CLOUD ARCHITECTURE FOR WALMART

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Walmart Company's Migration to Cloud Infrastructure

It is crucial for Walmart to adopt cloud infrastructure to enhance scalability, efficiency, and innovation. By transferring their extensive operations to the cloud, Walmart can optimize processes, enhance data accessibility, and facilitate seamless integration across their vast network of stores and digital platforms.

How does Walmart’s existing system work?

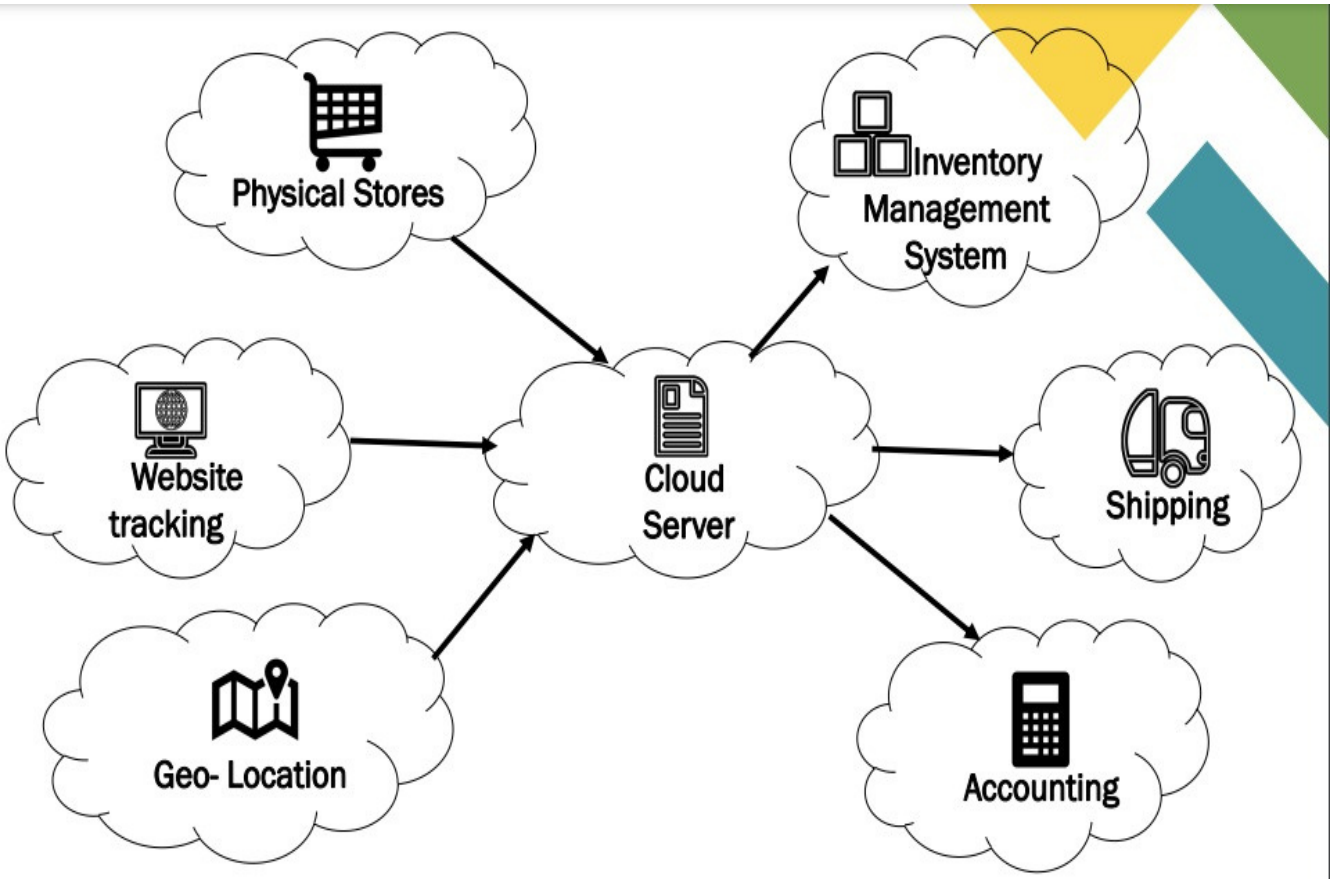
Walmart's current system utilizes a mix of on-premises servers and outdated software to oversee its extensive retail activities. This configuration requires intricate infrastructure upkeep, restricted expandability, and difficulties in adjusting to changing market requirements. The presence of various disconnected systems throughout its worldwide presence creates obstacles in data integration and accessibility.

Purpose:

The aim of implementing cloud architecture at Walmart is to update infrastructure, improve operational efficiency, and stimulate innovation. This transition allows for scalability, flexibility, cost savings, enhanced data accessibility, integration, and innovation prospects, ultimately ensuring competitiveness in the ever-evolving retail industry.

Vision:

Our vision diagram illustrates an integrated system where data from physical stores, website tracking, and geolocation is seamlessly collected and stored in the cloud. This data fuels various functionalities including inventory management, shipping, and accounting. By leveraging this comprehensive dataset, we optimize operations, enhance customer experiences, and drive efficiency across the board. This interconnected ecosystem enables us to adapt quickly to market demands, streamline processes, and deliver superior service to our customers.



What are our Objectives?

1. **Seamless Data Integration** - Develop an efficient system for gathering and merging data from brick-and-mortar stores, online tracking, and geolocation services into a unified cloud-based database.

2. **Enhances Inventory Management -** Employ the combined data to enhance inventory levels, reduce instances of stockouts, and enhance the efficiency of inventory management.

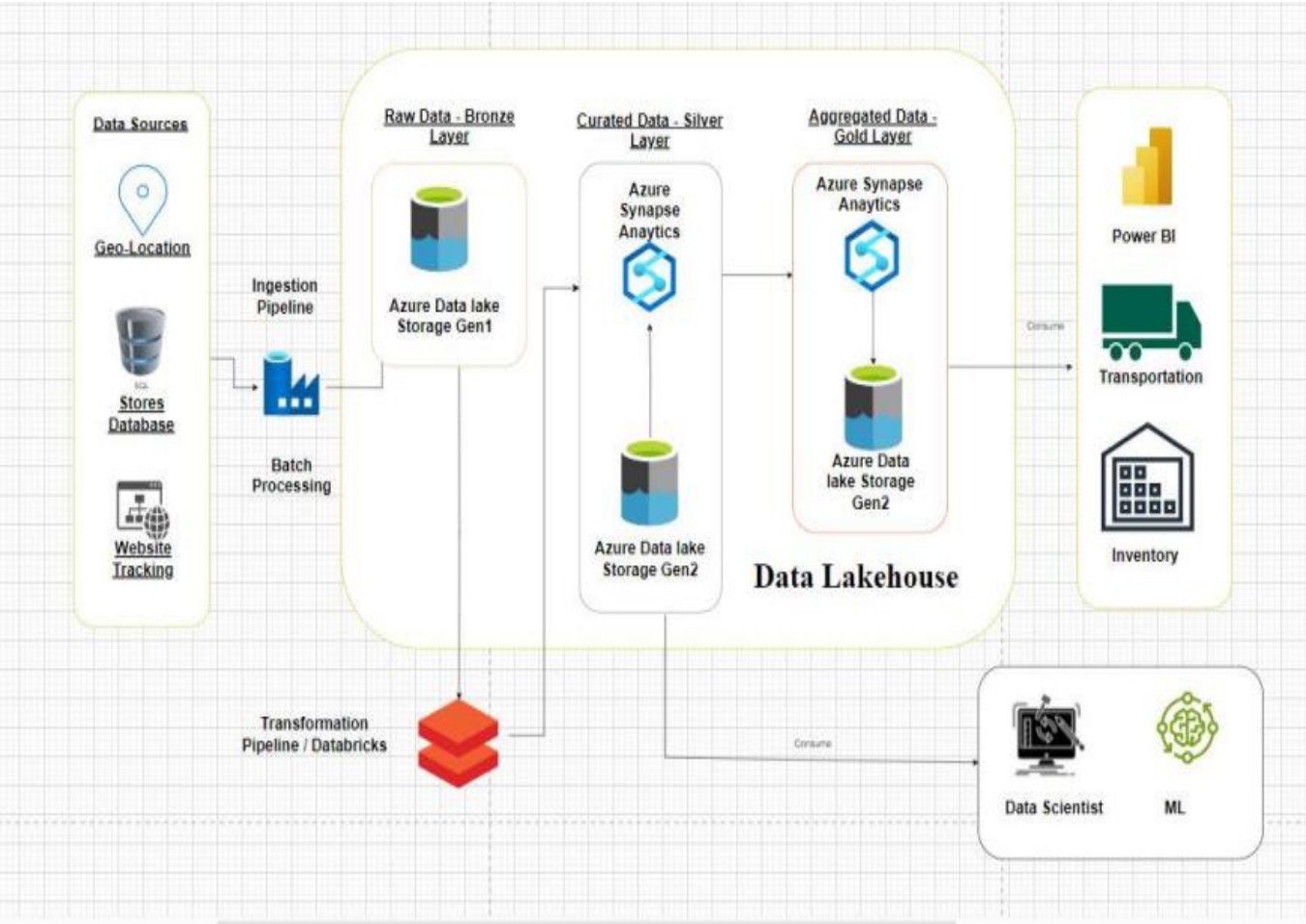
3. **Efficient Shipping Experiences** - Utilize data-driven analytics to optimize shipping operations, decrease delivery times, and improve the precision of order fulfillment.

4. **Accurate Accounting** - Utilize real-time data analytics to guarantee precise financial reporting, enhance the accuracy of budgeting, and optimize the allocation of resources.

5. **Scalability and Flexibility** - Develop a cloud infrastructure that has the ability to effortlessly expand in order to handle increasing amounts of data and changing business requirements, all while remaining adaptable to shifts in technology and market trends.

Cloud Architecture:

Our Walmart's cloud architecture incorporates various data sources such as Store databases, website tracking, and geolocation information. Data ingestion is managed through a data lake, with storage and processing taking place in a data Lakehouse that consists of bronze, silver, and gold layers. Furthermore, we are going to leverage Power BI and Azure ML to develop informative dashboards and analytics.



Pipeline:

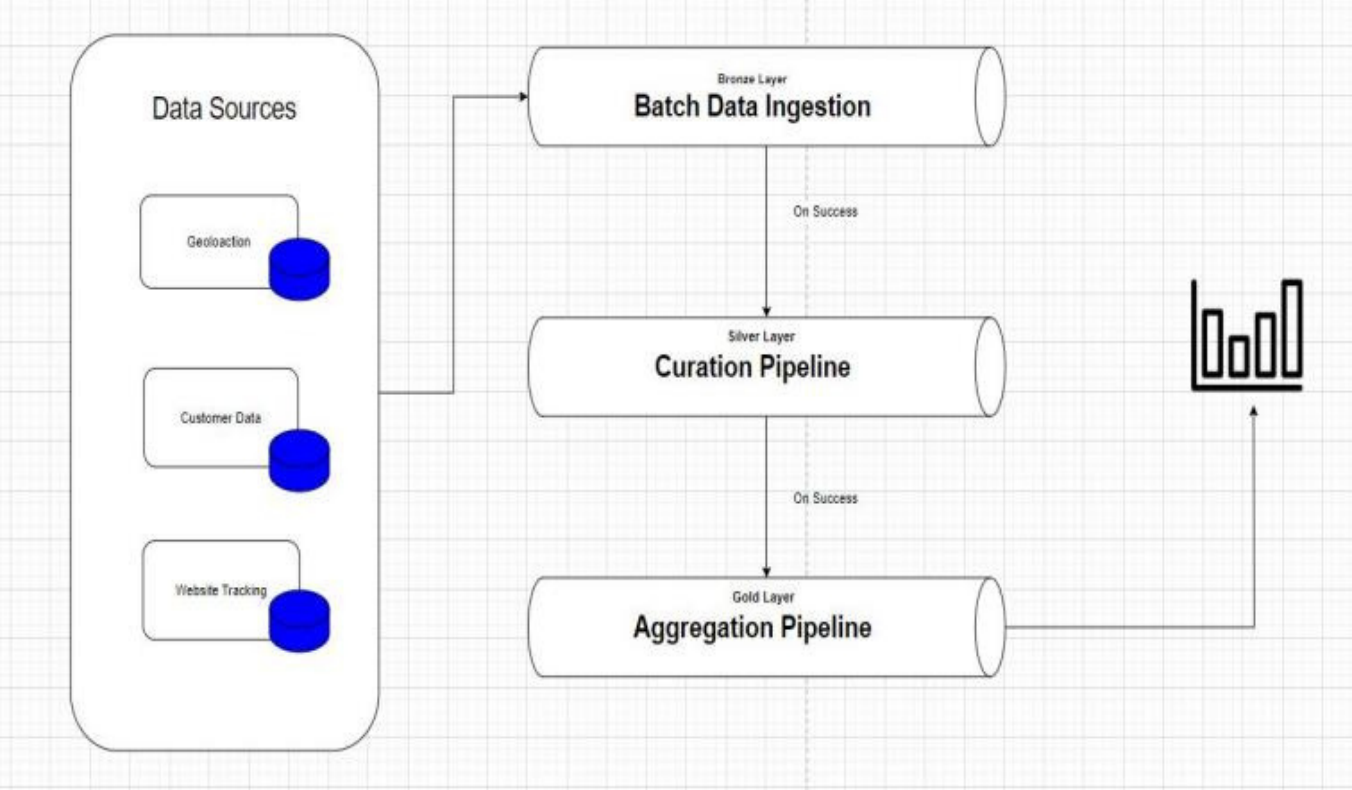
We have implemented a data lake-house architecture consisting of three distinct layers - bronze, silver, and gold - to effectively handle and analyze data. The initial step involves ingesting raw data into the bronze layer, where it is then subjected to transformation and enrichment in the silver layer. Finally, the gold layer is responsible for generating valuable insights and conducting advanced analytics.

Pipeline Strategy:

Data Collection- Implement automated processes for collecting real-time data from brick-and-mortar stores, monitoring website activity, and utilizing geolocation services.

Data Storage- Securely store integrated data in scalable cloud solutions.

Processing- Cleanse, transform, and enrich data for analysis.



Conclusion:

By adopting a strong pipeline approach, we can leverage the potential of data obtained from Physical stores, website tracking, and geolocation services to enhance operational efficiency and meet customer expectations.

Through efficient data collection, integration, storage, processing, and analysis, we facilitate well-informed decision-making in areas such as inventory management, shipping operations, and accounting.

By seamlessly integrating valuable insights into our current systems and consistently refining our pipelines, we guarantee adaptability, effectiveness, and
a competitive edge in the ever-changing retail industry. This positions our organization for continuous growth and long-term prosperity.