB2B, and CAI

Business 360
Launched industry's first integrated end-to-end MDM spanning DI, App Int, DQ, Matching and Survivorship

2017

DG & P
Governance expands beyond documentation to operationalization for regulatory compliance

DW, L & App Modernization
Launched Big Data Management with native pushdown for Spark

DG & P
Acquired Diaku and delivered industry's first integrated end to end enterprise data governance with Axon, EDC, IDQ, DEQ

Business 360
Developed and launched Relate 360 starting the foundation of CDP and industry's first big data scale matching and linking

2018

DG & P
Regulatory compliance focus shifting to privacy across all industries and geographies
Data Governance shifts and expands to enable big data analytics

Business 360
Shift to Cloud accelerating demand for MDM driven solutions

Business 360
Launched and scaled multi-domain cloud hosted MDM as a Service

2019

DW & L Modernization
Growing maturity of cloud analytics use cases driving demand for more integration patterns to rapidly ingest data into the cloud

App Modernization
Growing use and dependance on APIs driving governance & security

DG & P
Launched industry's first cloud data quality with business user focused interfaces with seamless integration to Cloud DI

2020

Business 360
Shift to Cloud accelerates

Business 360
Simplify understanding of complex relationships between business entities

App Modernization
Cloud accelerating internal and 3rd party application modernization

App Modernization
Dearth of API skills in enterprise slowing digital programs, success and business outcomes

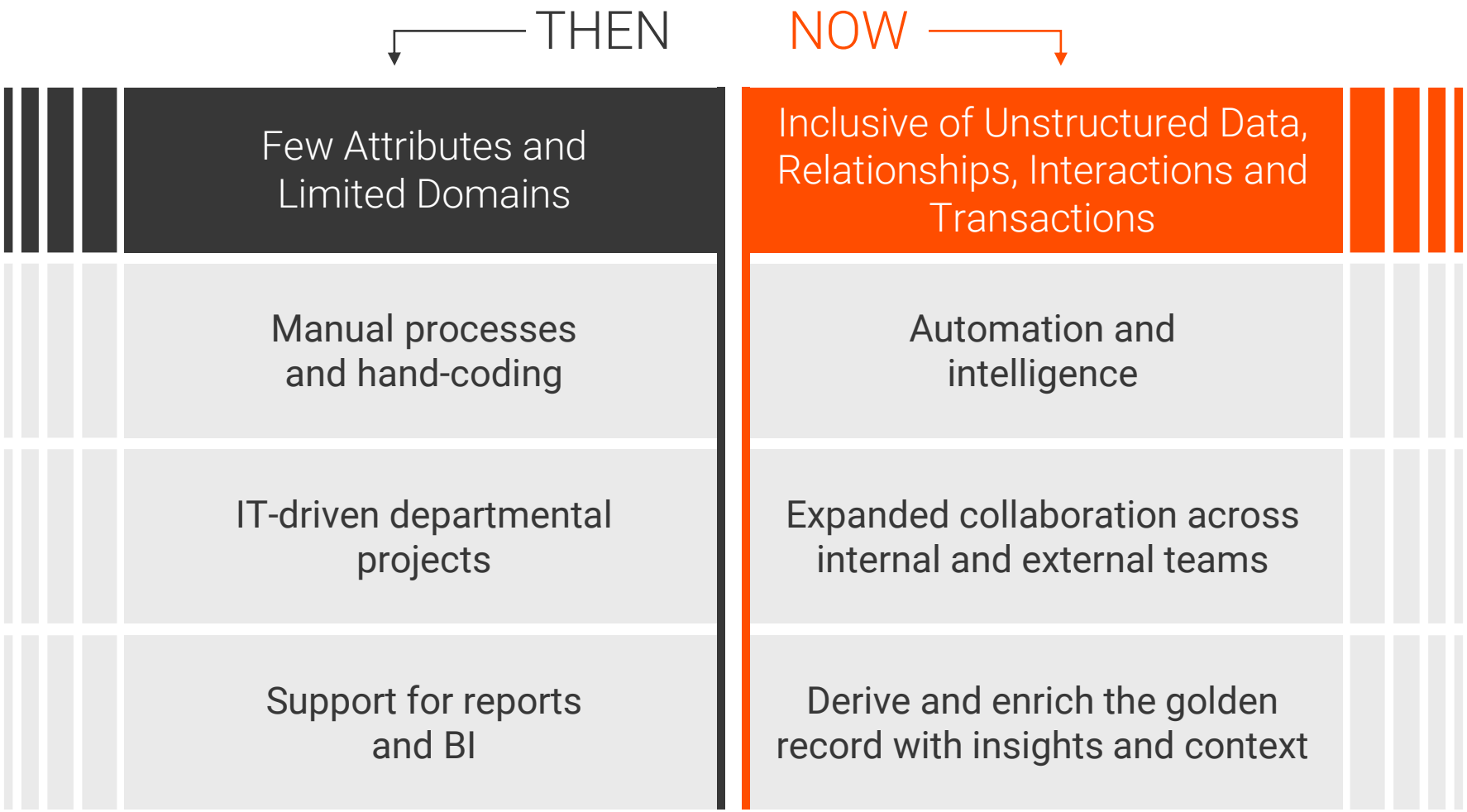
App Modernization
Launched portal for API and B2B partner discoverability to simplify and accelerate adoption of API and no code, no build integration capabilities

Business 360
Graph and AI relationship inferencing in all MDM solutions

Business 360
Launched Customer 360 SaaS

Business 360
Delivered simplified pricing and packaging with consumption based pricing—Reference 360

MDM Has Changed



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Trends in MDM

1. Demand for Multi Domain MDM is on the rise
2. Accelerated move to the Cloud
3. Contextual MDM for connecting transactions & interactions
4. Use of AI and ML to simplify MDM
5. Modern Integration patterns for MDM
6. Combine MDM and Governance
7. MDM for ERP transformation
8. All in One capabilities

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Demand for Multi domain MDM is on the rise

- Single view across every function
- Master beyond customer and product domains
- MDM that can support current and future domain requirements

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Trend 2

Accelerated move to the cloud

- Cloud first mindset
- Microservices-based and “all-in-one”
- Scale and cost advantages
- Designed for business users

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Other considerations…

- Infrequent upgrades
- Monolithic architectures
- “Noisy neighbors” in multitenant architectures
- Limited innovation
- Multi-vendor approach

https://blogs.informatica.com/2021/02/03/5-pitfalls-of-legacy-cloud-master-data-management/

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Topics Trending Authors

Lesley Hanly
Feb 3rd, 2021
Master Data Management

customer 360

Total Customer Relationship Solutions

Learn More

5 Pitfalls of “Legacy” Cloud Master Data Management

Not all cloud MDM systems are created equal. Although the term “legacy” is most commonly equated to on-premises systems, the same principles can be applied to the cloud. Legacy cloud systems, typically built prior to 2015, are not the same as cloud native systems. But what does the term “cloud native” mean, and why is it so important? The Cloud Native Computing Foundation provides an official definition:

“Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.

These techniques enable loosely coupled systems that are resilient, manageable, and observable. Combined with robust automation, they allow engineers to make high-impact changes frequently and predictably with minimal toil.”

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Contextual MDM for connecting transactions & interactions

- Combine master and non-master data
- Rich Business 360 views
- Blurring lines between MDM and e.g. Customer Data Platform (CDP)

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Use of AI and ML to simplify MDM

- Scale stewardship with intelligence and automation
- Metadata-driven automated match tuning, data model and mapping recommendations
- Next best action for business users

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Modern integration patterns for MDM

- New source and target ecosystems
- Transaction/Interaction data drives new latency requirements
- Master data curation and orchestration

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Trend 6

Combine MDM and Governance

- Ability to document data definitions, processes, policies, rules and metrics
- Seamless integration to enforce execution of rules and policies in MDM and ability to track metrics
- In high demand for Reference Data Management

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MDM for ERP transformation

- Rationalize and improve master data quality for ERP transformation
- Manage and synchronize data between ERP systems

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Using Master Data Management to Ensure Successful ERP Migrations

- Manage and synchronize data between ERP systems
- Rationalize and improve master data quality
- Use master data to make business processes more resilient
- Centralize and streamline internal and external data onboarding

https://www.informatica.com/about-us/webinars/reg/using-master-data-management-to-ensure-successful-erp-migrations_2404575.html

Summary

Reduce Risk & Make Business Processes More Resilient

ERP migrations typically require two or more ERP systems to function simultaneously for a significant amount of time—meaning that data quality and data synchronization are key to project success.

"Using Master Data Management to Ensure Successful ERP Migrations" shows you how to move your ERP migration project forward with Informatica MDM. You will learn how to:

- Manage and synchronize data between ERP systems
- Rationalize and improve master data quality
- Use master data to make business processes more resilient
- Centralize and streamline internal and external data onboarding

Not registered and interested in signing up? Register by clicking here.

Speakers

Lesley Hanly
Sr. Director, Product Management
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Federico Alonso Bernard
Sr Product Specialist, EMEA 360 Data Management
Informatica

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Trend 8

All-in-one capabilities

- Combine data cataloging, data ingestion, data quality, enrichment, workflows, data security, governance and reference data management into one single solution
- Remove point solutions

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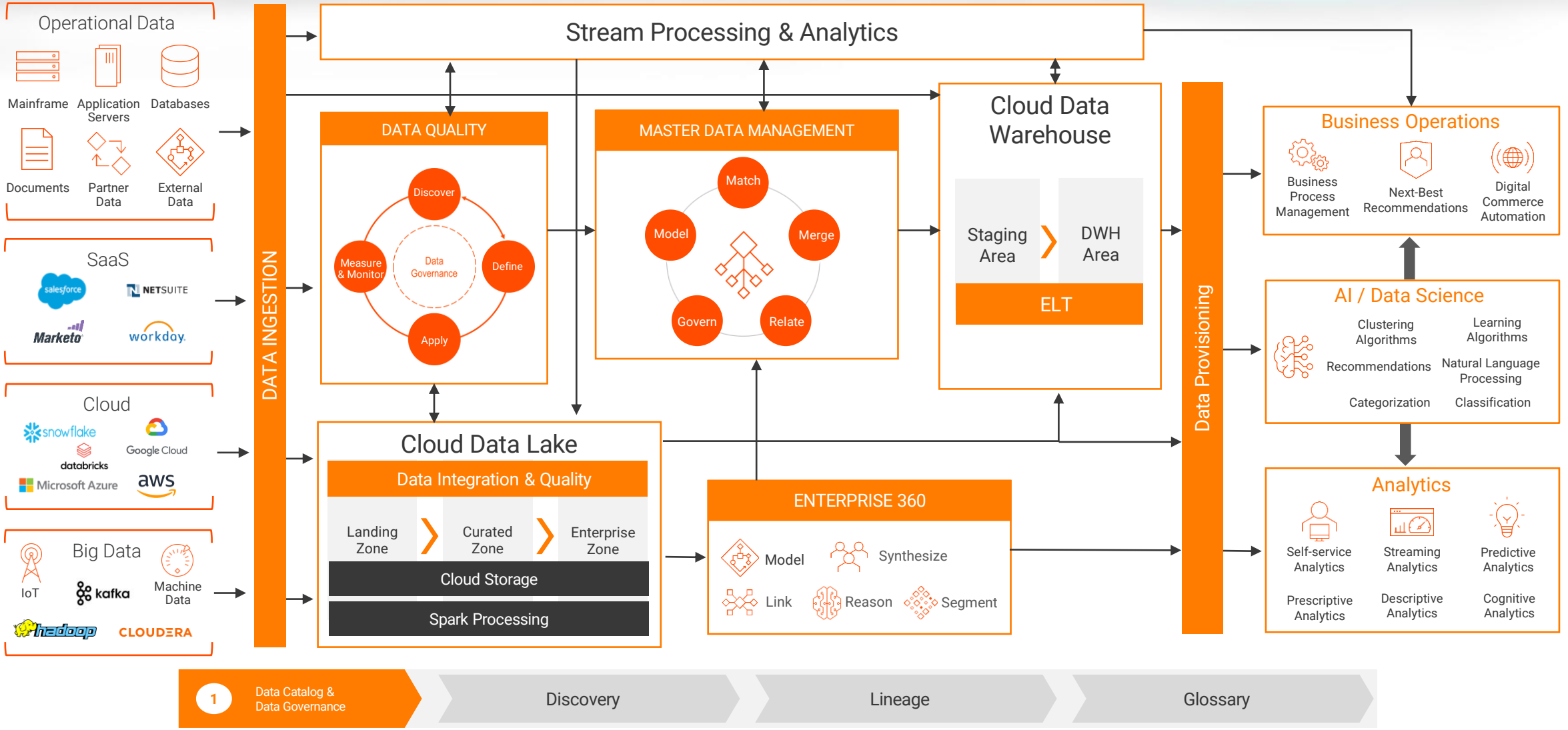
BLUEPRINT: NEXT-GEN ENTERPRISE ARCHITECTURE



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Thank You

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Modern Architectural Patterns for MDM at Schlumberger

Clement LABORIE

MDM - API Product Owner

May 5, 2021

Agenda

- Who We Are
- Our Traditional Batch Process
- Wells Master Data Becomes Real Time
- Our Vision for 2021
- Open Discussion

Schlumberger-Private

Who We Are

Founded in 1926 by two brothers, Conrad and Marcel Schlumberger from Alsace, France, Schlumberger is best known for the invention of wireline logging - a groundbreaking technique used to measure the presence of hydrocarbons in oil and gas wells.

The pioneering attitude of the founders has been the foundation of our success for over 90 years. Today, Schlumberger is the world's leading oilfield services company, providing the most complete range of services from surface seismic to drilling, formation evaluation, well completion and stimulation services, production optimization, reservoir studies, well construction, and project management. We supply our customers with the advanced technologies and expertise required to identify, develop, and manage hydrocarbons effectively.

How Big is the Enterprise, Really?

85 Countries

300 Source Tables

500 IDQ Mappings

100K Employees

420MM XREF Records

480MM Rows of Source Data

33 Domains

70 Source Systems

1,300 Applications

70 Data Professionals

55 Consuming Systems

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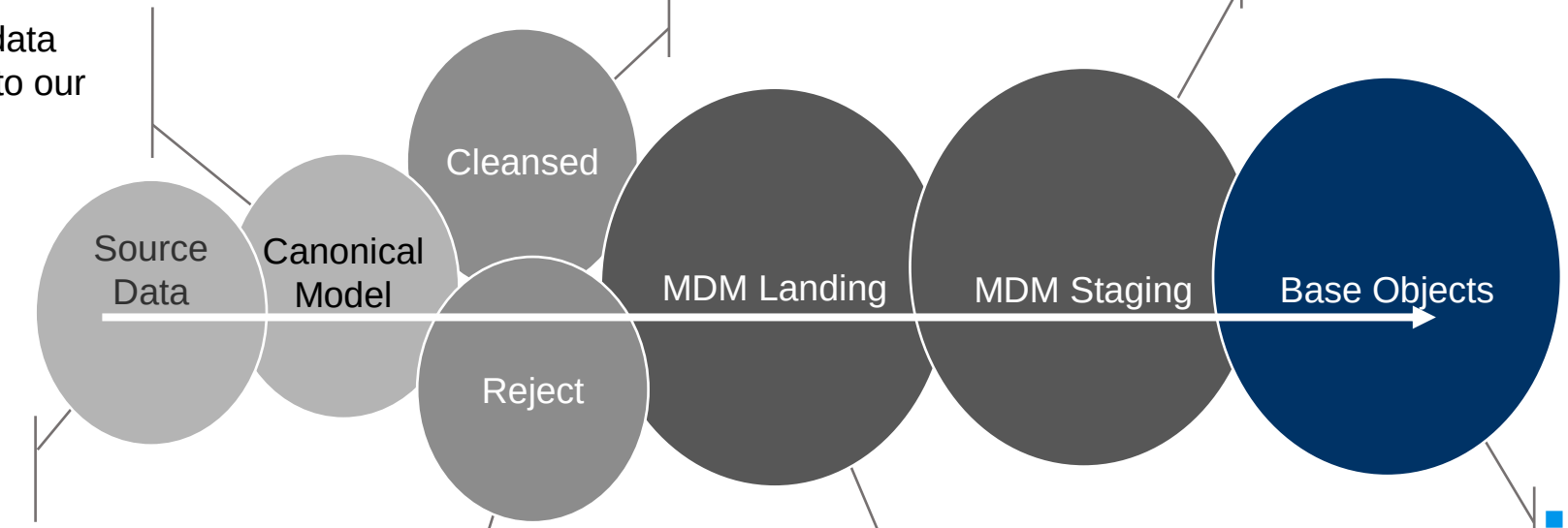
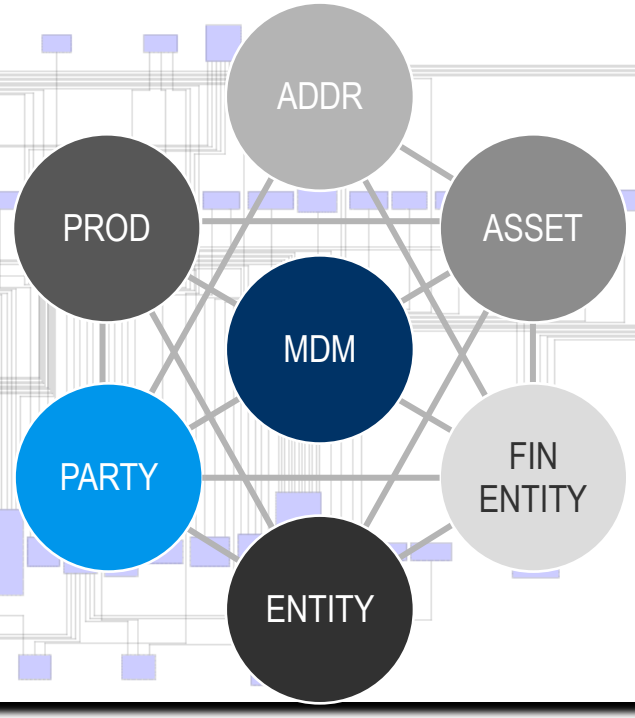
Our Traditional Batch Process



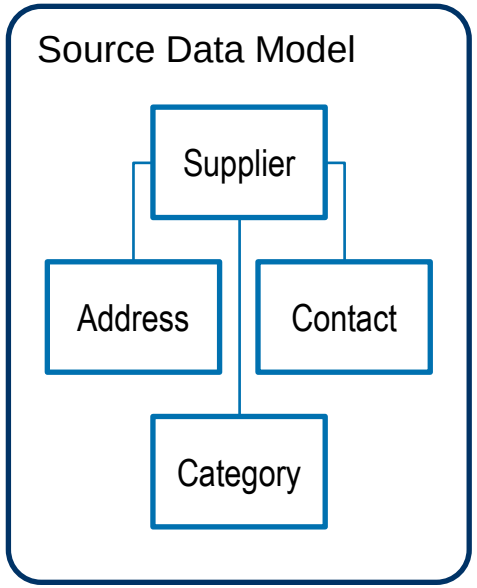
- As-is source data standardized to our model
- Records with standardized, enriched values
- Dataset separated by source system
- As-is source data
- Refreshed daily
- Reporting on technical, business error conditions
- Records with changes found between Cleansed and MDM XREF
- Matched, trusted “Golden” records
- Full referential integrity

It All Starts With the Data Model

- Not exposed outside of MDM
- Highly normalized model
- Designed around generic entities:
  - Party (Person, Organization, Location)
  - Asset (Well, Field, Borehole, Rig)
  - Product (Material)
  - Entity (Organizational Structures)
  - Finance Entity (Profit / Cost Center)
- 50 nontrivial tables, 117 tables total



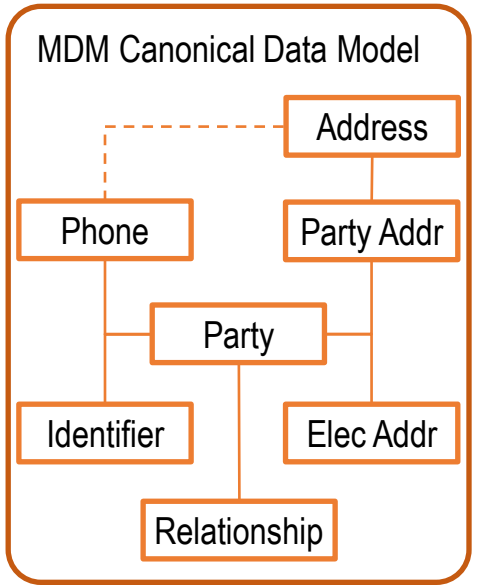
Aligning Data



Mapping Spec

Mapping Model - Vendor
Source
Key
Name
Address
City
State
Country
Tax ID
Office Phone
Fax
Website
A/R Contact
Purchasing Contact

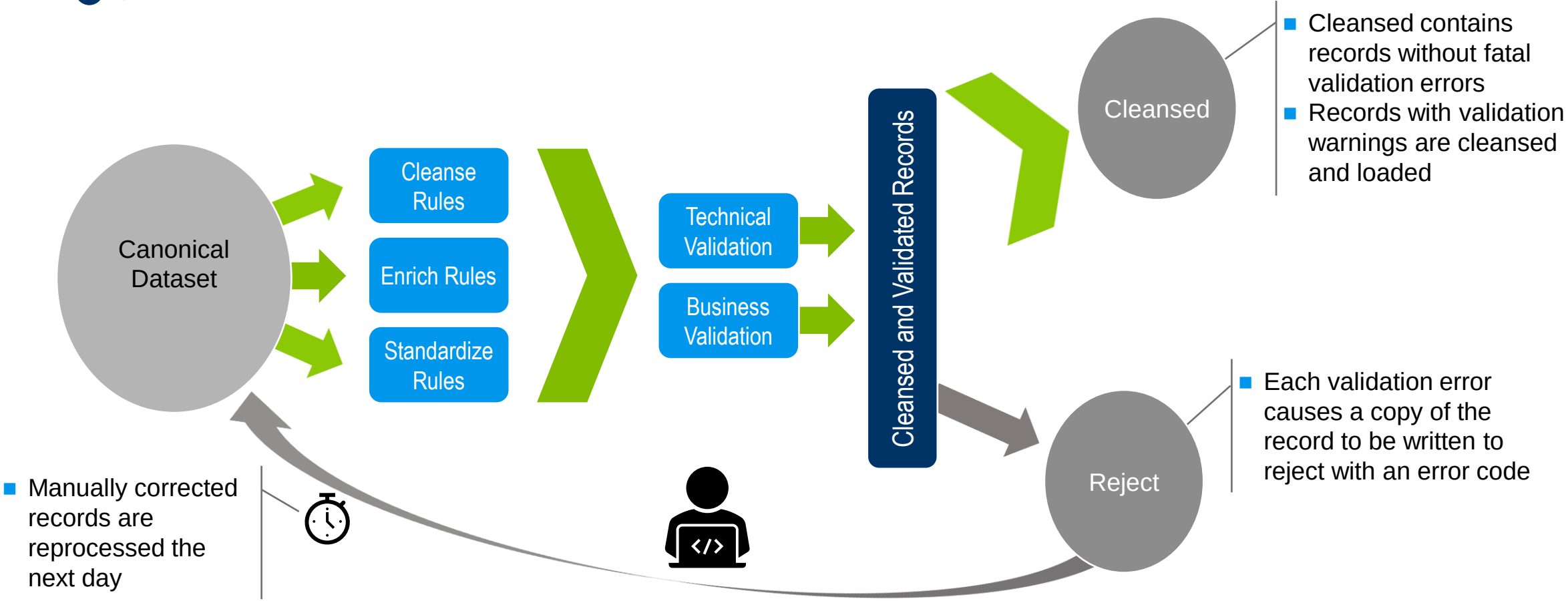
Tech Mapping Spec



- Translates source model to mapping model
- Provides filters for invalid / out-of-scope source records
- Identifies join criteria between source tables

- Translates mapping model to MDM model
- Stipulates MDM key strategy per target table
- Specifies MDM code values
- Provides implementation guidance to developers

Cleanse, Enrich, Standardize … Reject?



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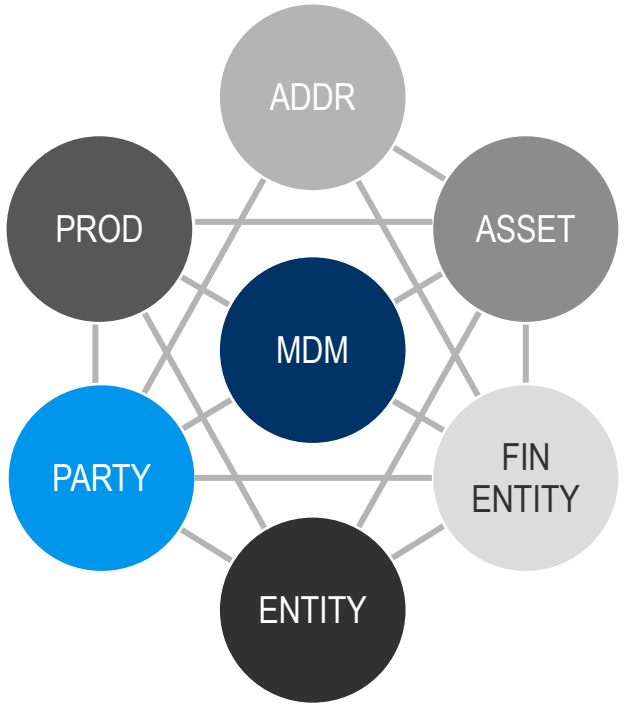
Exposing MDM Data to Consumers



Vendor Presentation Model
Vendor Key
Name
Address
City
State
Country
Tax ID
Office Phone
Fax
Website
A/R Contact
Purchasing Contact

Well Presentation Model
Well Key
Well Name
Well Number
Field Key
API
UWI
Latitude
Longitude
Country

Presentation Layer

- For real-time integrations, an Elastic Search cluster is kept in sync with MDM
- Custom Web Services provide search functionality to consuming applications

- Daily batch jobs pull changes in Master Data since the last synchronization
- Data is distributed to batch consumers via point to point integrations

Wells Master Data Becomes Real-Time

- From “Boil the Ocean” methodology to “Clean the River”
- IDD Application created for users to create or update Wells in Master Data
- Cleanse Functions leveraging all Cleansing Rules from Batch Process
- User Exit Implementation
  - Cleansing/enriching for cross-table cases
  - Checking completeness based on a parameter table
  - Checking consistency
- Real-time integration with SAP
- Hourly integration with other systems
- Result = Shut down well data entry in integrated applications

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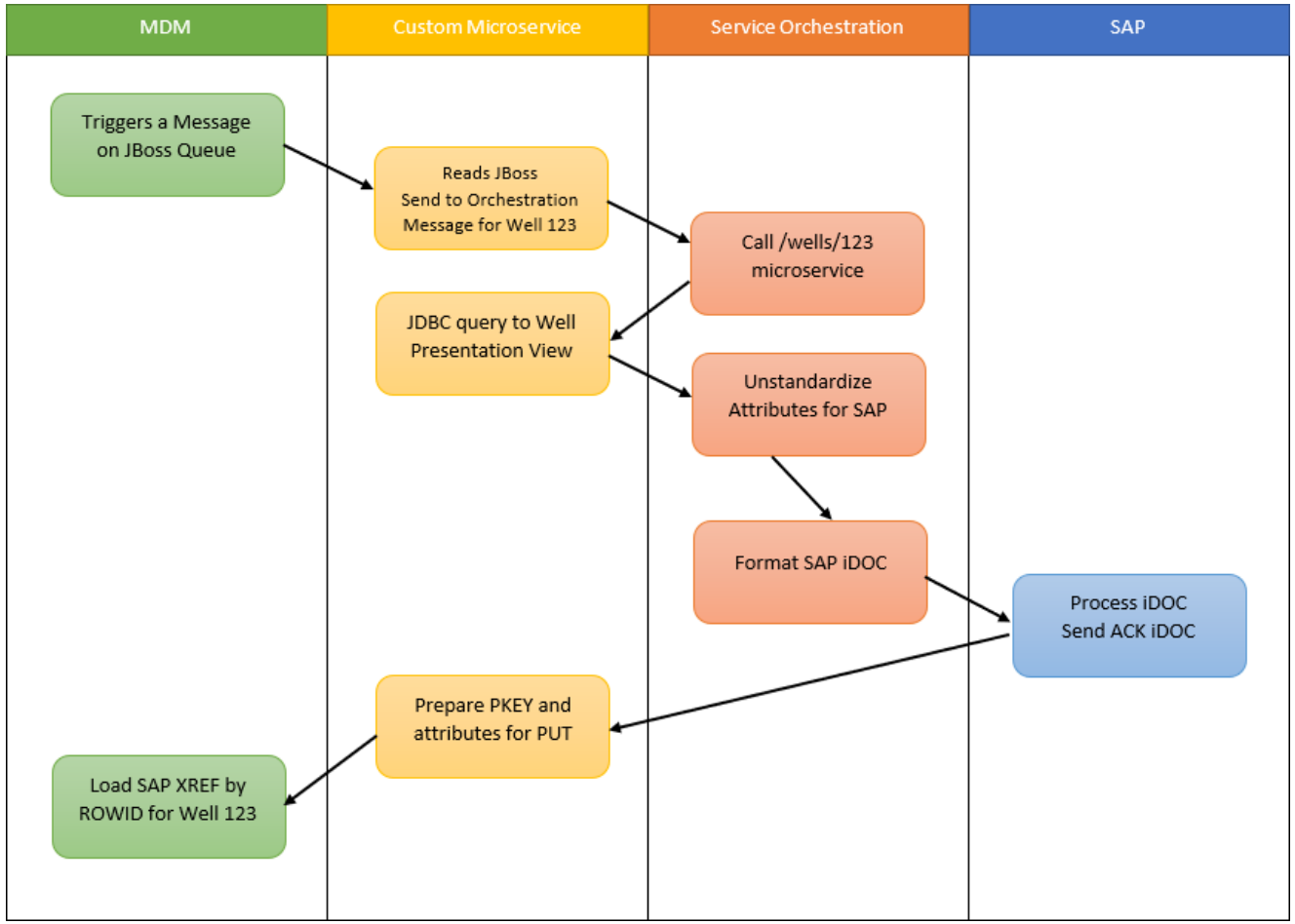
Custom-Built Real-Time Integration

- Using MDM's message triggers
- Custom Microservice code
  - Passing messages
  - Querying DB presentation views
  - Preparing the PUT message
- Storing ACK on the ASSET_XREF only
- Batch processing to SAP
- Comparison Report "CP4"



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Our Vision for 2021

- Business Entity Service
  - Presentation views in e360 instead of database
  - Data represented in business-friendly format instead of MDM format in IDD
  - Moving from Elastic Search manual replica to native MDM Elastic Search
  - Native BES Queries to replace custom Microservice
  - After Wells, MDM move to Real-Time and System of Records for 2 other domains
- MDM Ingestion … from Batch to Real-Time ingestion
  - Replacing batch ingestion of compatible sources with real-time ingestion using BES
  - Leveraging workflow with Data Steward approvals instead of admins inputting data in IDD

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Open Discussion

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