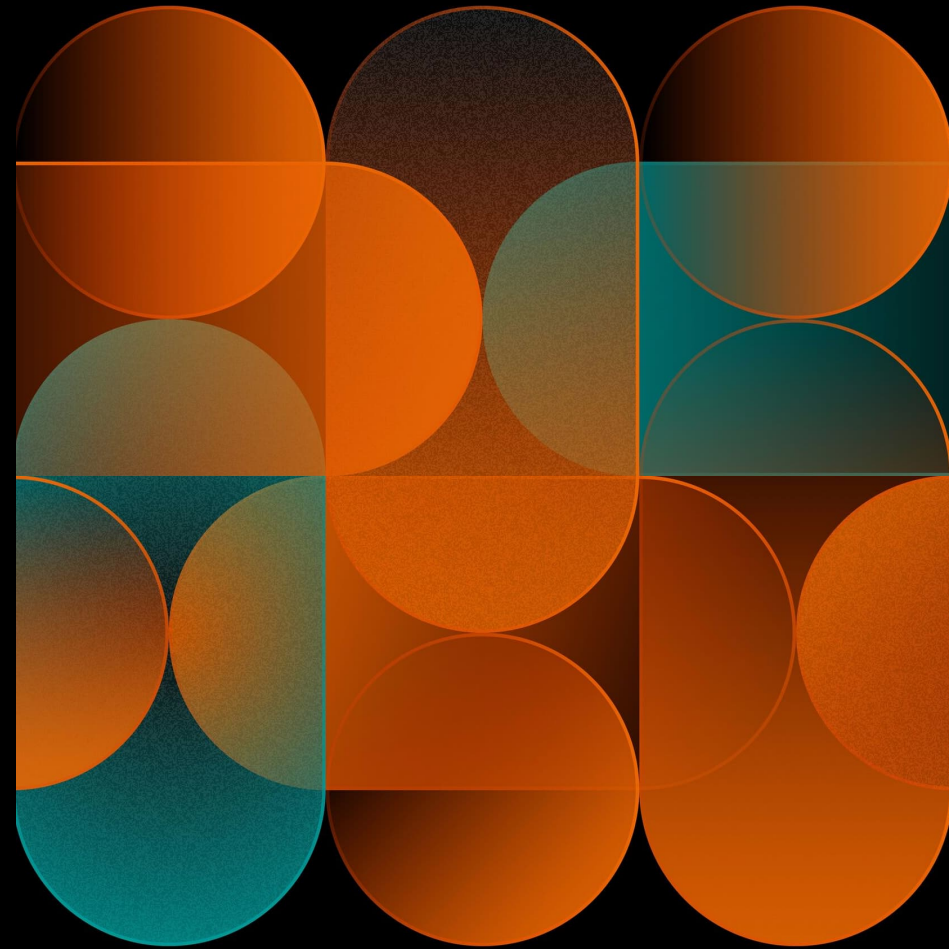


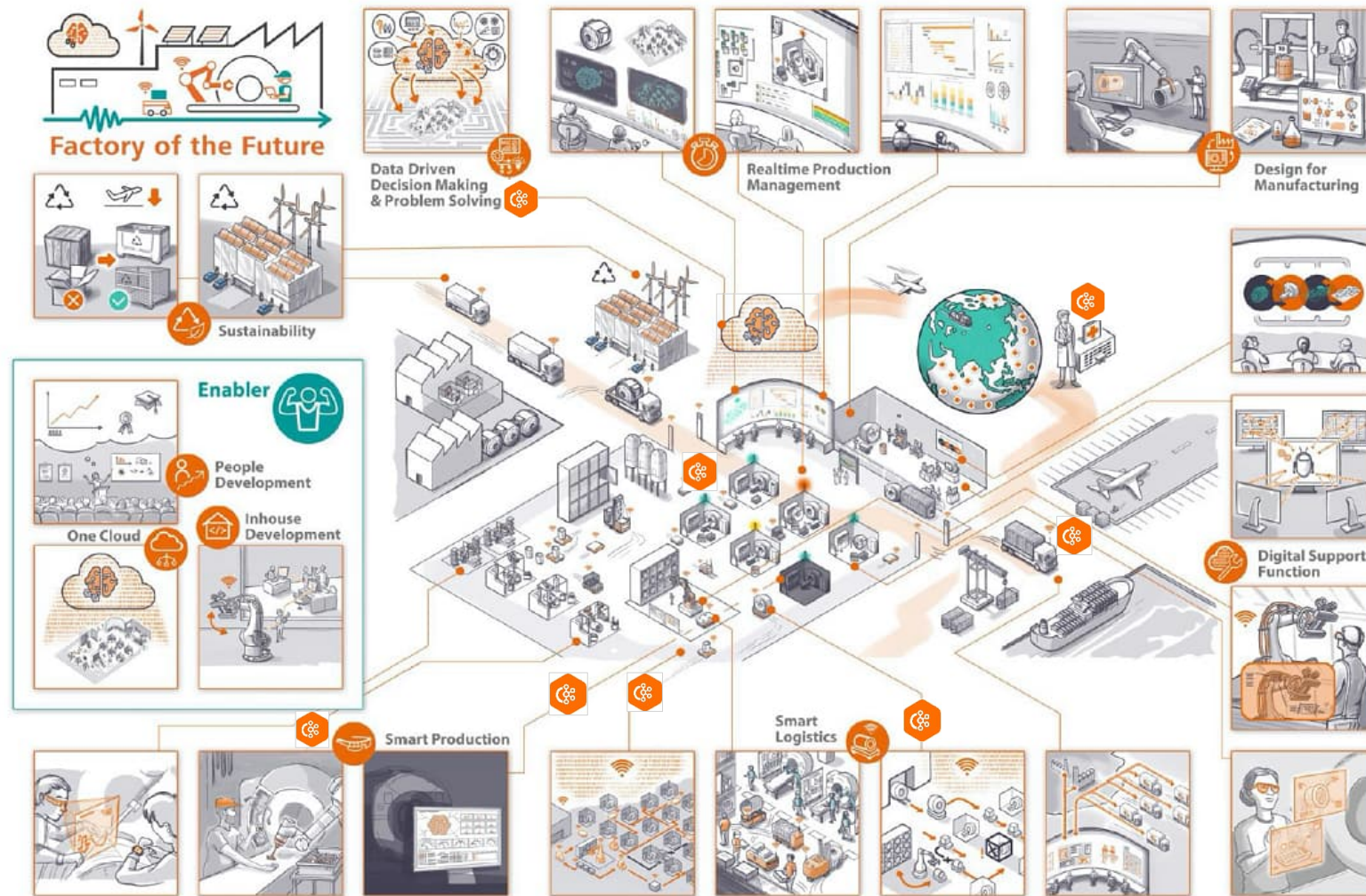
The Factory of the Future

Leveraging Data Streaming in Manufacturing and Healthcare

Arash Attarzadeh
Solution Architect – March 2026



Streamlining the Data Journey



Diverse Ingestion Methods

Change Data Capture (CDC)

Data from SAP sources

Ingestion tool is SLT paired with SNP Glue

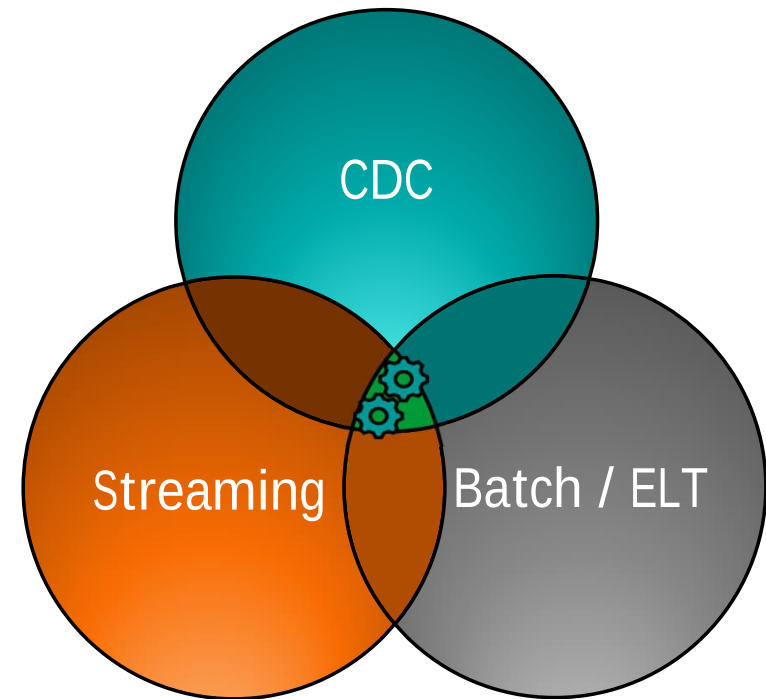
Data is available within 30 minutes of inception on sources

Batch / Extract, Load, Transform (ELT)

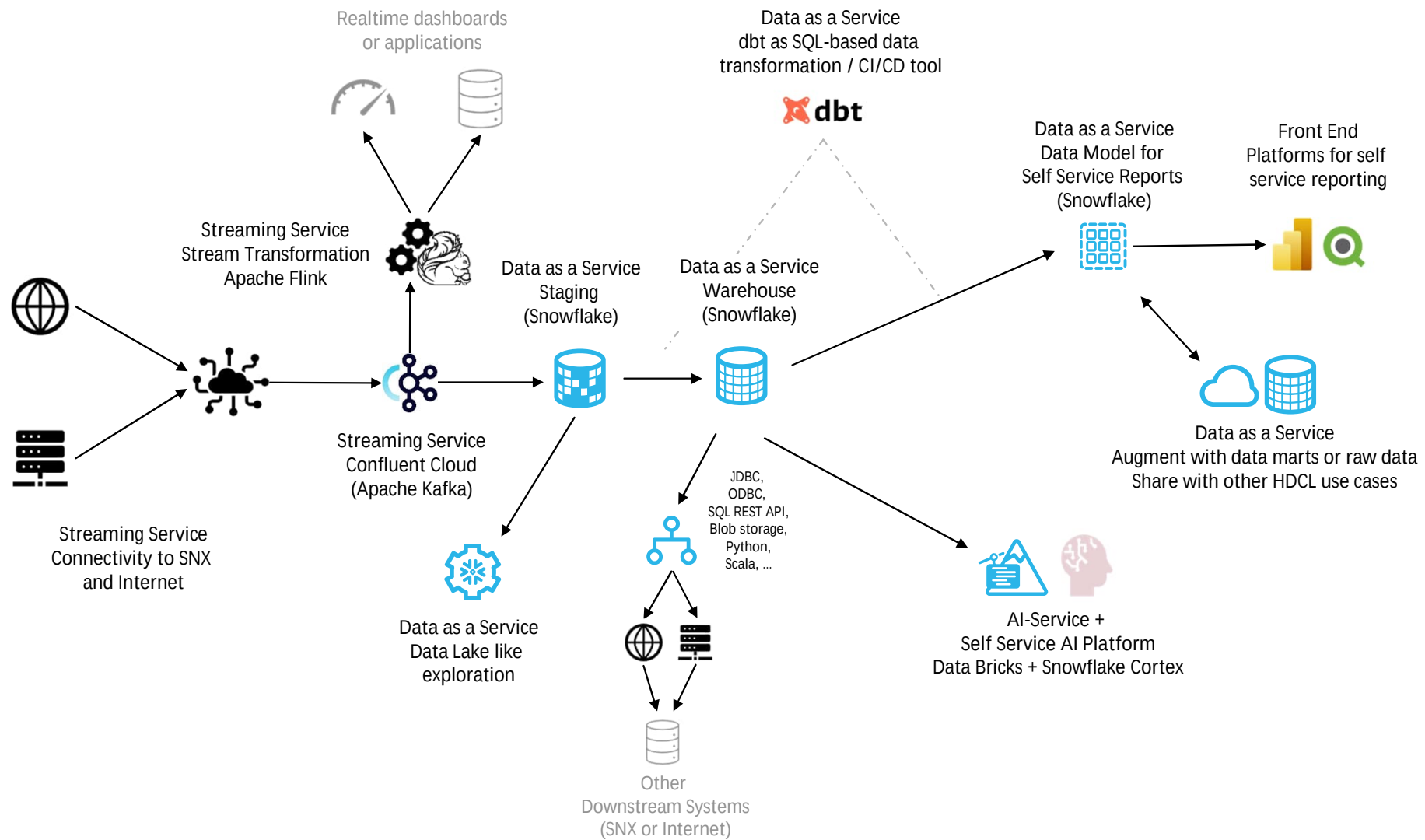
- Non-SAP Data from structured sources, flat files, etc...
- Ingestion tool is Matillion
- Data is available based on job execution schedule

Streaming

- IoT data from manufacturing floor (Sensors, PLCs, etc...)
- Ingestion tool to be Confluent Kafka
- Data available within minutes of inception



Data Cloud Technology stack

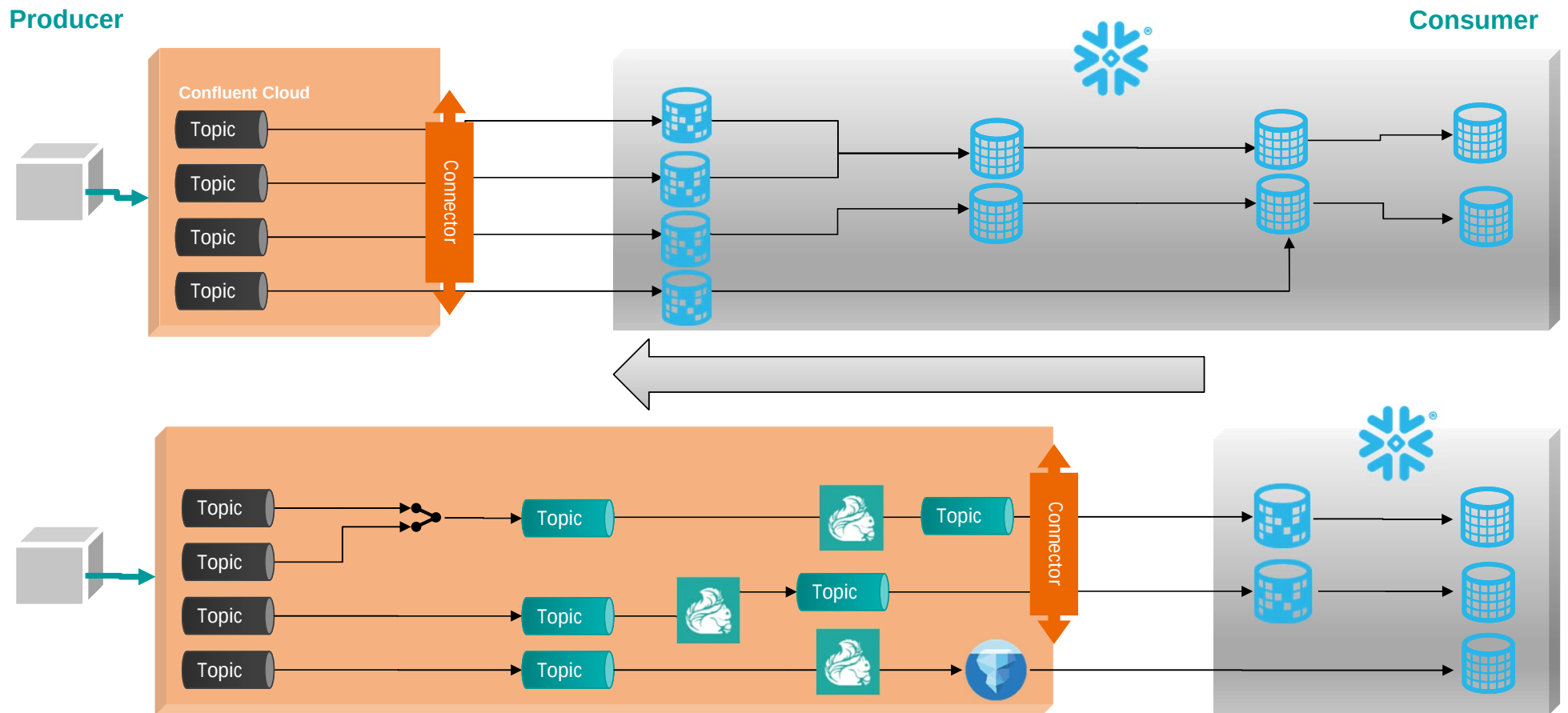


In Our Pipeline: New Technologies Under Use

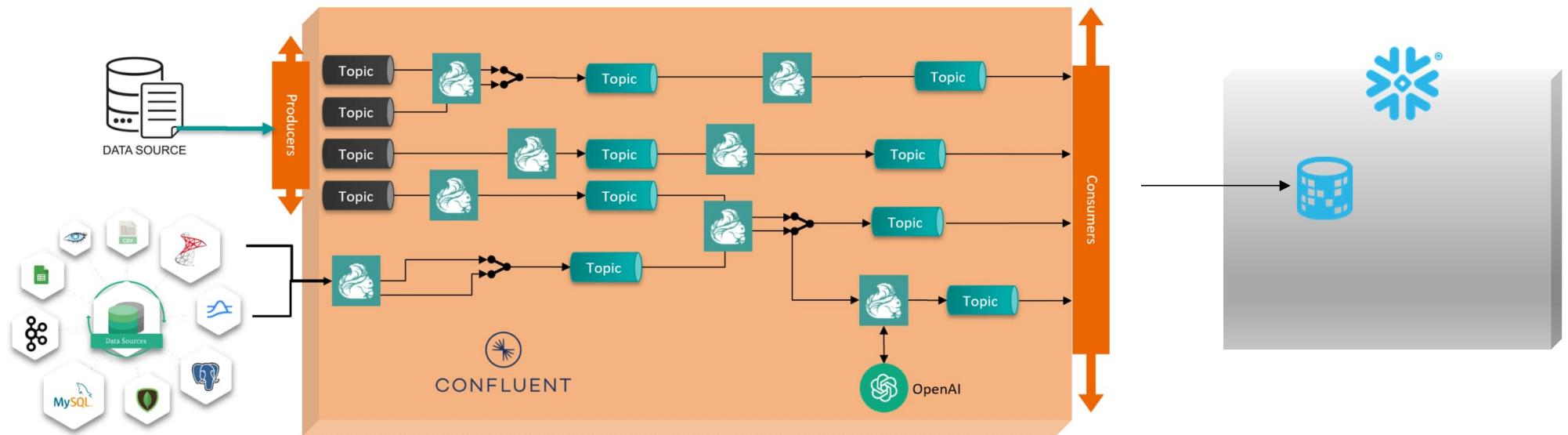


- 🔄 Shift-Left in Data Streaming: Bringing Intelligence Closer to the Source
- 🧠 Model Integration in Stream Pipelines: LLMs within Flink
- 🤖 ETL Meets Conversational AI: Chatbot Development Using KNIME and Microsoft Team
- ⚙️ Custom Logic in Motion: UDF Implementation in Flink with Java
- 💡 Streamlined Confluent Cloud Operations: Using Confluent MCP Server to Replace Terraform for Environment and Cluster Administration
- 📦 Unified Data Layer with Iceberg: Leveraging Tableflow for Streaming Tables and Open Table Formats

Shift-Left in Data Streaming

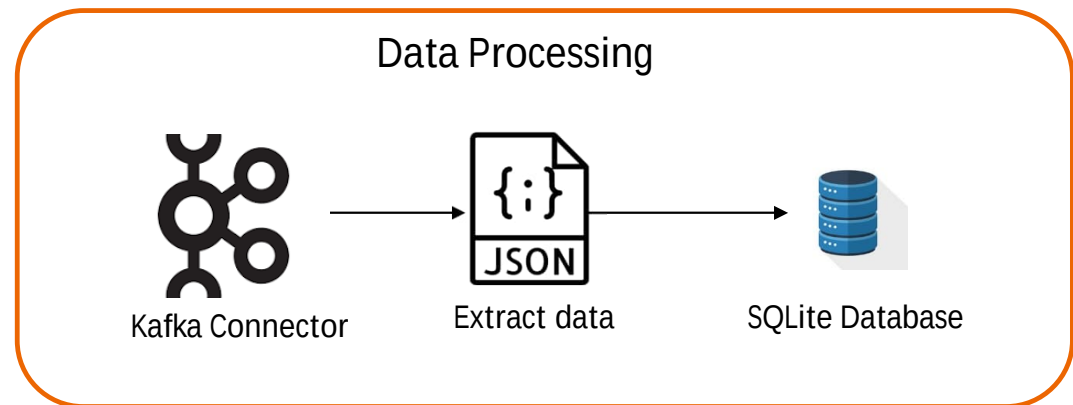
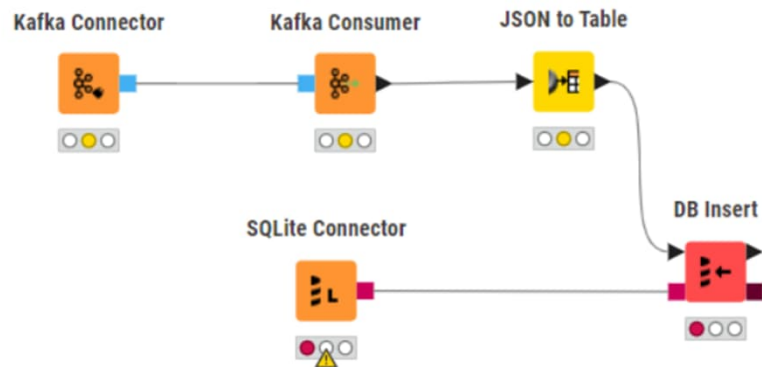
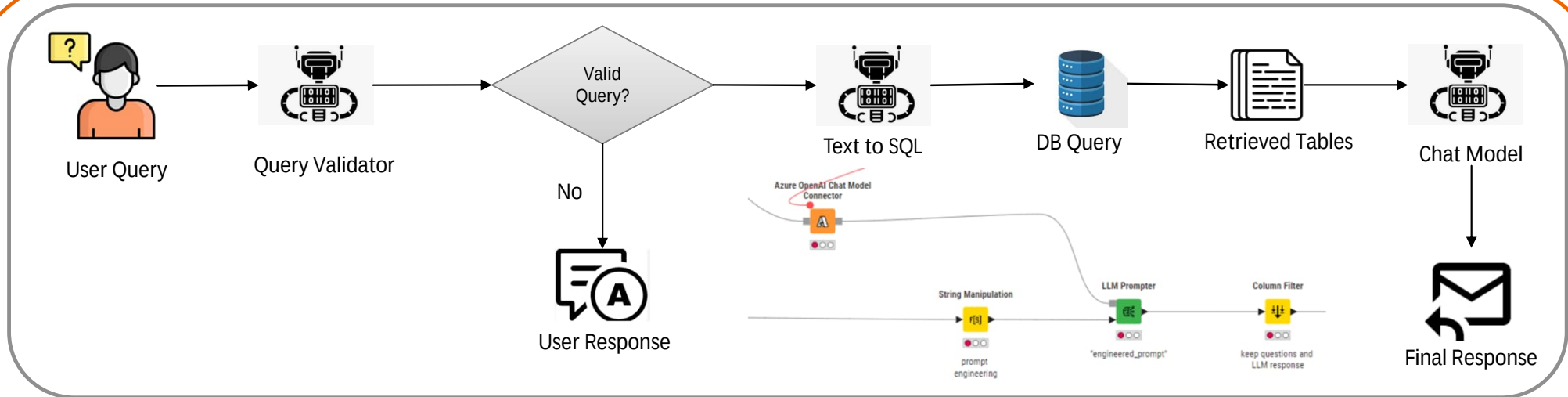


Model Integration in Stream Pipelines: LLMs within Flink



ETL Meets Conversational AI

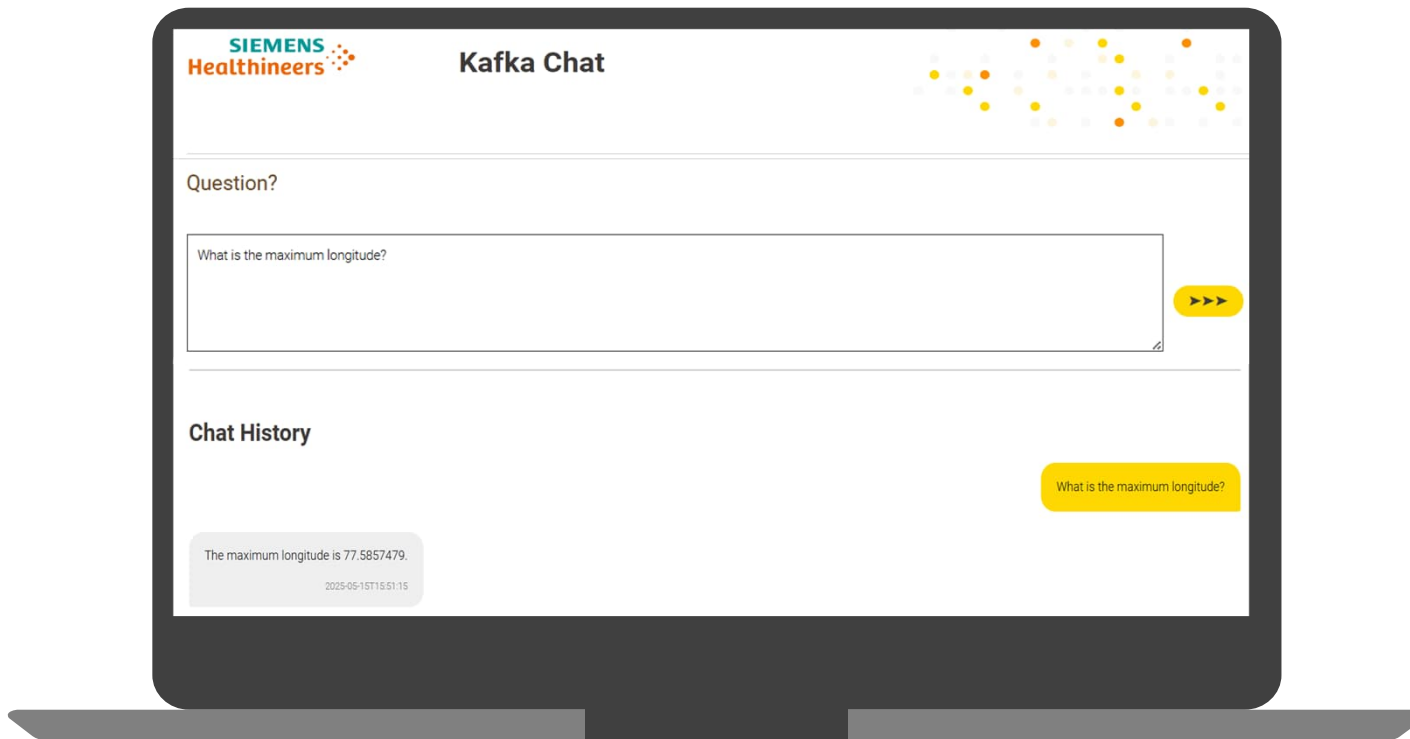
Kafka to KNIME Chatbot



Demo – Kafka Chatbot

A Chatbot Streams data from a Kafka consumer cluster and using text-to-SQL to provide real-time answers.

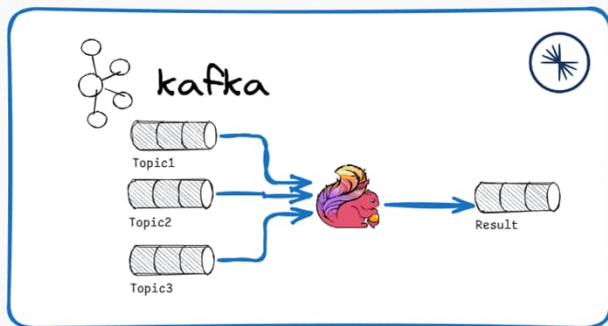
Data App: [Kafka - Chat](#)



Real-Time AI Assistant Architecture (Kafka + MCP + Teams)

Confluent Cluster

Events are published to Kafka topics.



Stream Processing

Stream processing combines and transforms data into meaningful results.

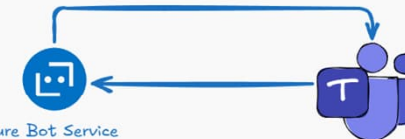
Confluent MCP

Processed data is sent to MCP for contextual enrichment.

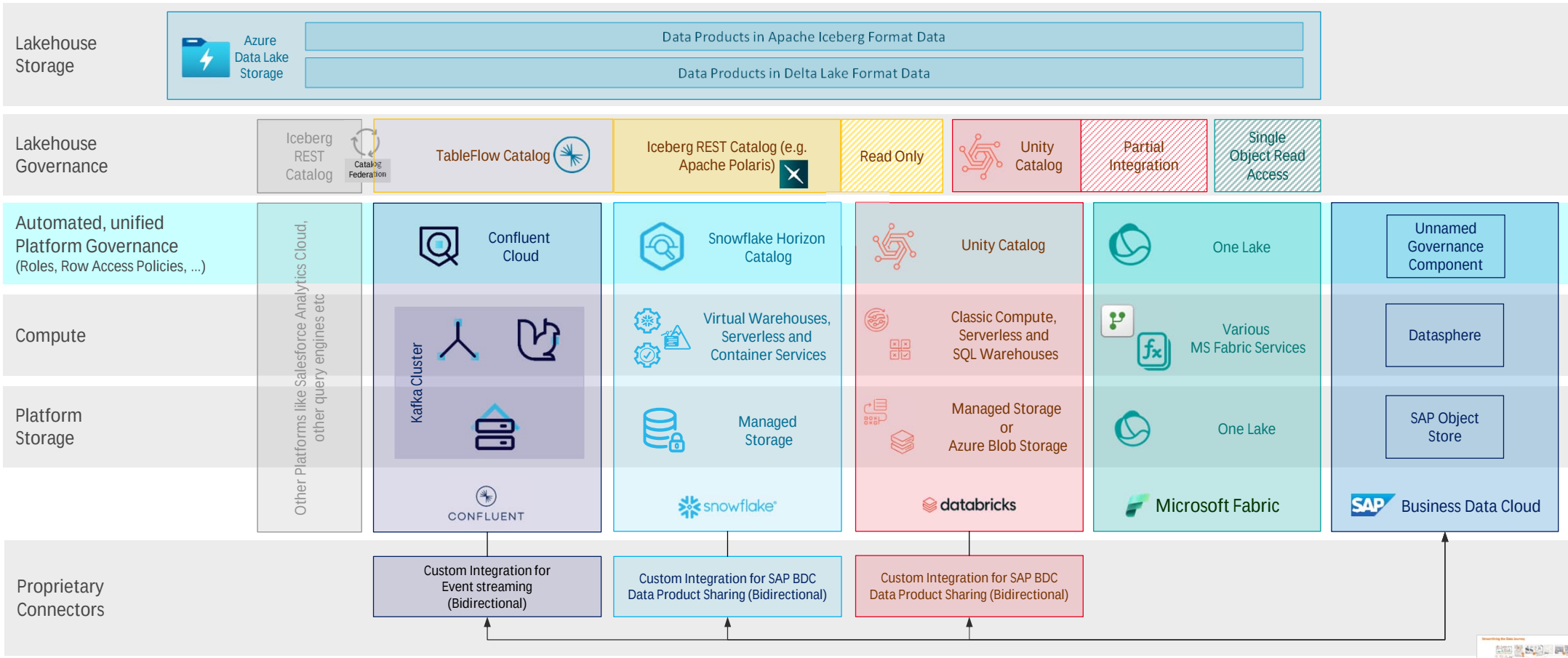


Azure Bot Service

Azure Bot Service consumes the enriched context.



Catalog Federation with Platform Adaptor



Machines Integration

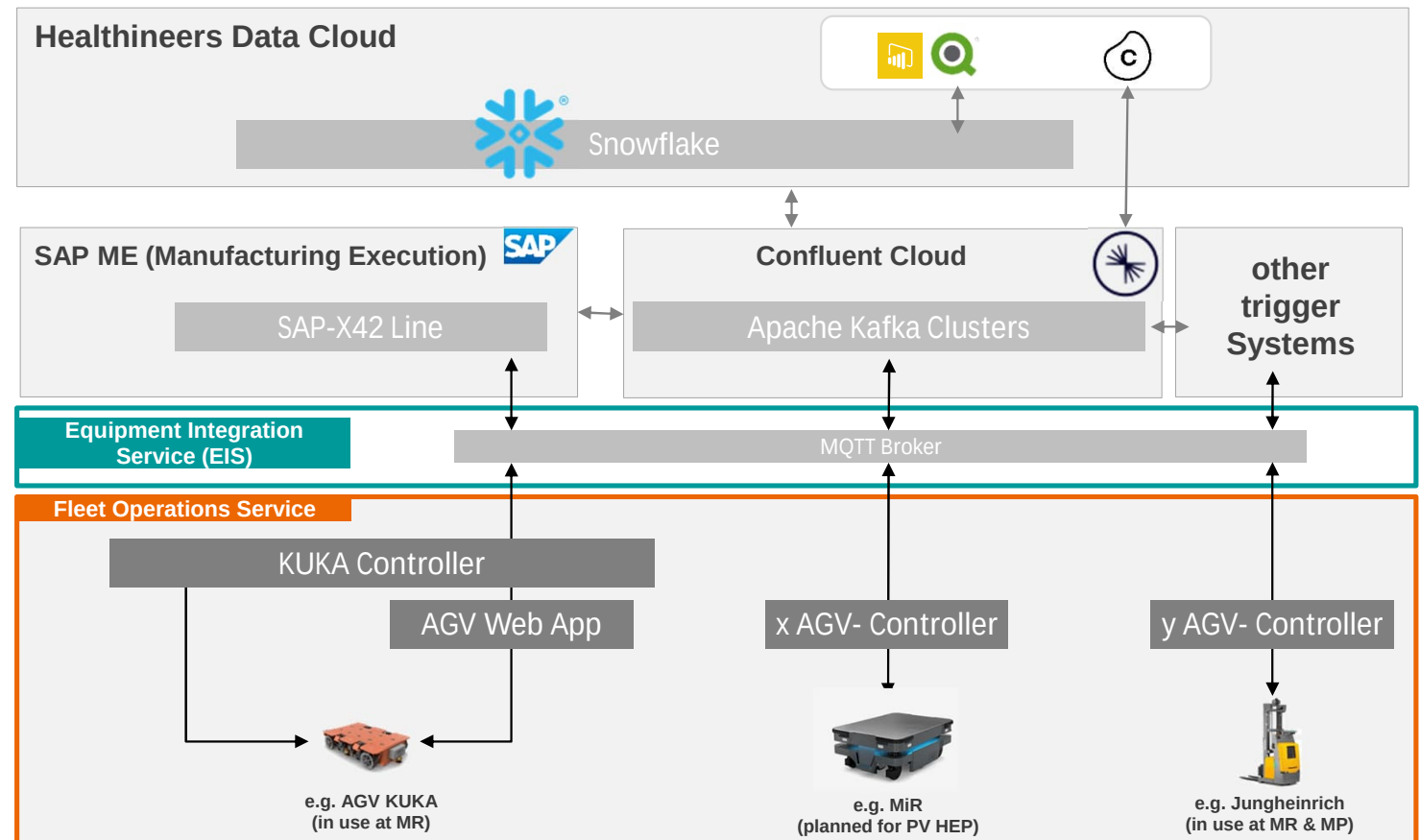
Use Case: “Machines Integration”

Location: Forchheim, Bavaria

Goal: Integrating of Siemens Healthineers Machinery data to use in different targets including Snowflake for further Analytics.

Key Facts:

- Will support Data Scientists in Business
- Collecting Data from Different Machines (Legacies and Best practices)



DSO-Digital Service Operations

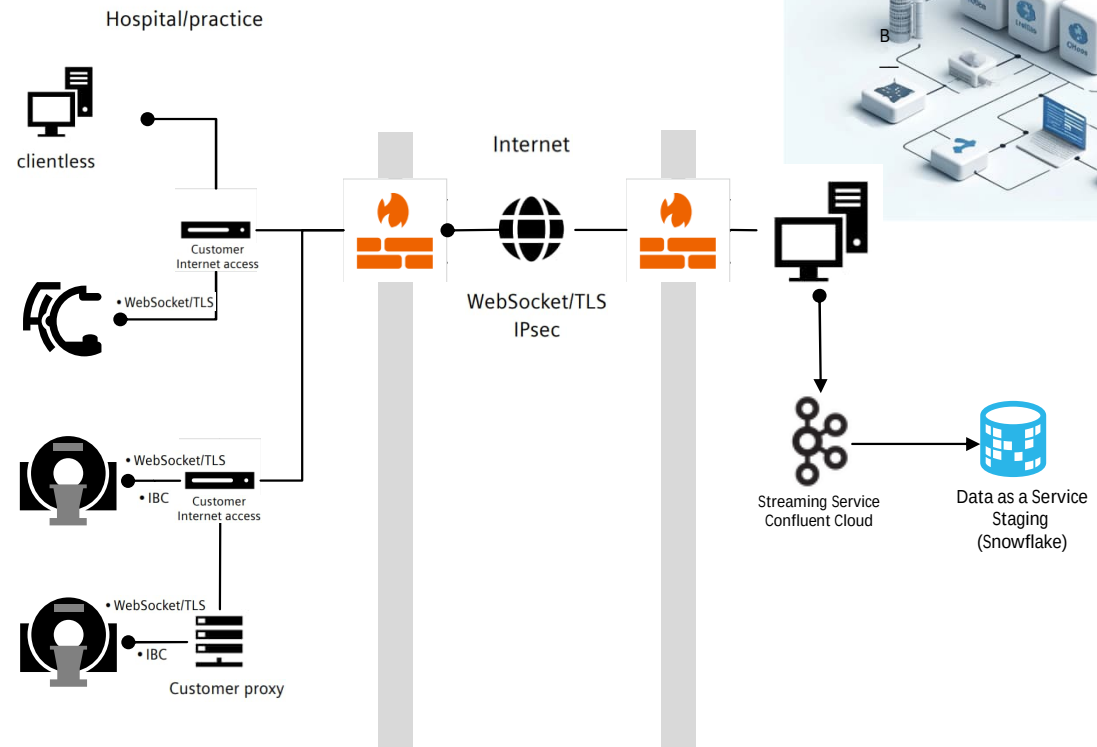
Use Case: “Telemetry Data”

Location: Erlangen, Bavaria

Goal: Streaming data out of Siemens Healthineers Products into Snowflake for further Analytics on Data

Key Facts:

- Will support Data Scientist in Business
- Collecting Data from Different data sources, combining them in KSQLDB and consume it in different targets

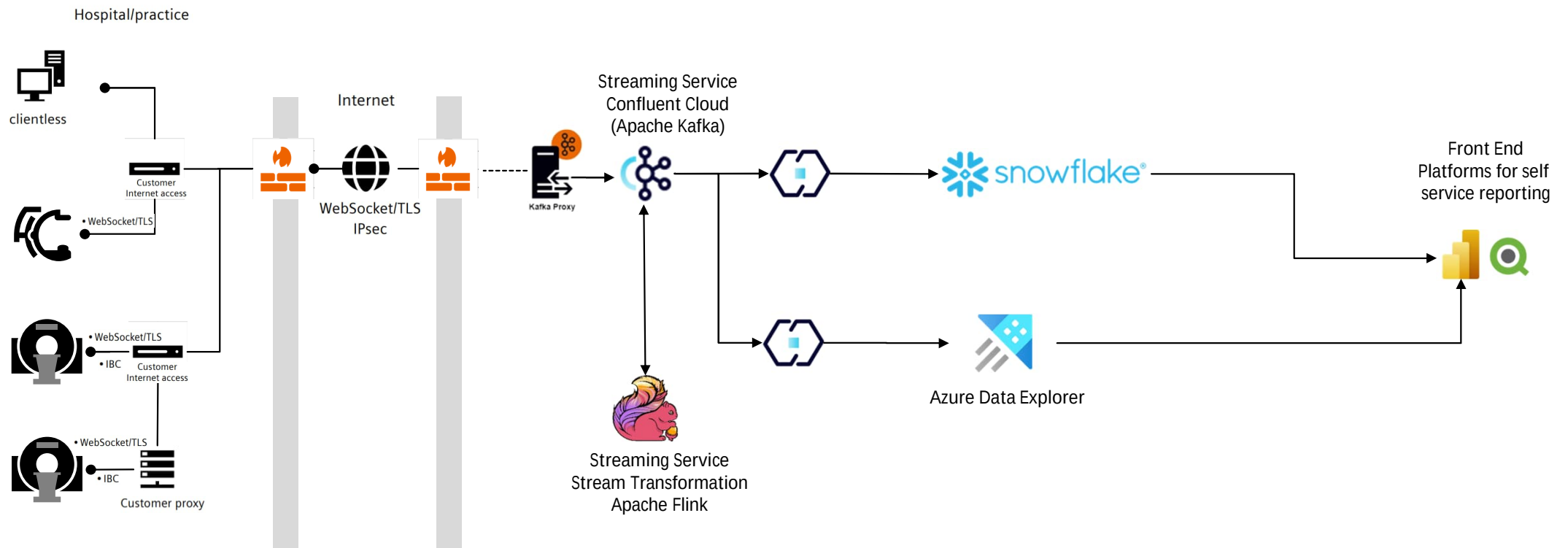




What is Telemetry Data?

- **Definition:** Telemetry data refers to the automated collection and transmission of measurements from remote sources, often using sensors and wireless communication
- **In Healthcare:** Includes vital signs (e.g., heart rate, blood pressure, oxygen levels) collected by medical devices like ECG monitors or wearable devices. Enables continuous patient monitoring and early detection of anomalies

Architecture



SAP Data in Near Real-Time

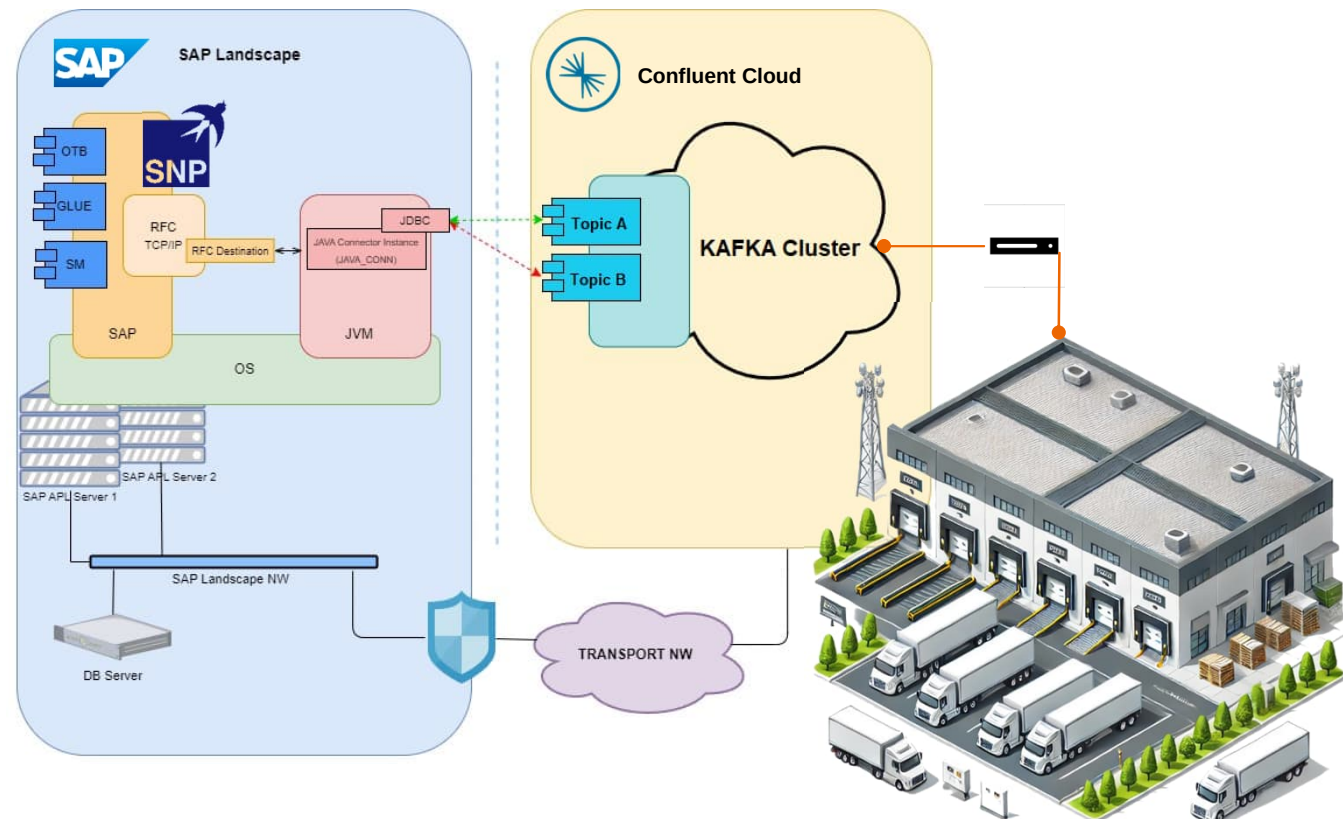
Use Case: “SAP Sales Document Data”

Location: Erlangen, Bavaria

Goal: Streaming Logistics SAP events data towards Shipping Points more in real-time

Key Facts:

- SAP Real-Time data for Shipping points
- Improving Packaging planning





Track and Trace Orders

Use Case: “Track and Trace Orders”

Location: Erlangen, Bavaria

Goal: Using Confluent Cloud for Streaming tracking and tracing of Siemens Healthineers Orders Data back into Snowflake