Digital Integration Hub

come strategia vincente per i problemi di oggi e di domani

Michel **Murabito**
Developer Advocate
Mia-Platform

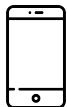# Problem VS Opportunity

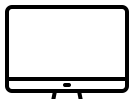*Behind every problem there is an opportunity*
Galileo Galilei

MOBILE DESKTOP STORE SOCIAL CHAT DEVICE ASSISTANT CHATBOT

CRM E-COMMERCE ERP ANALYTICS SUPPLY CHAIN OTHER SYSTEM

| MOBILE | DESKTOP | STORE | SOCIAL | CHAT | DEVICE | ASSISTANT | CHATBOT |

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MOBILE

DESKTOP

STORE

SOCIAL

CHAT

DEVICE

ASSISTANT

CHATBOT

CRM

E-COMMERCE

ERP

ANALYTICS

SUPPLY CHAIN

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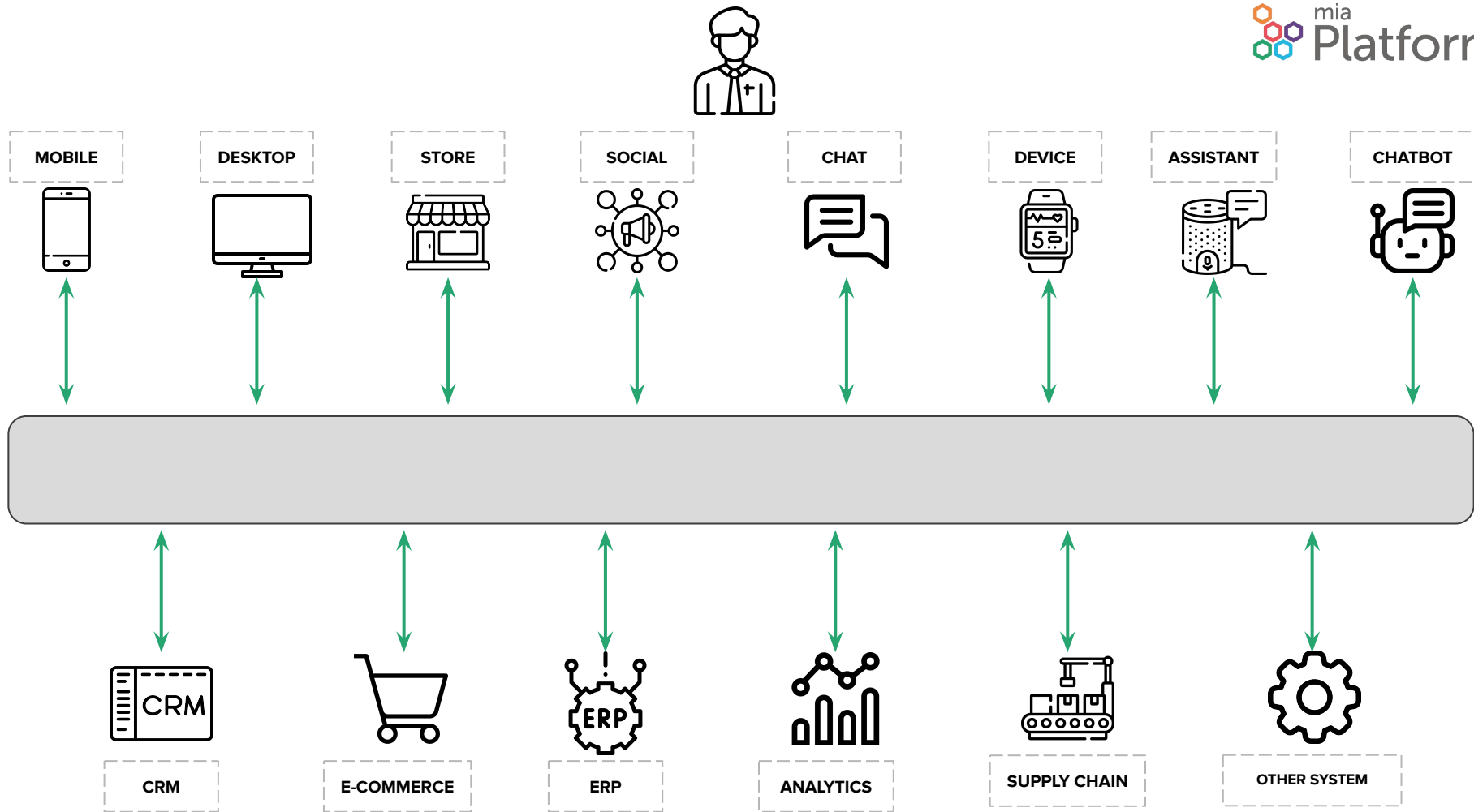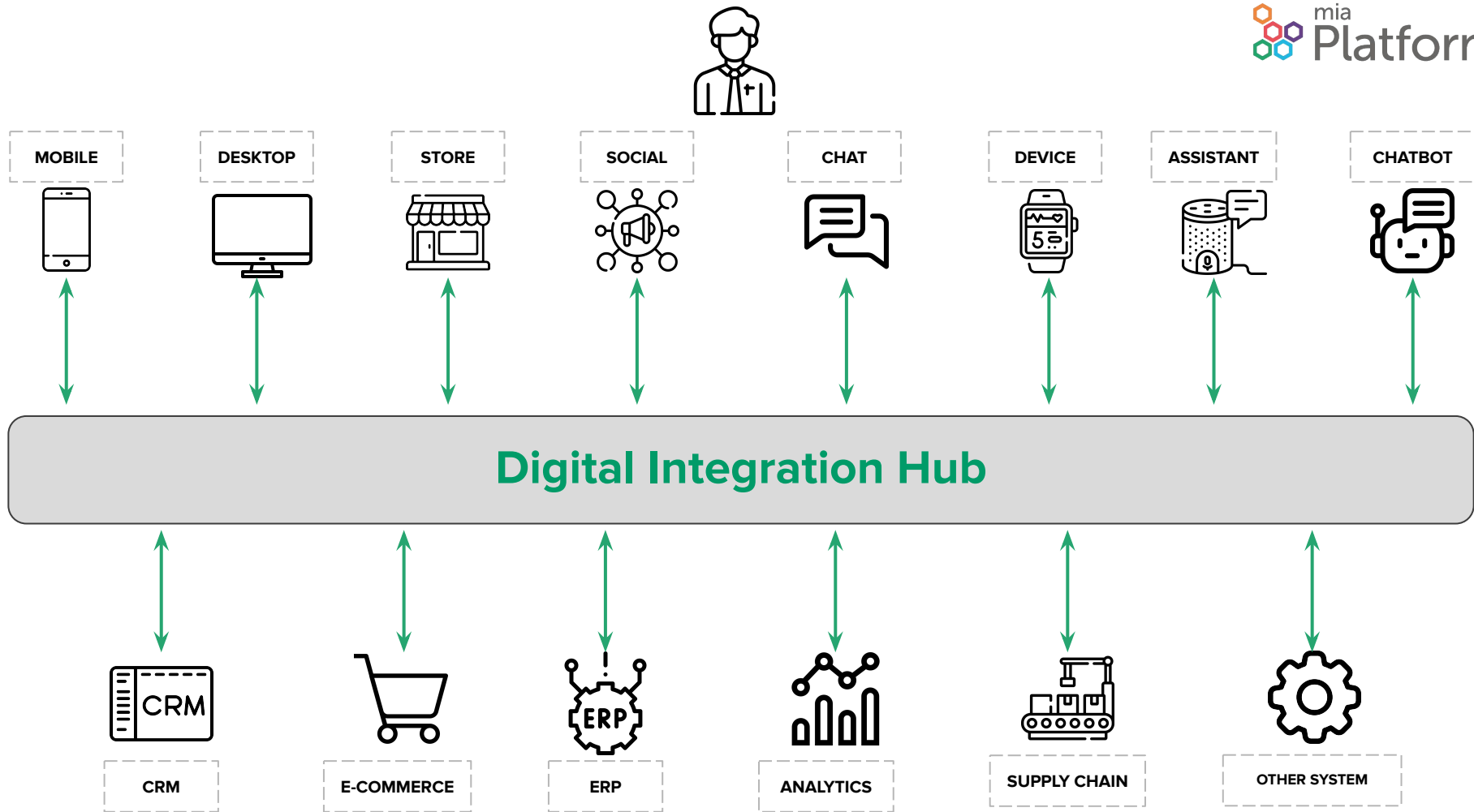**Digital Integration Hub**

CRM E-COMMERCE ERP ANALYTICS SUPPLY CHAIN OTHER SYSTEM

Data Mesh

Architettura Data Infrastructure as a Service

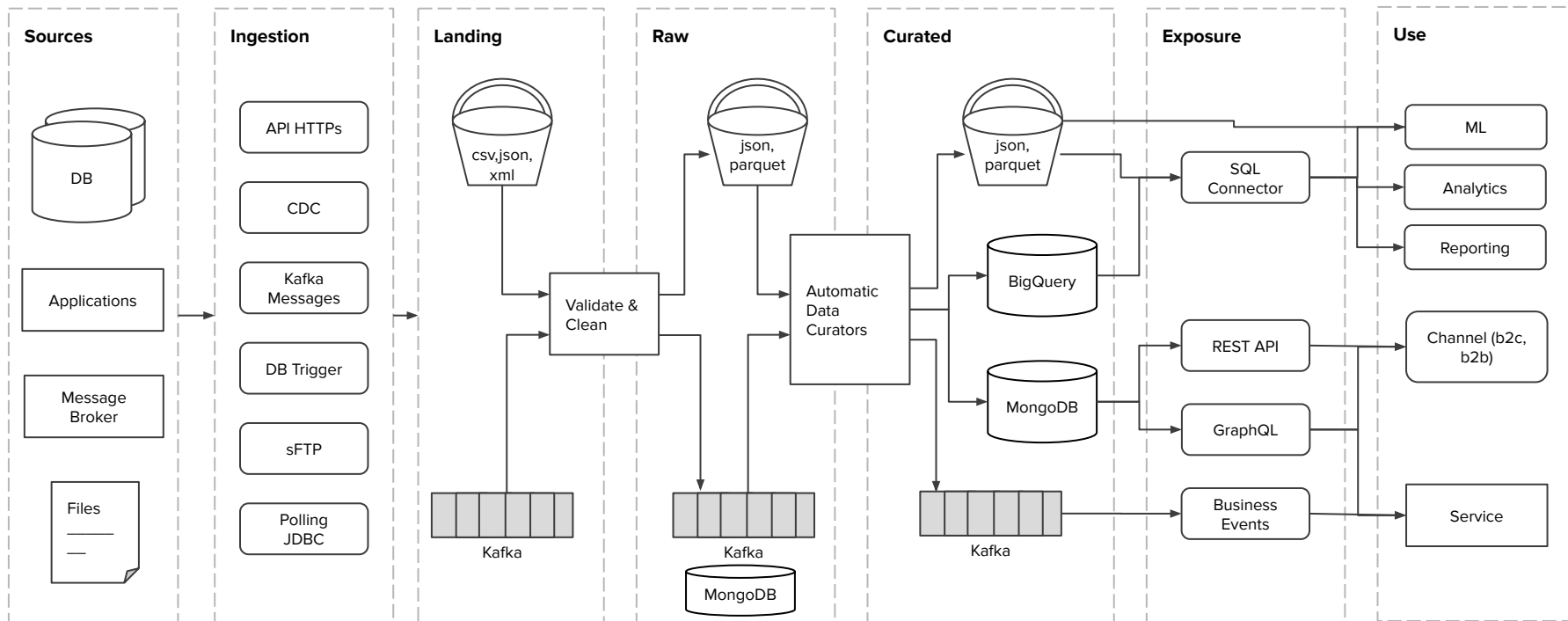| Sources		Ingestion		Landing		Raw		Curated		Exposure		Use
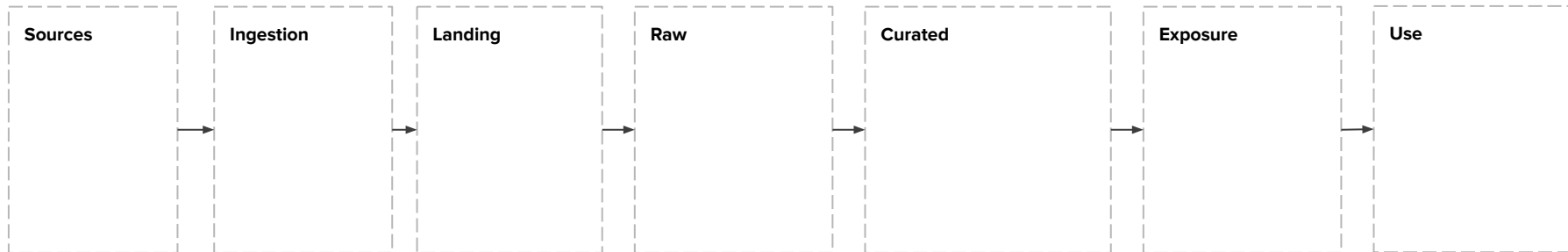
Ad alto livello è possibile catturare le informazioni in near real time e in polling dai vari sistemi con diverse soluzioni di ingestion. I dati catturati vanno su un'area di landing e sono raffinati in modo progressivo. I dati validati sono esposti ai vari canali per il loro uso.
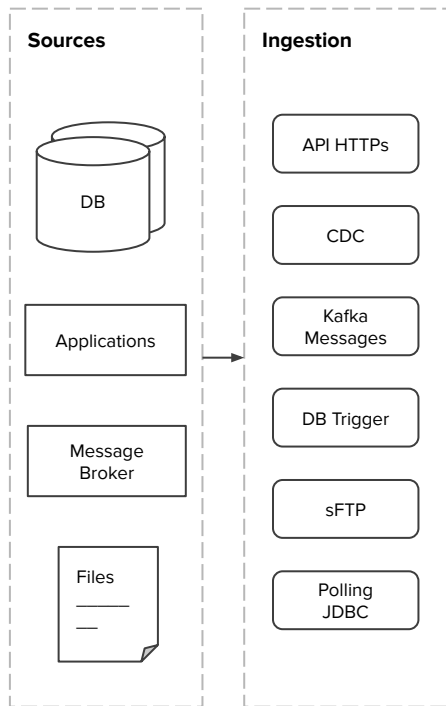
L'approccio si chiama Data Mesh.

https://martinfowler.com/articles/data-monolith-to-mesh.html

Visione Complessiva

Sources
- DB
- Applications
- Message Broker
- Files

Ingestion
- API HTTPs
- CDC
- Kafka Messages
- DB Trigger
- sFTP
- Polling JDBC

Landing
- csv, json, xml
- Validate & Clean
- Kafka

Raw
- json, parquet
- Automatic Data Curators
- Kafka
- MongoDB

Curated
- json, parquet
- BigQuery
- MongoDB
- Kafka

Exposure
- SQL Connector
- REST API
- GraphQL
- Business Events

Use
- ML
- Analytics
- Reporting
- Channel (b2c, b2b)
- Service

Source e Ingestion

Sources

DB

Applications

Message Broker

Files

Ingestion

API HTTPs

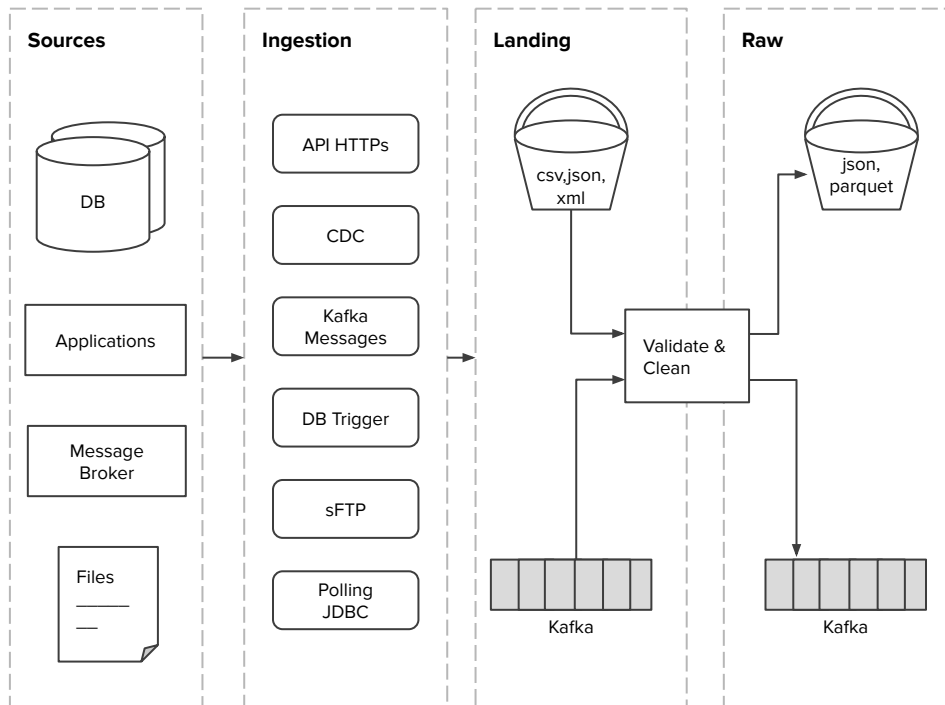CDC

Kafka Messages

DB Trigger

sFTP

Polling JDBC

Le sorgenti dati sono eterogenee e hanno formati differenti del dato.

Una sorgente può essere catturata con diverse modalità di ingestion. Le modalità variano a seconda della velocità richiesta della cattura del cambiamento:

- **near realtime**: Change Data Capture (CDC), API in push, Kafka Messages, DB Triggers;
- **batch**: sFTP, Polling JDBC.

Landing e Raw Data

Sources
- DB
- Applications
- Message Broker
- Files

Ingestion
- API HTTPs
- CDC
- Kafka Messages
- DB Trigger
- sFTP
- Polling JDBC

Landing
- csv,json, xml
- Validate & Clean
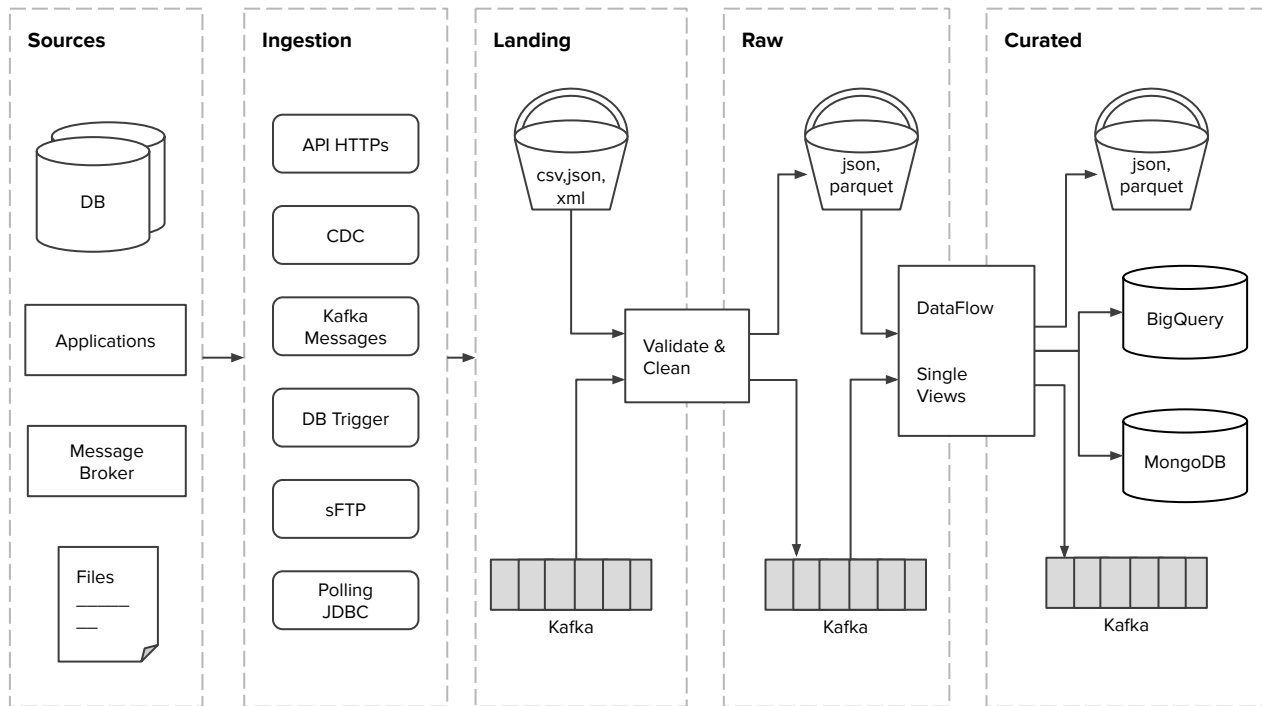- Kafka

Raw
- json, parquet
- Kafka

I dati che arrivano dalla ingestion sono depositati in prima istanza su due Data Store:

- **file bucket**: raccoglie file in diversi formati;
- **kafka**: raccoglie eventi

I dati che atterrano sull'area di landing sono validati e puliti e salvati su due data store grezzi.

Questa soluzione consente di far diventare file su bucket eventi e viceversa.

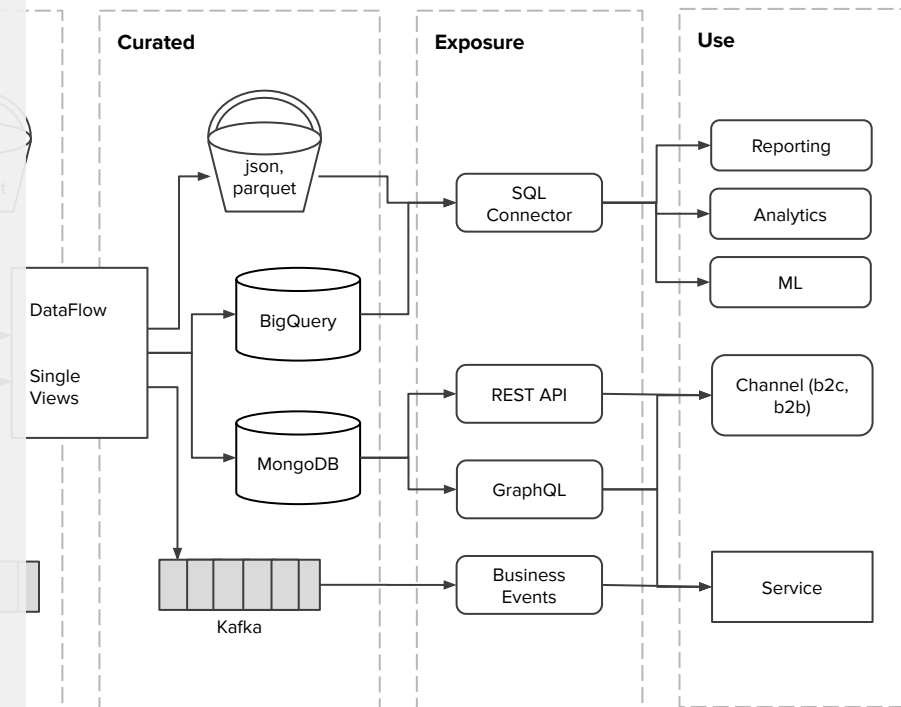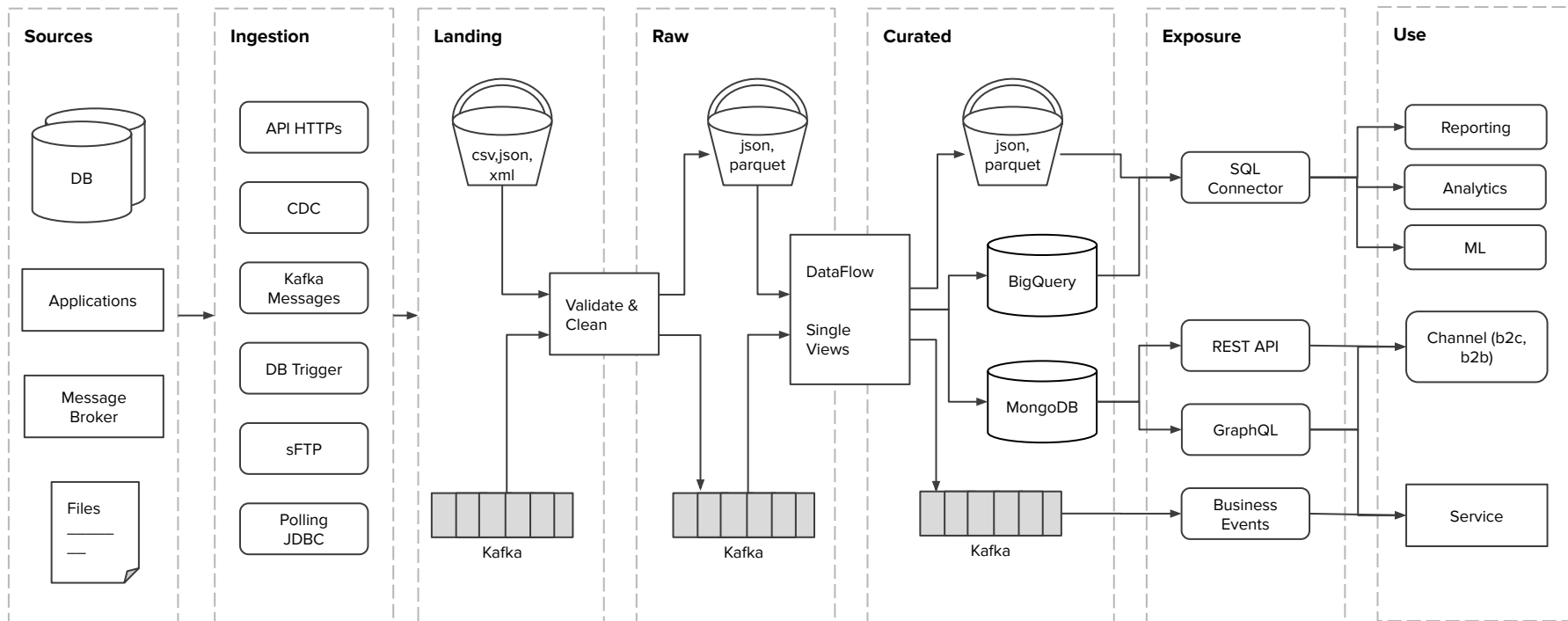I file in raw sono pronti per essere lavorati.

Curated Data

Sources

DB

Applications

Message Broker

Files

Ingestion

API HTTPs

CDC

Kafka Messages

DB Trigger

sFTP

Polling JDBC

Landing

csv,json, xml

Validate & Clean

Kafka

Raw

json, parquet

Kafka

Curated

json, parquet

DataFlow

Single Views

BigQuery

MongoDB

Kafka

Da Raw è possibile creare 4 data store "curated" per scopo:

- **File Bucket**: per gestire grandi quantità di dato (terabytes) in modo uniforme ma non subito pronti per l'uso;
- **BigQuery**: per fare analisi e reporting;
- **MongoDB**: per servire i canali con Single Views pronte all'uso;
- **Kafka**: per eventi di dominio (esempio: il cliente ha speso i suoi punti fedeltà, il cliente ha aperto un reclamo).
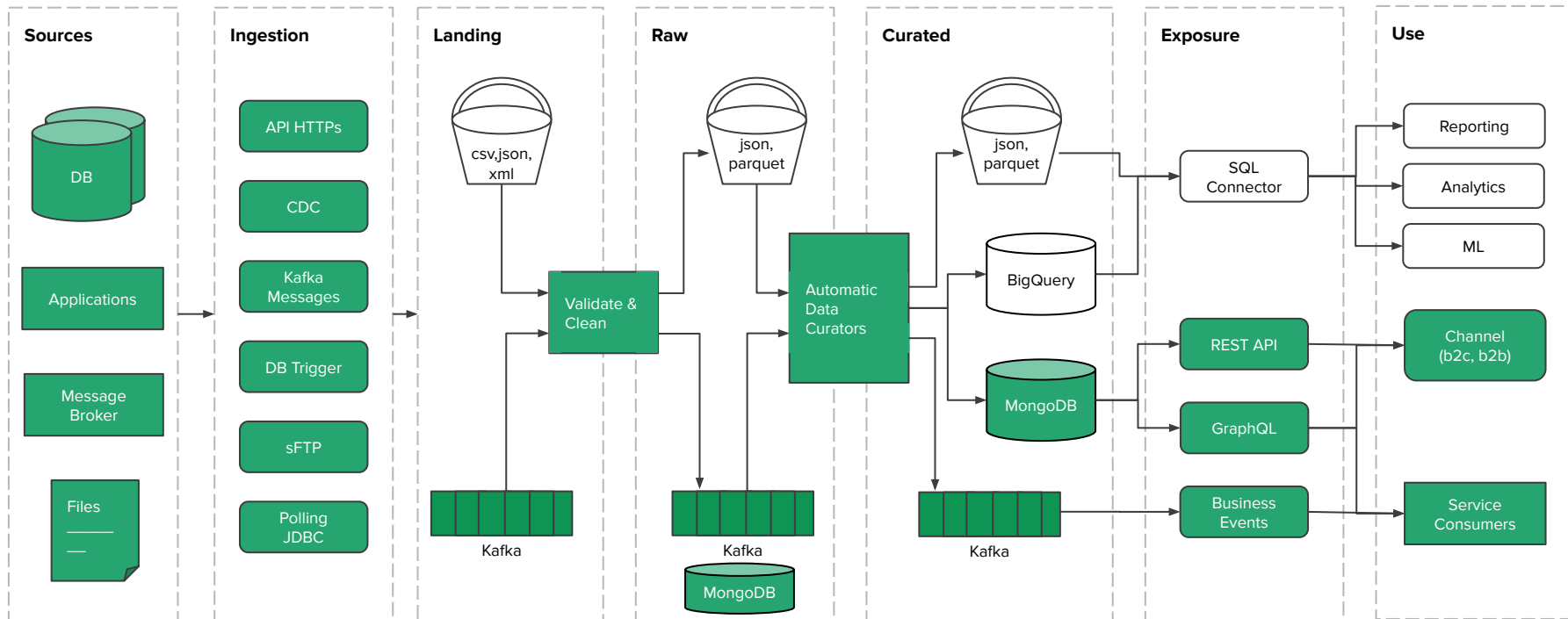
Consumers

I dati sono esposti in diversi modi e fruibili con protocolli diversi a seconda dei consumatori:

- **SQL Connector**: consente di lavorare sui dati, comporre relazioni al bisogno. Ideale per Reporting statico, Analytics e Addestramento di Machine Learning (costo di composizione a richiesta);
- **Rest API**: fruibile ai vari canali (costo di composizione solo al cambiamento del dato e non alla chiamata singola);
- **Business Events**: fruibile da altri servizi/mini servizi/microservizi/saas (ogni evento di dominio è generato al cambiamento ed è consumato dai subscribers).

Data Governance

Sources

DB

Applications

Message Broker

Files

Ingestion

API HTTPs

CDC

Kafka Messages

DB Trigger

sFTP

Polling JDBC

Landing

csv,json, xml

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DataFlow

Single Views

BigQuery

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Kafka

Exposure

SQL Connector

REST API

GraphQL

Business Events

Use

Reporting

Analytics

ML

Channel (b2c, b2b)

Service

Data Governance - Metadata Management Tool

Mia-Platform Data Mesh

Realtime data flow: da Sources a Curated < di 2 secondi. Query time < 50ms.
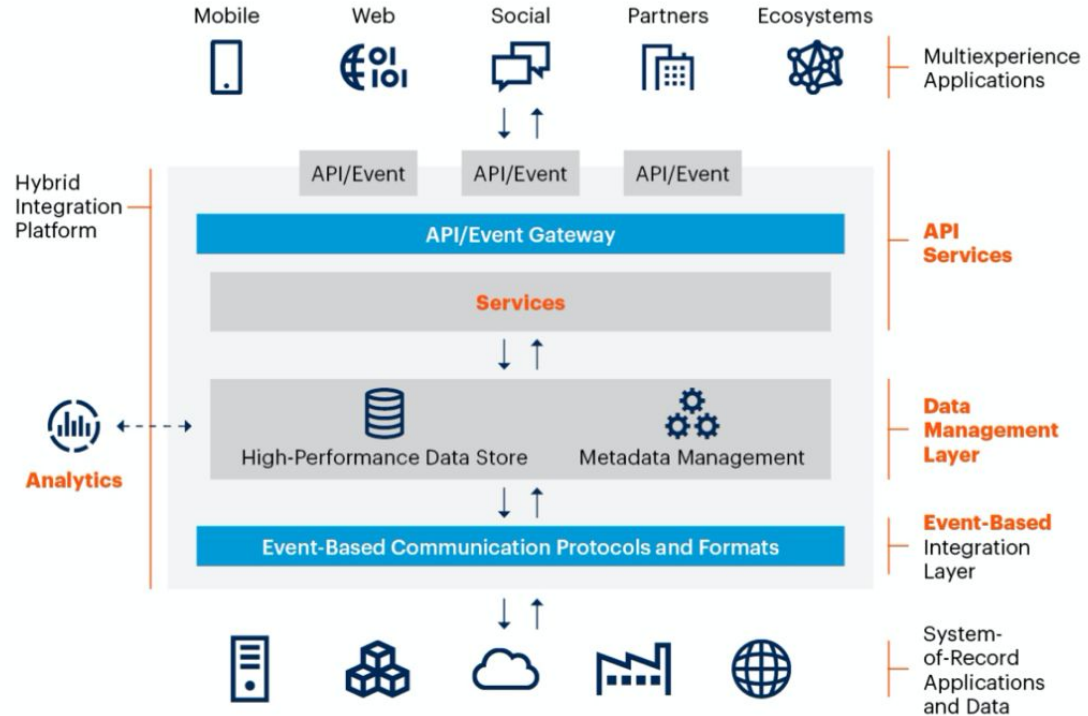
Digital Integration Hub

Gartner's Digital Integration Hub

*"As organizations move toward the composable enterprise, DIH-enabled API platforms will emerge as **key architectural foundations**, and deployments will become more comprehensive."*

Gartner, 'Innovation Insight: Turbocharge Your API Platform With A Digital Integration Hub', Massimo Pezzini, Eric Thoo, July 10, 2020

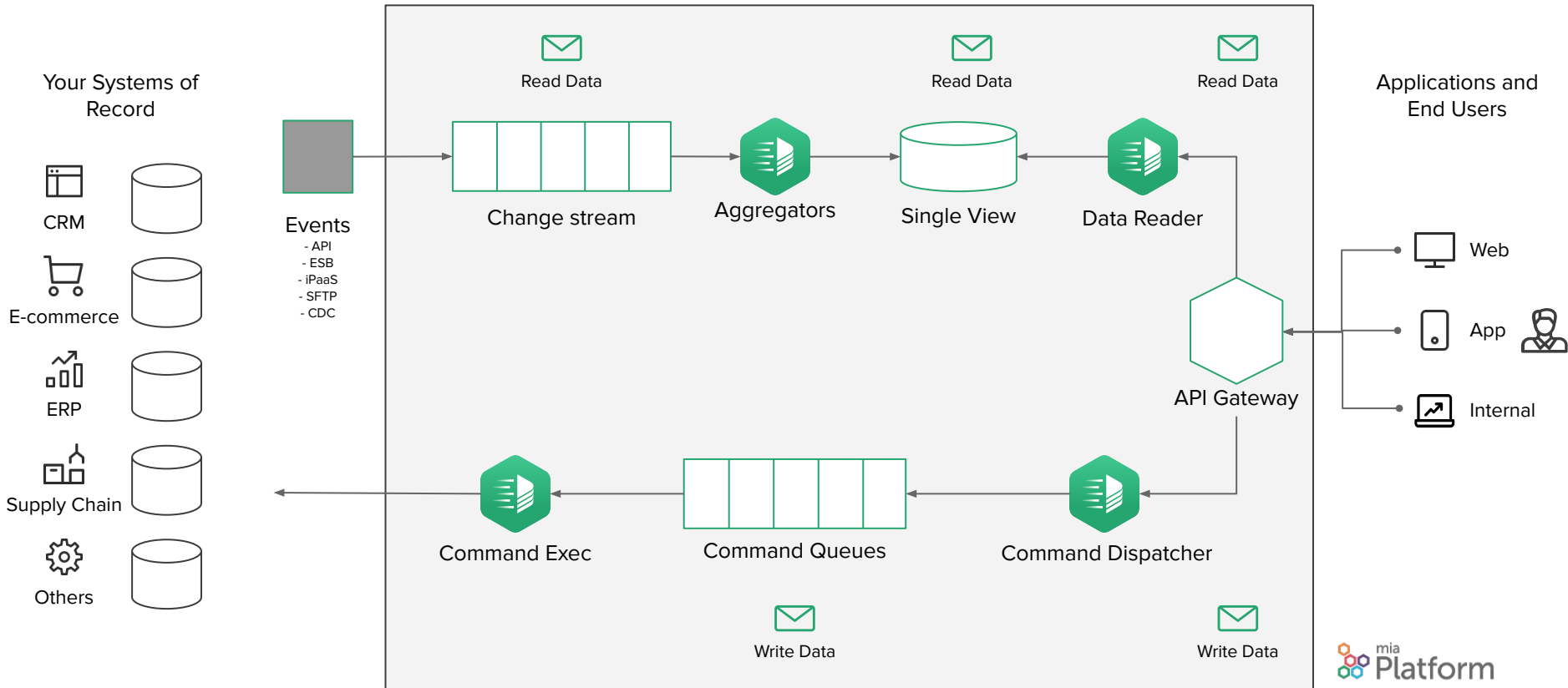**API Services Access a Near-Real-Time Replica of Systems of Record Data**

Source: Gartner

722630

Mia-Platform Fast Data - CQRS Pattern

Your Systems of Record

CRM

E-commerce

ERP

Supply Chain

Others

Events
- API
- ESB
- iPaaS
- SFTP
- CDC

Read Data

Change stream

Aggregators

Read Data

Single View

Read Data

Data Reader

Applications and End Users

Web

App

Internal

API Gateway

Command Exec

Command Queues

Command Dispatcher

Write Data

Write Data

mia Platform

Single View: the golden record of your business

Aggregate customers' relevant information into a **single view** that can be easily queried by your API's: this enables a **better user experience** across all the channels.

Customer

- Subject
- Current Orders
- Orders History
- Active Products
- Invoices
- Open Tickets
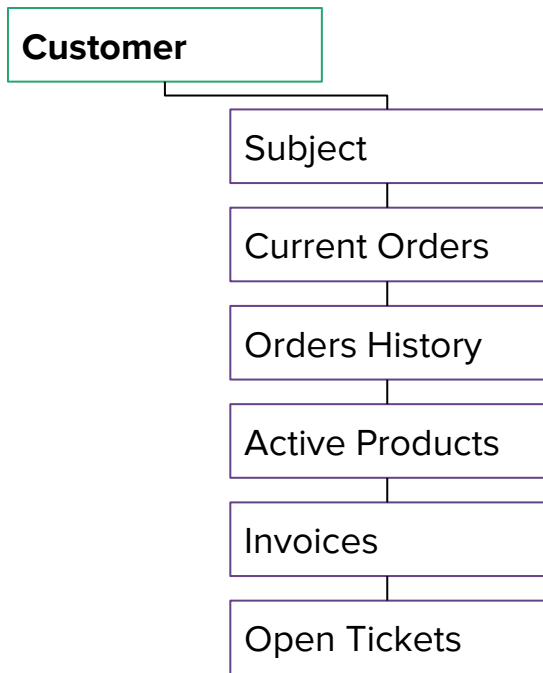
```json
{
  "subject": {
    "fiscalCode": "fiscal_code",
    "vatCode": null,
    "idSubject": "subject_uid",
    "isLegalEntity": "false",
    "registry": {
      "name": "John",
      "surname": "Doe",
      "dateOfBirth": "1980-01-01"
    },
    "contacts": [
      {
        "type": "email",
        "contact": "john.doe@email.com"
      }
    ]
  },
  "currentOrders": [
    {
      "id": "0568_45682_ahfc",
      "number": "45682",
```

Mia-Platform Digital Integration Hub

In the research report [Innovation Insight: Turbocharge Your API Platform With a Digital Integration Hub](), Mia-Platform is named among the vendors for DIH-enabled API-platforms.

Gartner, 'Innovation Insight: Turbocharge Your API Platform With A Digital Integration Hub', Massimo Pezzini, Eric Thoo, July 10, 2020

Mia-Platform Fast Data
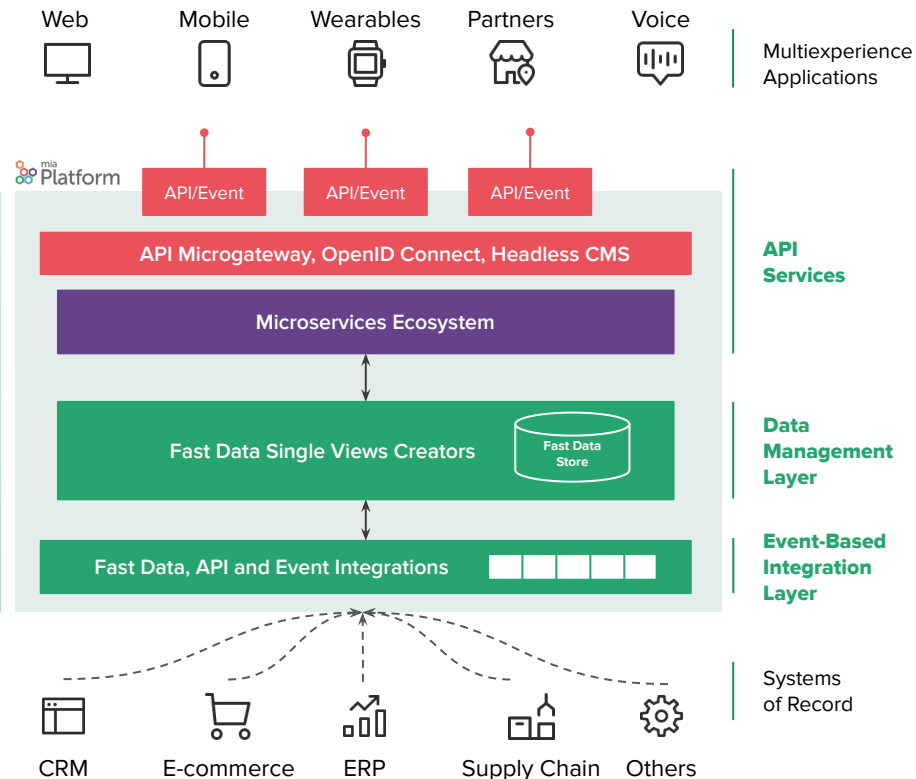
Manage **real-time data streaming** and keep aligned your Systems of Record and your digital platform on Kubernetes.

- **Decouple your Systems of Record** reducing queries and access on data.

- Enjoy **data availability 24/7**, even when systems are offline for overnight maintenance.

- **Scale your microservices effectively** according to business needs.

- Lock-out from your traditional systems and **be free to modernize** at will.

Mia-Platform Fast Data
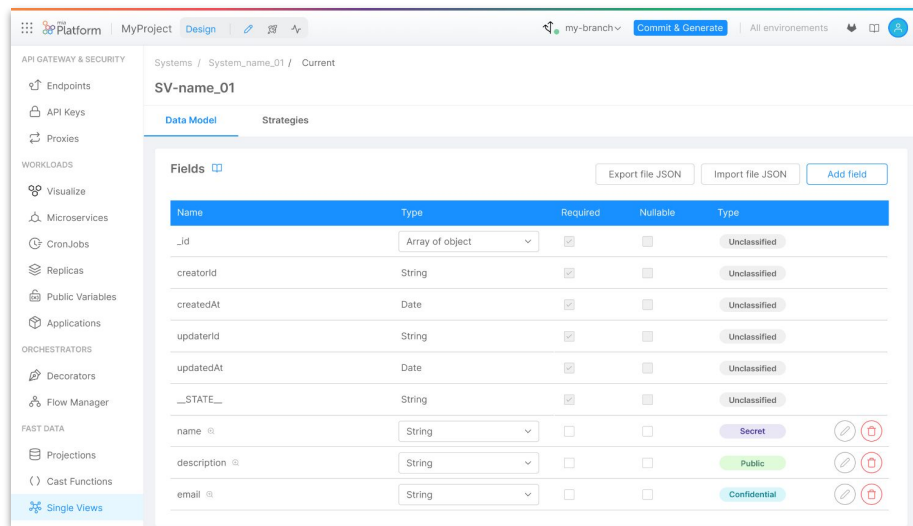
Journey into DIH & Numbers

"If we have data, let's look at data. If all we have are opinions, let's go with mine"
James L. Barksdale

Mia-Platform for Helvetia Assicurazioni
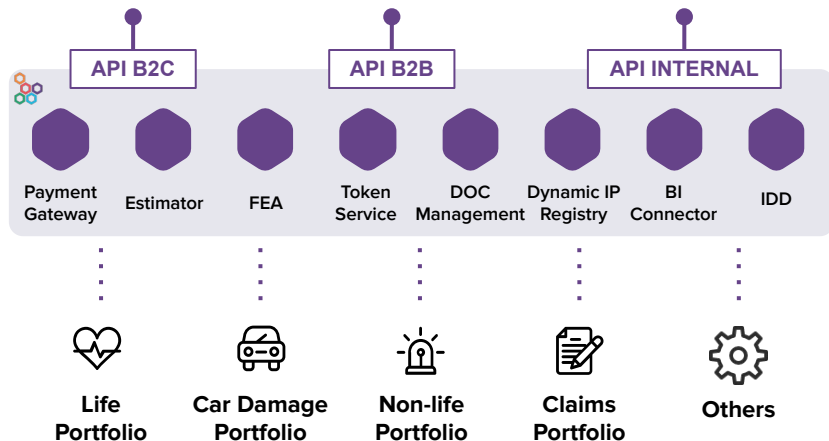
helvetia

Industry Insurance
Country Italy
Size 500 empl., 60M €/y

GOAL & NEEDS

Transform and improve development and release processes for new digital touchpoints implementing a Digital Integration Hub to simplify and speed up release of new insurance products. Offer a simple and responsive omnichannel UX for over 4 million customers.

RESULTS & BENEFITS

Helvetia has been able to open 7 new business partnerships thanks to the easy access to data provided by its DIH-enabled API Platform.

Contact Center	Agency Portal	Car Screening	FNOL Portal	Tour Operators	Bank	Home Insurance	Quick Quotator	Micro Policies

API B2C   **API B2B**   **API INTERNAL**

Payment Gateway	Estimator	FEA	Token Service	DOC Management	Dynamic IP Registry	BI Connector	IDD

Life Portfolio   **Car Damage Portfolio**   **Non-life Portfolio**   **Claims Portfolio**   **Others**
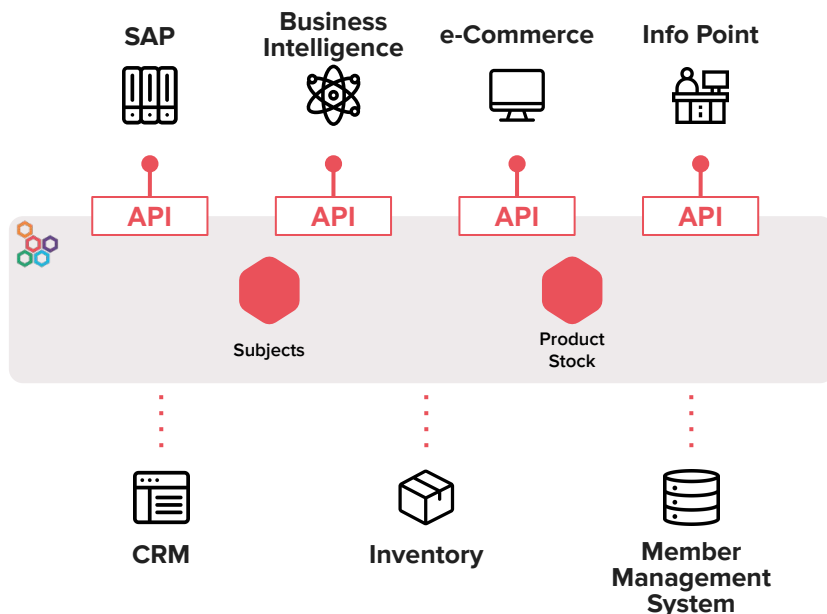
+4M
Customer Single Views

< 10s
From the legacy application to the channel

-60%
Reduction in time-to-market

Mia-Platform for Large Retailer

Industry Retail
Country Italy
Size 100+ stores, 2.3B €/y

SAP

Business Intelligence

e-Commerce

Info Point

API

API

API

API

Subjects

Product Stock

CRM

Inventory

Member Management System

GOAL & NEEDS

Create a Digital Platform able to aggregate inventory data based on the needs of different businesses and serve different channels. Provide real-time data about inventory status to its applications.

RESULTS & BENEFITS

Customer is now able to aggregate tables in one Single View, manage the history of the inventory and expose APIs to the channels in real time.

+5k

+1.8M

+30GB

Updates every minute from technical systems

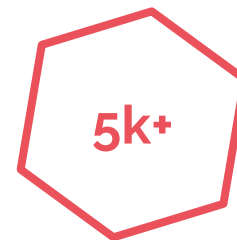*Single Views (customers and stocks)*

Daily shifted data

Results with Mia-Platform Fast Data

4M+

Updates from
technical systems
managed daily

1.8M+

Single Views

5k+

Updates each minute

700GB

Data size

30GB+

Daily shifted data

<50 ms

Client's investigation
time

POC in 4 weeks

Together with Intesys, our Certified Partner, we propose this incremental approach to accelerate the adoption and test the benefits of Mia-Platform Fast Data at minimum cost.

Week 1	Week 2	Week 3	Week 4
Business Definition	**Data Model**	**Projection in Production**	**Finalization**
Define the need of the **Channel**	Define the optimized data model	Find the data on the **legacy system** and do the connection	Create the **Single View** and the **API** to expose the data
(eg. mobile app)	(eg. tax code)	(e.g. database)	

Clients are enthusiastic about their gains

- ⬡ **Banking & Finance**
- ⬡ **Healthcare**
- ⬡ **Mobility & Transportation**
- ⬡ **Insurance**
- ⬡ **Utility**
- ⬡ **Retail**
- ⬡ **Food & Beverage**
- ⬡ **Fashion & Luxury**

"Mia-Platform is the enabler of a new way of working, both operational and architectural..."

Large EU enterprise CIO

Discover our best success stories

Some of our public Success Cases:

Thanks!

mia Platform

Michel Murabito – Developer Advocate
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