

# GAP

MODERN DATA ARCHITECTURE FOR  
GLOBAL RETAIL OPERATIONS



# INTRODUCTION OF THE PROJECT

## OBJECTIVE

Global Demand Forecast for **GAP**

## BUSINESS IMPACT



Online and in-store  
transactions



Supply chain activities  
across global operations



Inventory Management

# Architecture Process

## Data Sources



Online and in-store transaction systems



Customer Relationship Management (CRM) for customer interactions



Enterprise Resource Planning (ERP) for inventory and supply chain data



## Data Governance & Security

## Ingest



real-time streaming of transactional data.



For data ingestion pipelines.



For relational databases.

## Store



To store raw data



For structured transactional data



## databricks

For data governance across both Azure and AWS



For access control.

## Process & Train



For real-time data processing and analytics



For data science workloads and machine learning model training.



For security policy management

## Business User

Dashboards and reporting tools integrated with Power BI and QlikView.



and microservices deployed on Azure App Service and AWS Elastic Beanstalk.



Personalized recommendation engines powered by Azure Cognitive Services and AWS Personalize.

## Additional Considerations:

All data flows and services must ensure compliance with GDPR and other regional data protection regulations.

Scalability is achieved through cloud-native services that offer auto-scaling and load balancing.

Cost optimization through reserved instances, spot pricing, and scaling down during off-peak hours.

# Technology Selection



For efficient distributed storage and processing of large data sets.



## NoSQL DATABASES

Provides scalability and flexibility for varied data types.



Enables real-time data processing for immediate insights.

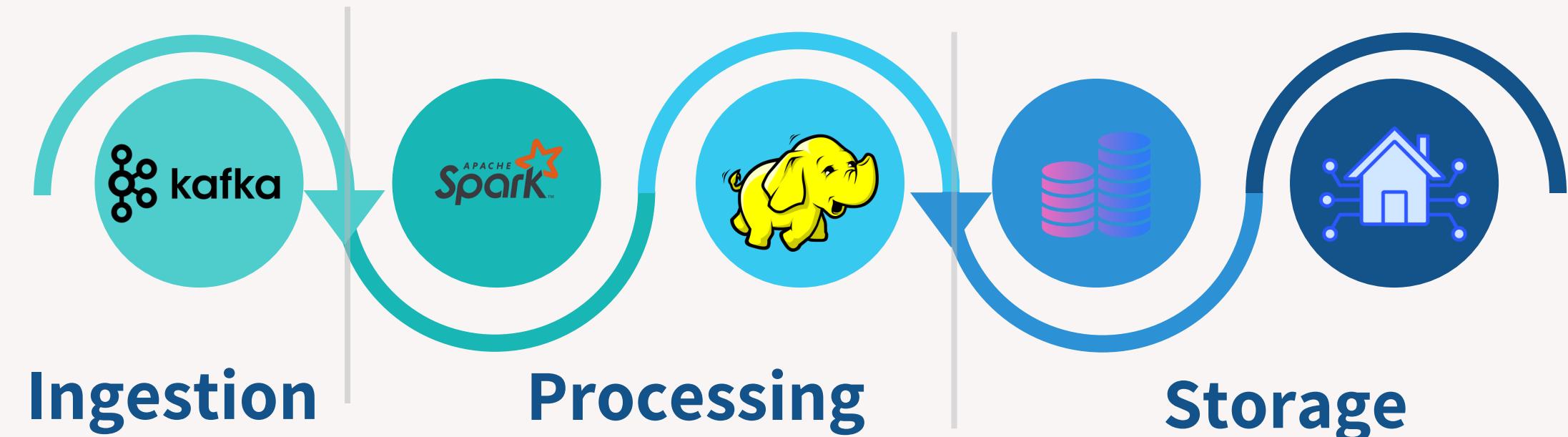
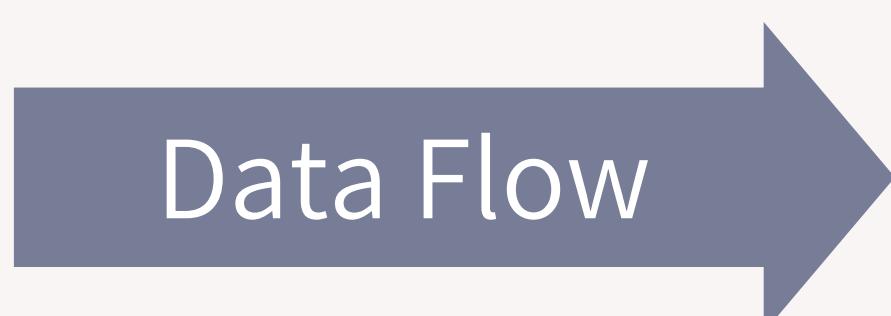


## DATA WAREHOUSES

Provides scalability and flexibility for varied data types.



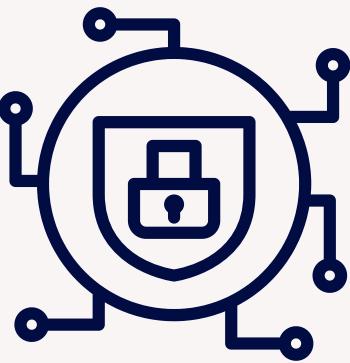
Manages high-throughput data streams from various sources.



Ingestion

Processing

Storage

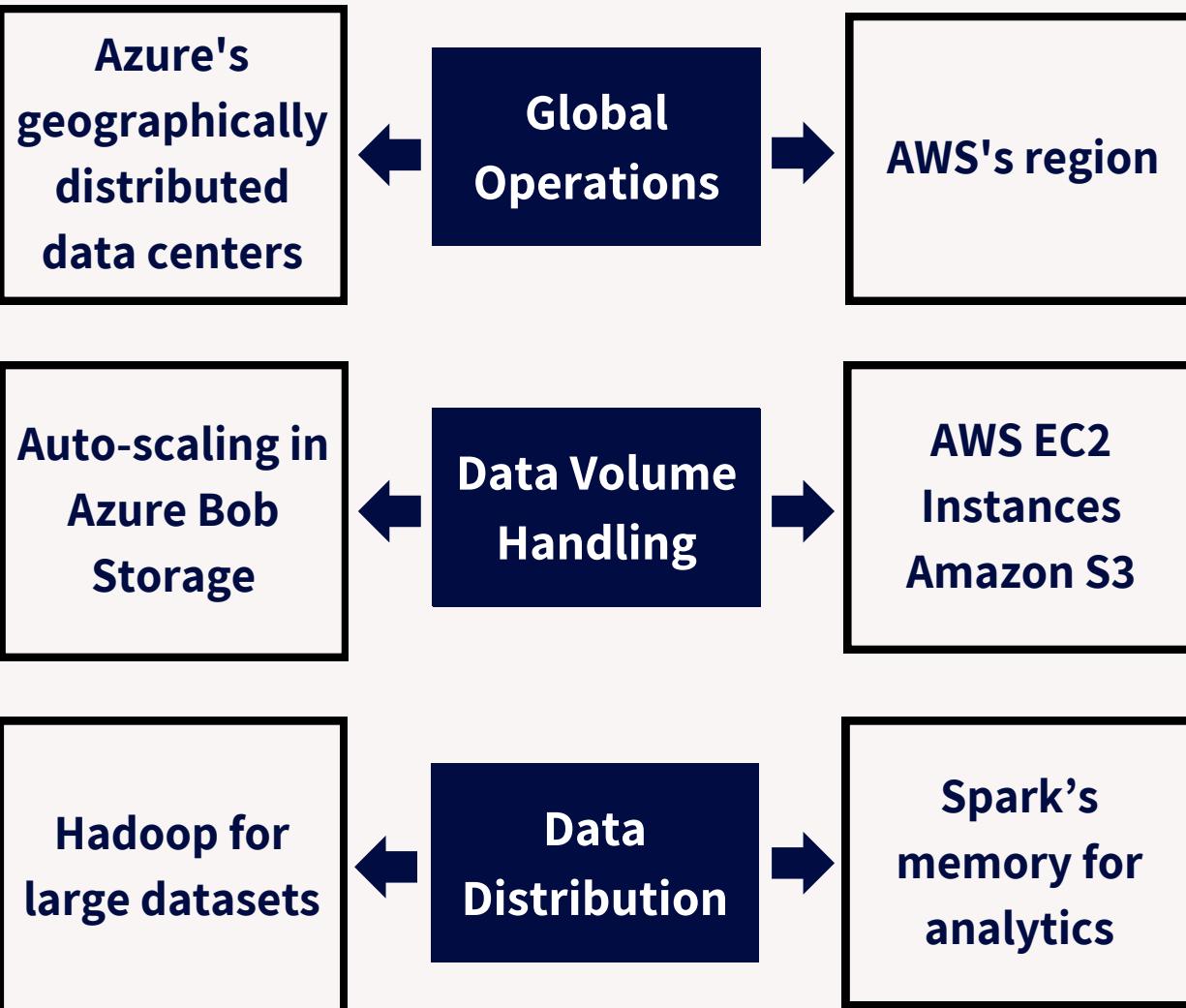


# Protecting Business Success: The Essential Alliance Between Data Governance and Security

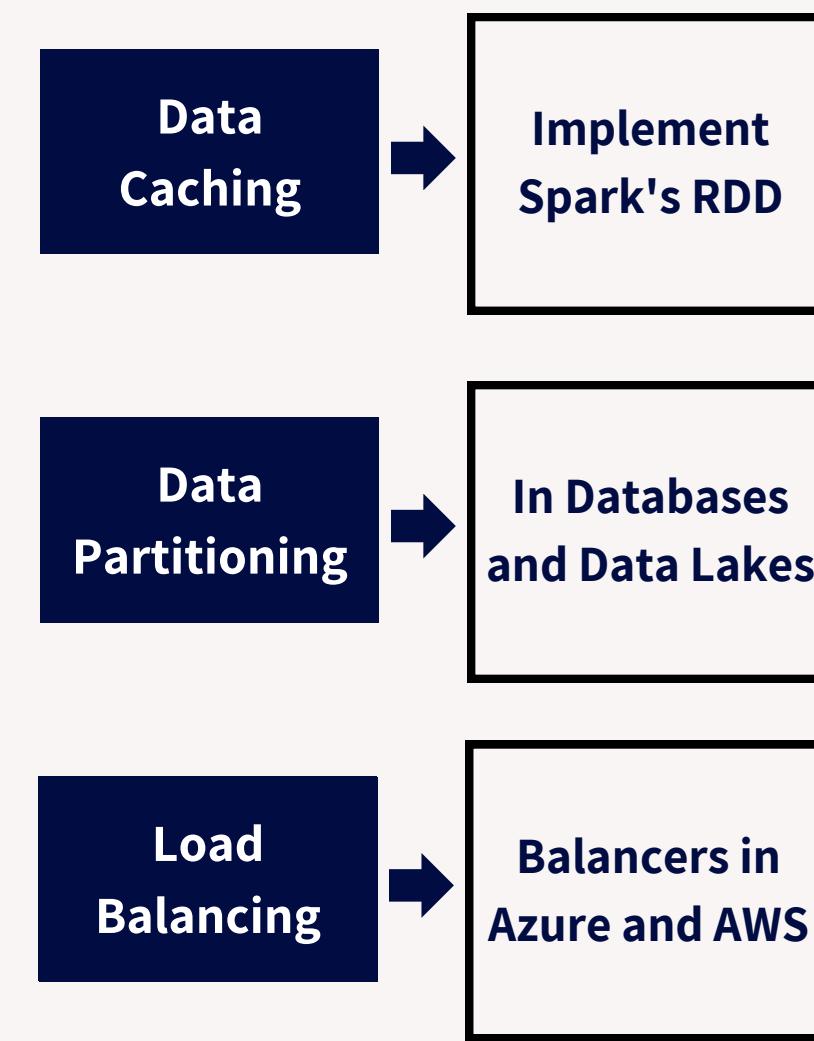
USER CASE: GLOBAL DEMAND FORECASTING	DATA GOVERNANCE	SECURITY
 <b>Online and in-store transactions</b>	Reliable transaction data.	To protect the integrity of financial and customer information.
 <b>Supply chain activities across global operations</b>	Data integration and quality assurance.	Regulatory compliance and risk management supported by security measures
 <b>Inventory Management</b>	Reliable forecast data.	Customer privacy and security in inventory management.

# Analysis of the Project

## SCALABILITY



## PERFORMANCE OPTIMIZATION



## COST CONSIDERATIONS

