



Discover Data Integration Aspects of the SAP Data Hub

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SAP Data Intelligence Product Management

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Agenda

Data Management in the Intelligent Enterprise

- Use Cases

SAP Data Hub and SAP Data Intelligence

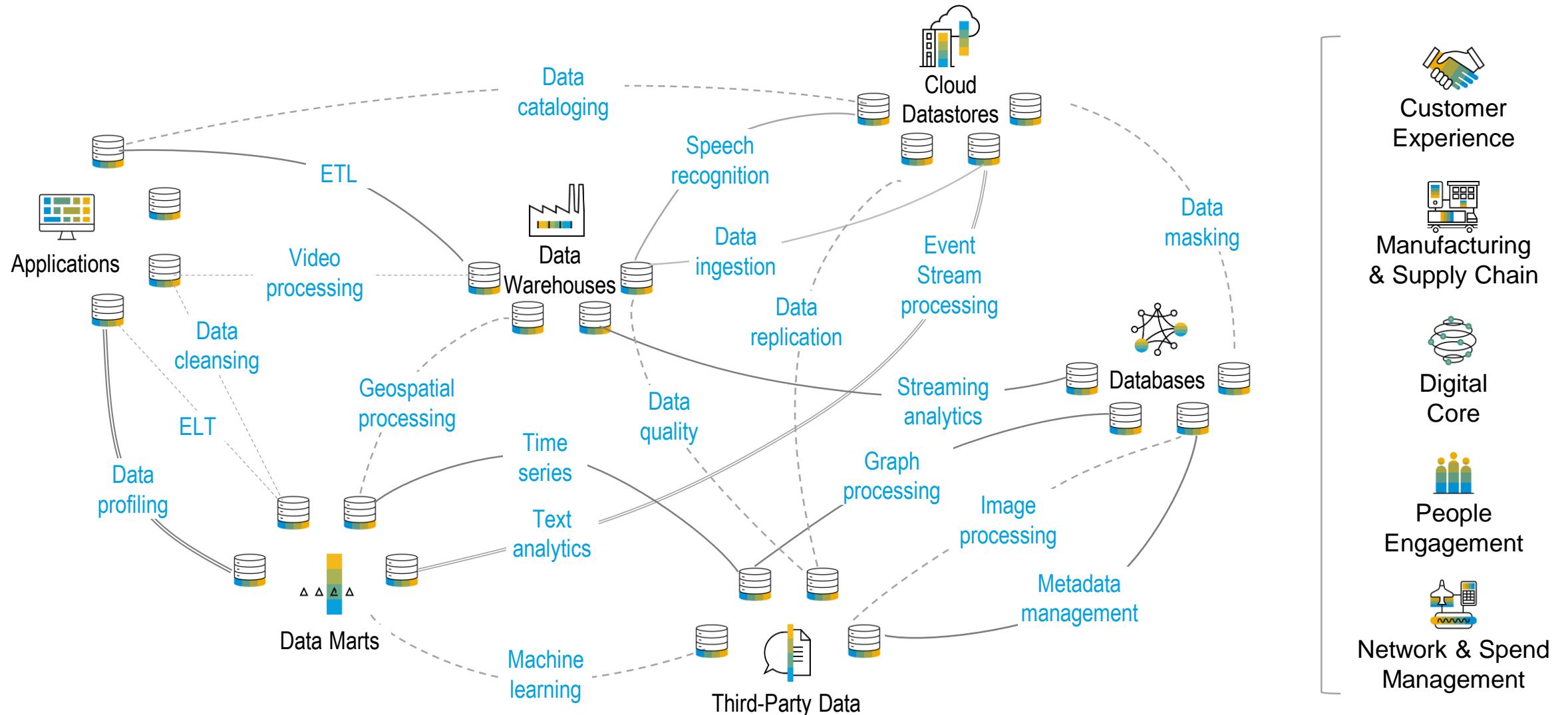
The approach for EIM and beyond:

- Native Data Integration
- Choregraphed workflows
- Metadata Management



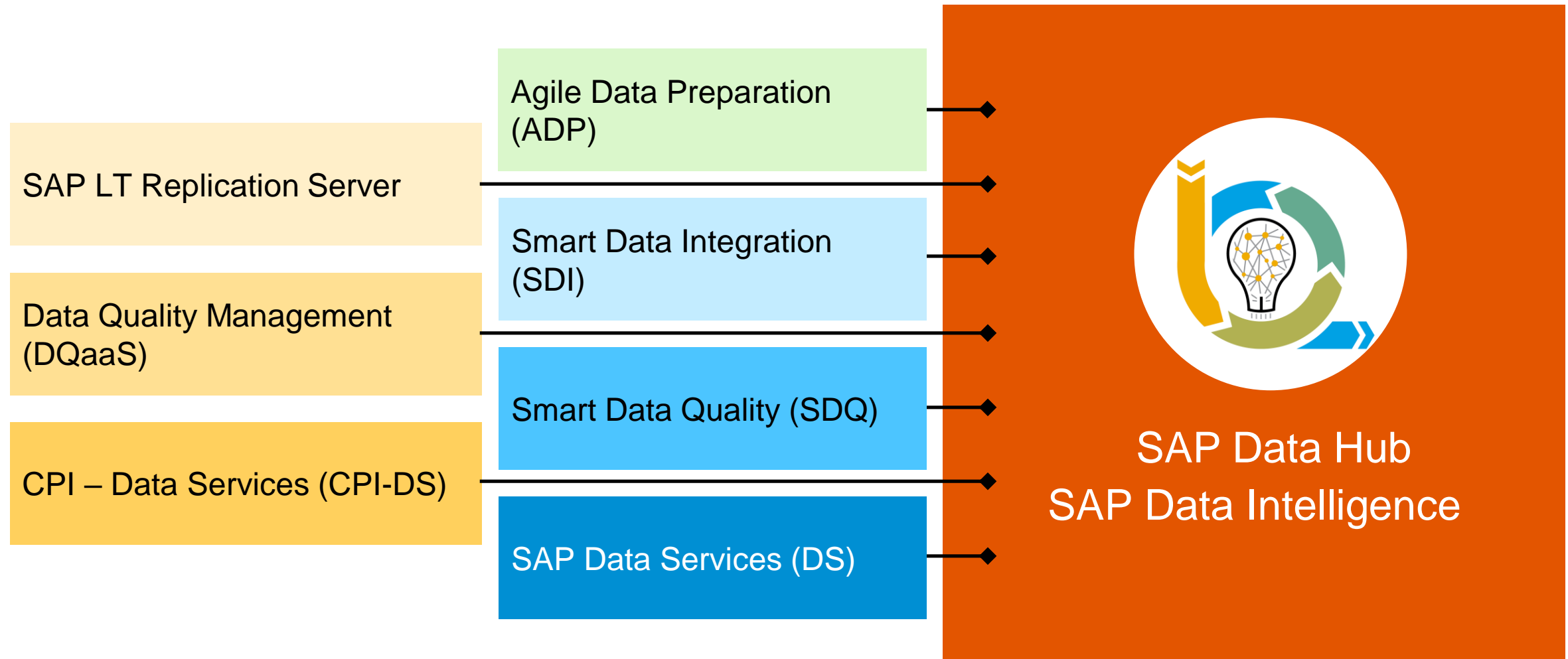
Challenges in Today's Enterprise Landscapes

The result is landscape complexity

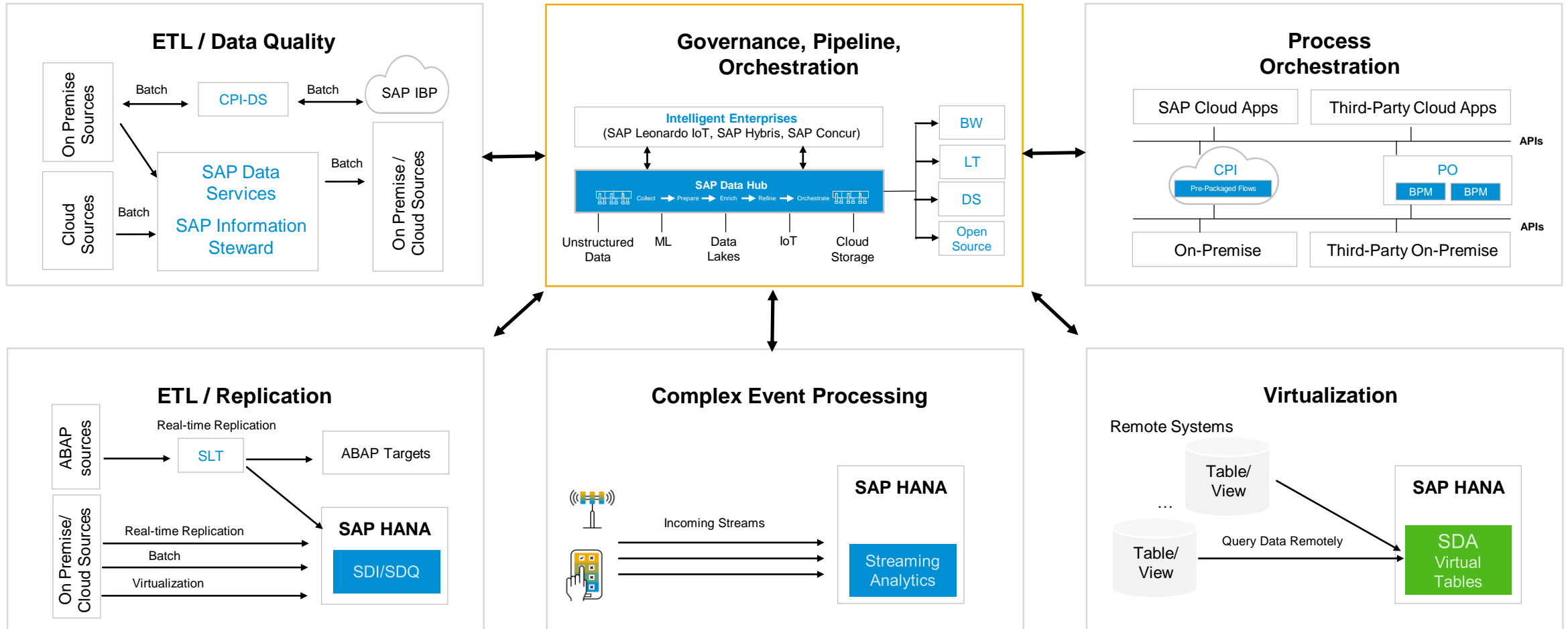


SAP Strategy for Diverse Landscapes

Outlook for data integration and processing portfolio



Data Integration Technologies by Purpose



Guiding Principles for EIM Portfolio



INTEGRATE

Integration of all tools to enable new use cases and scenarios.



EMBED

Bring critical capabilities into a single innovation platform.

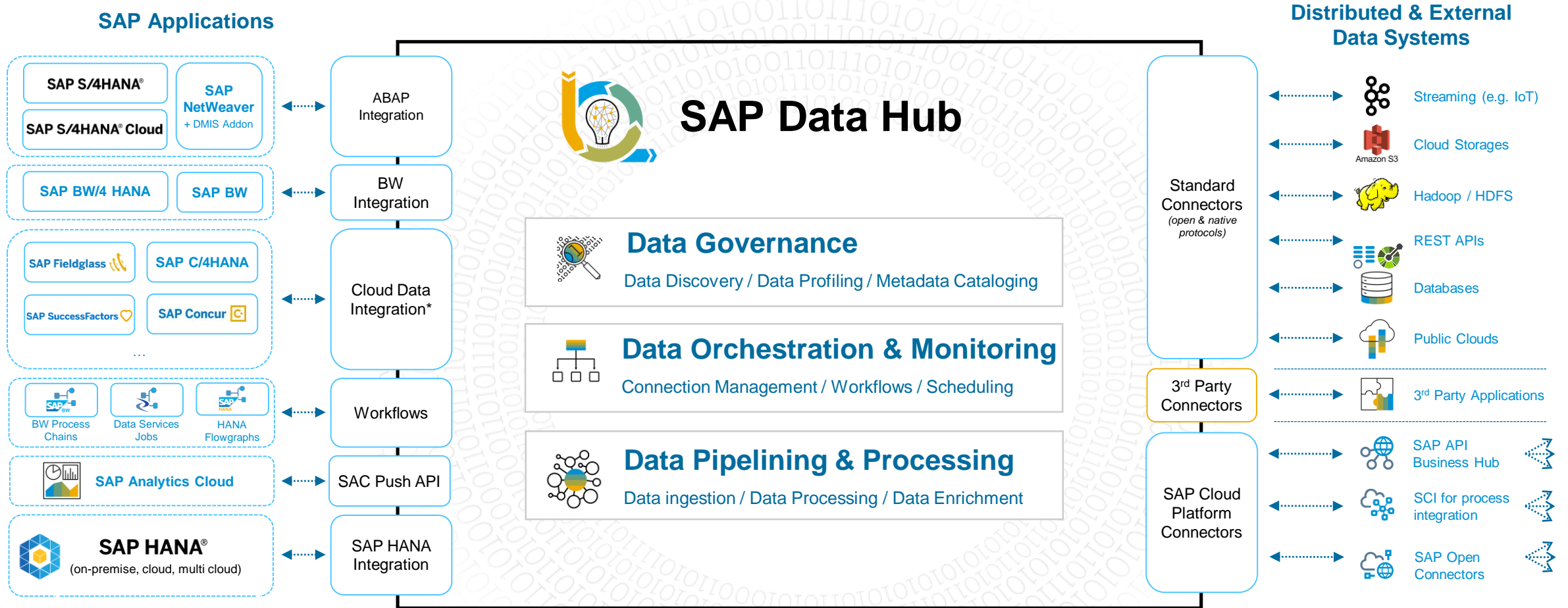


REUSE

Protect existing landscapes by leveraging investments customer made.

SAP Data Hub

Key capabilities



Use **SAP Data Hub** to reimagine your business processes using ...

Business Application Transformation



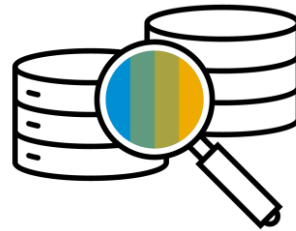
Streamline innovation initiatives around Business Applications, supporting enterprise transformation programs

IoT Ingestion and Orchestration



Transform IoT event streams into enterprise-ready data, and derive actionable insights

Data Warehousing



Build a multifaceted data warehouse, across diverse and distributed data assets

Data Science and Machine Learning



Streamline data science and machine learning, from modeling and development to operations, across all enterprise data assets

Information/ Data Governance



Understand , govern and secure your data to deliver trusted insights

- Customer Risk Intelligence with S4 HANA Cloud
- Timesheet Analytics with Fieldglass
- [...]

- Predictive maintenance
- Product as-a-service
- Intelligent logistics
- Smart manufacturing
- [...]

- Consumer 360 view
- Marketing campaign effectiveness
- Renewable energy production simulation
- [...]

- Smart energy management
- Fraud detection
- Customer churn prediction
- [...]

- Proactive Information/ Data Governance
- Digital Data Stewardship
- [...]

What is SAP Data Intelligence?

Create powerful data pipelines to **leverage** your data projects and to **orchestrate** the data processing

Harness the advanced machine learning content to **accelerate** and **scale** and **automate** your Data Science projects

Manage metadata across a diverse data landscape and **create** a metadata repository



SAP Data Intelligence is a mPaaS **comprehensive solution to deliver data-driven innovation and intelligence across the enterprise**, unifying scalable enterprise AI and intelligent information management.



**Access &
connect data**



**Govern &
discover data**



**Prepare &
label data**



**Build scalable
& flexible
data pipelines**



**Deploy & integrate
intelligent
applications**

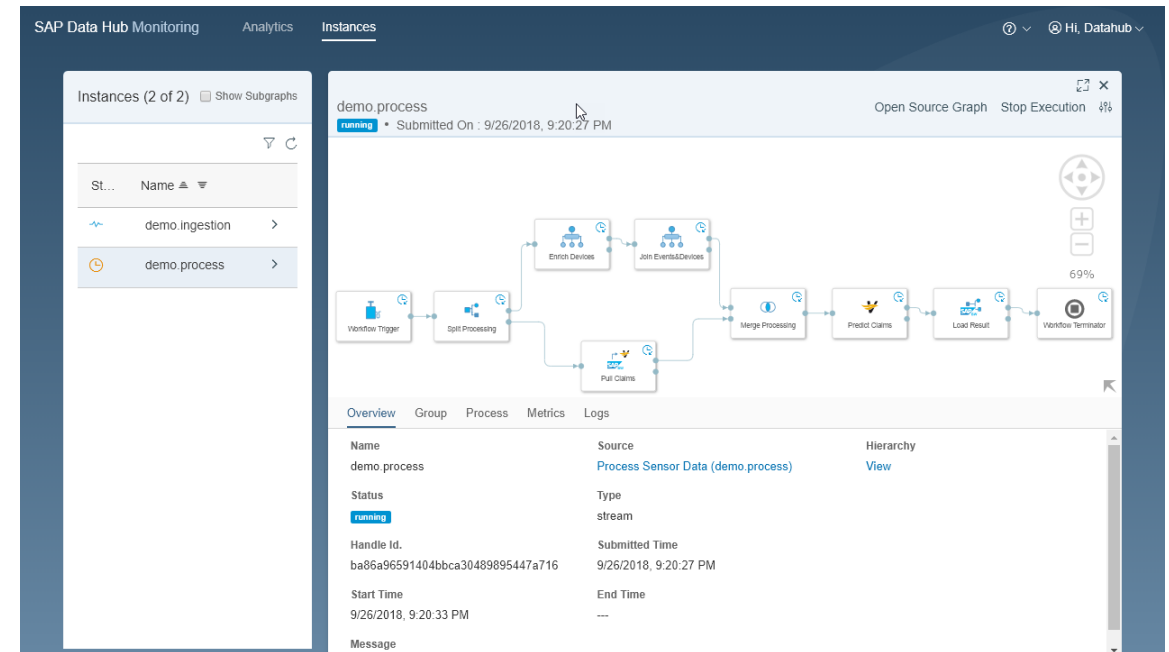


**Monitor &
orchestrate
the lifecycle**

SAP Data Hub: Orchestration and Monitoring

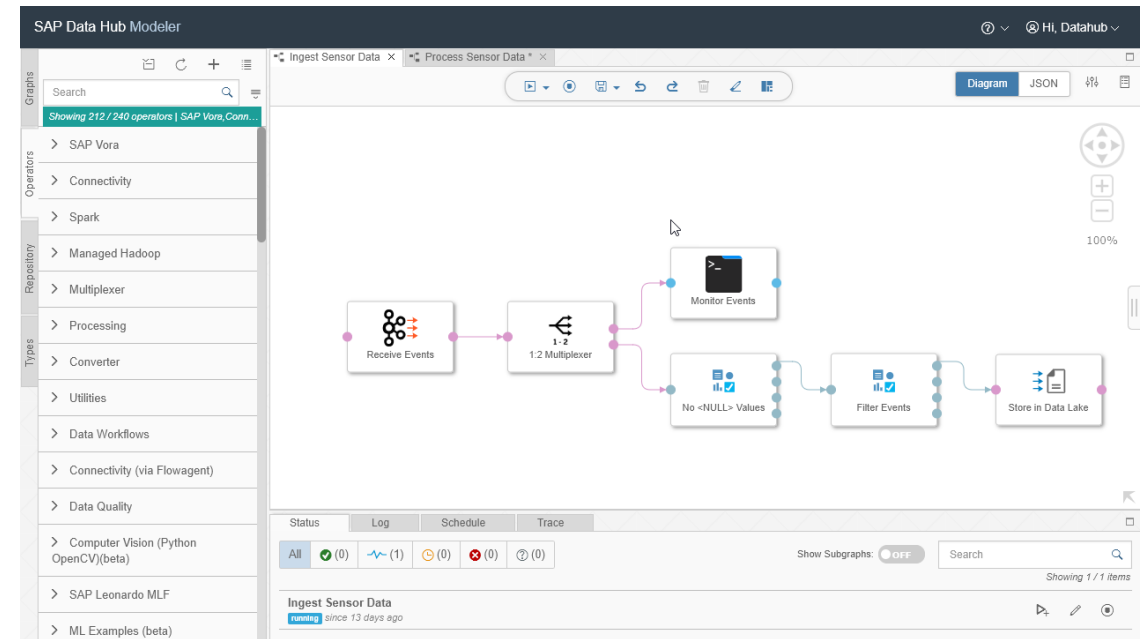
Data Workflows

- Central management of all system connections
- **Data Workflows:** Definition of cross-system processes, e.g.
 - Trigger Execution of SAP BW process chains
 - Transfer data from from SAP BW
 - Execute remote SAP Data Services jobs
 - Submit Spark jobs to Hadoop clusters
- **Scheduling** of Data Workflows
- Extensive **Monitoring**



SAP Data Hub: Pipelining & Processing Pipeline Modeler

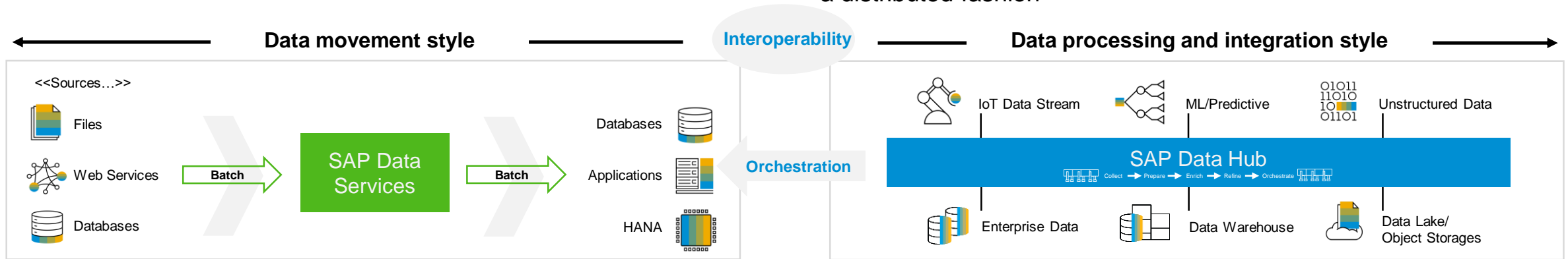
- **Data Pipelines:** Model flow-based applications
 - Operators (independent computation units)
 - Data (messages) flows between operators
 - Containers constitute the operators' execution environments
- Over 250 pre-defined Operators in different categories such Connectivity, Processing, Data Quality, Computer Vision, Machine Learning
- Development of custom Operators e.g. in Python, JavaScript, Go and R
- Content Lifecycle Management



Complementary solutions: SAP Data Services and SAP Data Hub

SAP Data Services

Moving application data from transactional sources to data warehouses, including data quality processes and built-in Data Integration transformations



Key use cases

- BI / Traditional Data Warehousing, Data Migration, Data Quality

Characteristics

- ETL in a standalone heterogeneous landscape
- Centralized, on premise & server-based infrastructure
- Relational data focused
- Advanced data transformations & processing (e.g. Join, SQL, DQ...)

SAP Data Hub

A pipeline-driven data integration, operations and governance solution for disparate kinds of data (structured, unstructured, streaming, cloud etc.), supporting both integration and processing in a distributed fashion

Key use cases

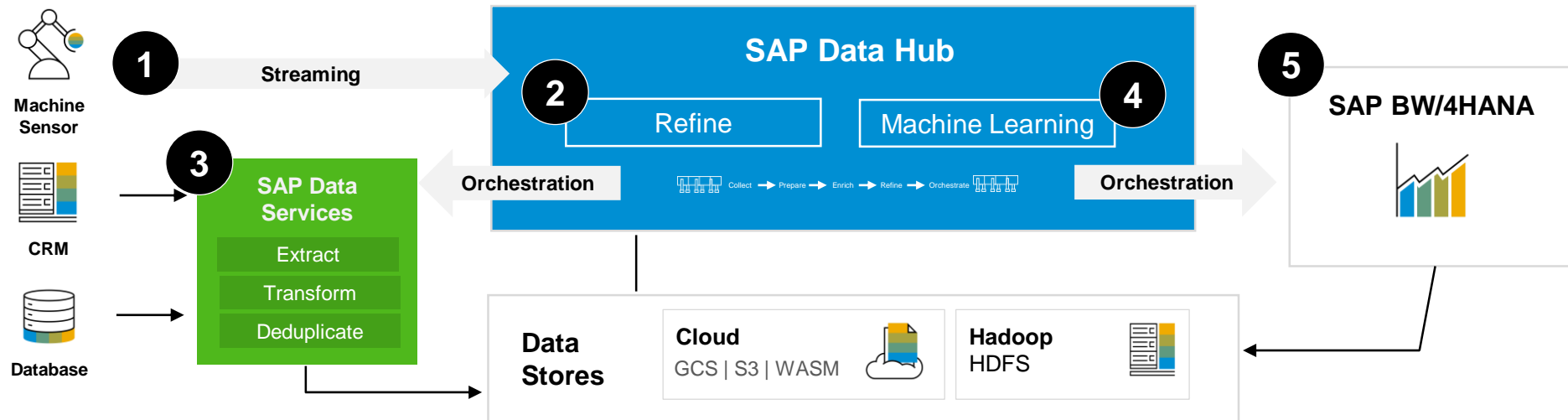
- Data science & Machine Learning, Big Data Warehousing, IoT, Data Tiering, Data Network

Characteristics

- Support multiple data ingestion methods
- Pipelining and orchestration of data processes in complex landscapes
- Cloud & on-premise deployment, distributed data processing & serverless computing via Kubernetes
- Big data focused (tables/views, object storages, any data formats), for both data at rest and data in motion
- Complex data refinery & processing (e.g. ML, Predictive, Image, custom code)

SAP Data Services and SAP Data Hub

Interoperability: Example for combined scenario



1

Ingest large volumes of data (e.g. distance, pace, heartrate, location...) from machine sensors by using MQTT/Kafka operator (SAP Data Hub)

2

Refine data according to purpose and store it in data stores (SAP Data Hub)

3

Acquire additional relevant structured data (e.g. customers, sales, behavioral, demographic) into data stores by remotely orchestrating DS jobs (leveraging existing SAP Data Services investments)

4

Apply machine learning algorithms (e.g. classification, clustering, identifying outliers, etc.) on the data to discover new insights about user characteristics (SAP Data Hub)

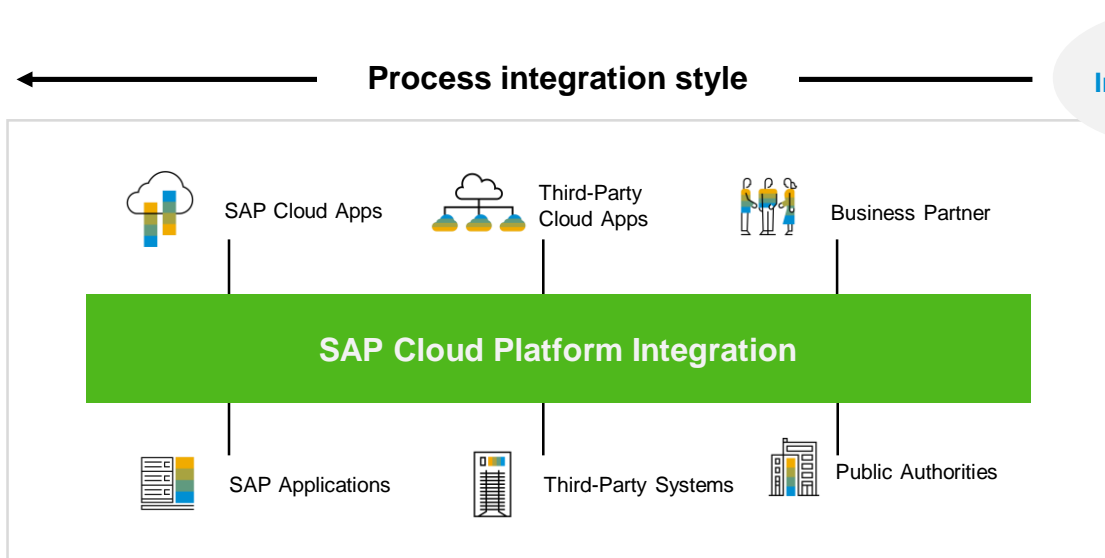
5

Invoke process chain to ingest the results into SAP BW/4HANA for further data analysis and reporting (SAP Data Hub)

Complementary solutions: SAP Cloud Platform Integration and SAP Data Hub

SAP Cloud Platform Integration

Provides service on cloud platform that facilitates the integration of business processes and data across on-premise and cloud applications

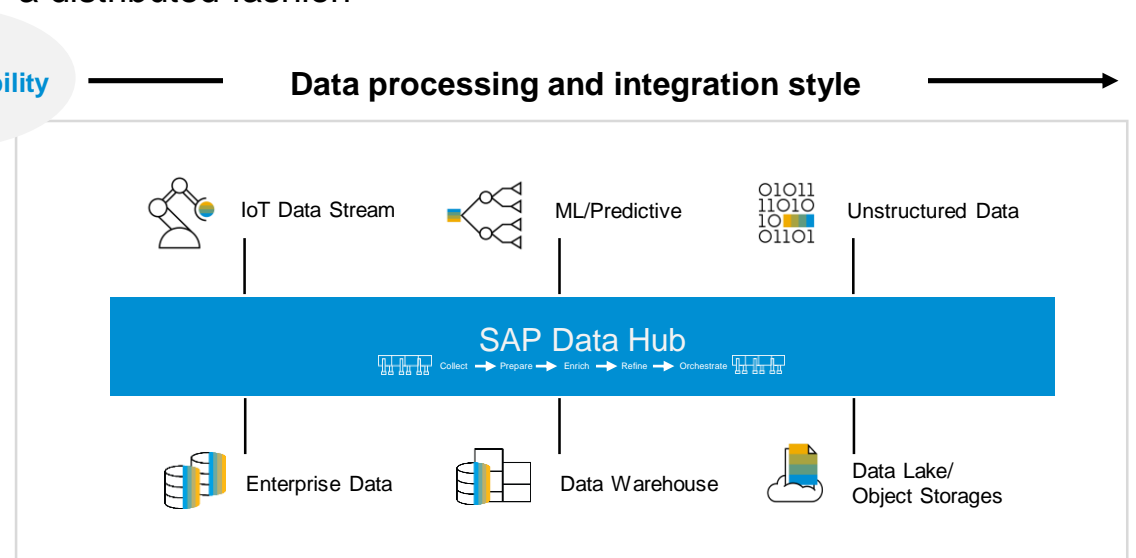


Key use cases and characteristics

- Integration between transactional (cloud and on-premise) applications
- A2A / B2B, B2G / Master Data Synchronization
- API focused (synch., async., business events)*
- Message-based processing (mapping, routing, monitoring)
- Transactional integrity (reliable messaging and error handling)
- Pre-packaged integration content for SAP/Non-SAP scenarios

SAP Data Hub

A pipeline-driven data integration, operations and governance solution for disparate kinds of data (structured, unstructured, streaming, cloud etc.), supporting both integration and processing in a distributed fashion



Key use cases and characteristics

- Data science-driven pipelining and orchestration of disparate kinds of data in complex landscapes
- Big Data Warehousing, IoT, Machine Learning & Predictive Analytics
- Data focused (table/view, storages, processing, libraries)*
- Distributed data processing & serverless computing
- High frequency event processing (e.g. via Kafka)
- Advanced data transformations & processing (e.g. ML, Predictive, Code)

Direction SAP Data Services & SAP CPI-DS with SAP Data Hub

- Run SAP DS/CPI-DS with SAP Data Hub
 - Reuse connectivity
 - Share infrastructure

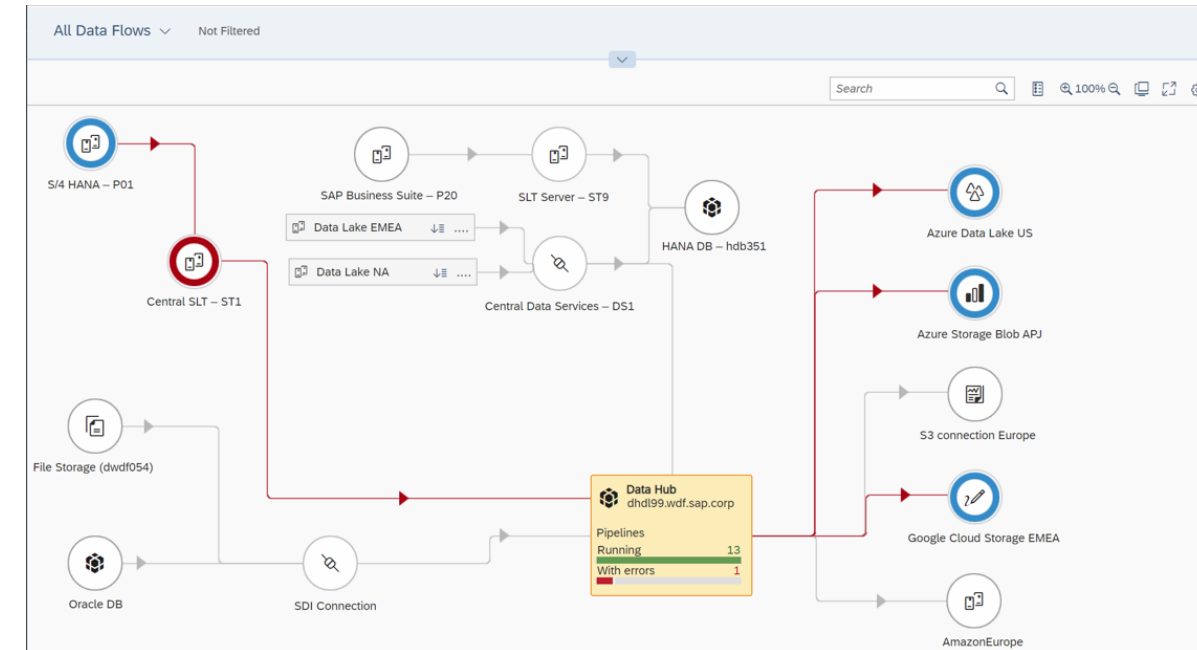
SAP Data Hub Connection Management

Connection Types **Connections** Certificates

Connections (16 of 16)

Connection Id	Description	Type	Tags
ABAP_HTTP		ABAP	
ABAP_RFC		ABAP	
BW		BW	
DBSERVER	Connecting to SQL Serve	MSSQL	
DS		DATASERVICES	

- Orchestration and landscape monitoring for all data flows:



Monitoring Mockup

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