Google Cloud

Real-time Analytics with IoT

Enable Real-time analytics on large volumes of your IoT operational data, leading to more faster and more valuable decision making.
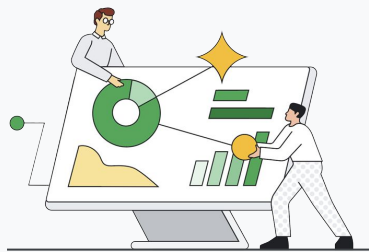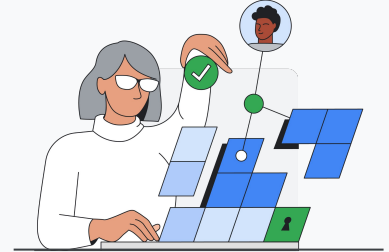

Personalized user experience

Deliver personalized services to end-users at the edge, instead of producing generic, experiences
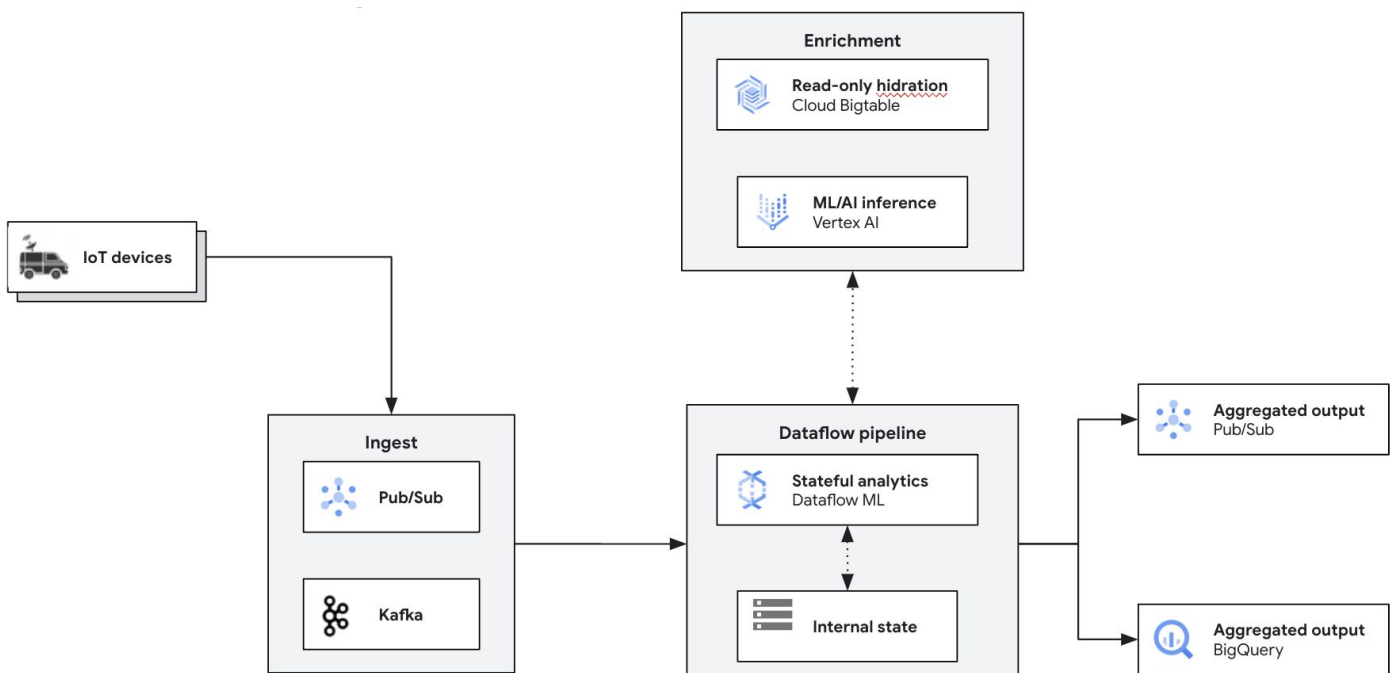
Reduced Cost & downtime

Identify supply chain problems promptly, minimizing cost, downtime & product defects.

Improved quality control

Monitor the production lines in real-time, ensuring that products meet quality standards

Dataflow's unique strengths help deliver granular insights at tremendous scale with low latency, all with the security & reliability guarantees of a first-class enterprise service

IoT devices

Enrichment

Read-only hidration
Cloud Bigtable

ML/AI inference
Vertex AI

Ingest

Pub/Sub

Kafka

Dataflow pipeline

Stateful analytics
Dataflow ML

Internal state

Aggregated output
Pub/Sub

Aggregated output
BigQuery

Dataflow can deliver Real-time analytics on large volumes of your IoT operational data

1 Manufacturing

Use Cases
- Identifying defective parts in a manufacturing facility
- Real-time insights into factory operations, product quality, and machine performance

Value
- Improve production efficiency
- Gather insights and take key business decisions to reduce cost and downtime

2 Automotive

Use Cases
- Real-time monitoring of vehicle health, proactive alerts for maintenance.
- Improved safety, and an enhanced customer experience

Value
- More reliable, efficient, and safer vehicles, ultimately improving the overall driving experience
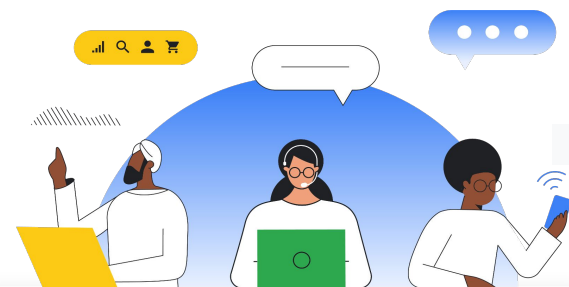
3 Telecommunications

Use Cases
- Dynamically allocate resources for optimal network performance
- Proactive fault detection & maintenance of networking devices leading to enhanced customer experience.

Value
- Shift from Reactive to proactive.
- Cost savings, improved network efficiency, and a superior end-user experience

Why Dataflow?

- Innovate with **Google's Dataflow** unified stream solution for IoT analytics.
- **Build and scale fast** combining seamless integration, serverless architecture.
- Unlock full potential with **Real-time streaming.**

Key Differentiators:

- **Serverless & scalable:** Seamlessly handle traffic loads up to dozens of GB/s
- **Streaming ML & AI:** Preprocessing, training, inference all supported with turnkey transformations
- **Flexible Programming Model:** Supports Java, Python, and SQL
- **Flexible I/O framework:** Rich library of connectors for common IoT data sources and sinks

"Dataflow has since become the go-to tool for most data processing needs in the platform... The new platform is built to scale, and as of Q1 2021, the IDM 4.0 team has been connecting more than 4,900 industrial appliances through Renault's internal data acquisition solution, transmitting more than 1 billion messages per day to the platform in Google Cloud!

Jean-Marc Chatelanaz
Industry Data Management 4.0 Director, Renault

RENAULT

[Learn More]

"We have more than 10 use cases running across customers and apps. More are coming, like the machine learning use cases .... for these use cases, Beam provides a really good programming model"

Talat Uyarer
Sr Principal Software Engineer

paloalto NETWORKS

[Learn More]

Let's get started

- **Align on goals** for developer efficiency and key use cases
- Review reference architecture and **implementation checklist**
- Engage with **Google Cloud Consulting** or certified **Google Cloud Partner**
- Activate Google Cloud Consulting service packages to **streamline implementation**

[Let's Start]