Data Delivery for Medi Quick Pharmacy Cloud Architecture

Name: Patel Vatsal

Subject: Data Delivery Data Design

Mentor: Dr. Junaid Qazi

Table of Contents

Overview

Medi Quick Pharmacy's cloud architecture integrates e-commerce, on-premises, social media, and geolocation data into a scalable solution for real-time sales and customer engagement analysis. Using Azure services like Data Factory, Delta Lake, Synapse Analytics, and Power BI, it processes data through ingestion, transformation, and aggregation to provide actionable insights. The system supports pharmacist consultations, product ordering, and KPI tracking, enhancing customer satisfaction, improving decision-making, and driving sustainable growth.

Purpose

The Medi Quick Pharmacy cloud architecture aims to integrate diverse data sources-commerce, on-premises, social media, and geolocation—into a scalable, cost-effective system for real-time sales and customer behavior analysis. By leveraging Azure tools like Data Factory, Delta Lake, Synapse Analytics, and Power BI, it streamlines data processing, supports pharmacist consultations and product ordering, tracks KPIs, and identifies trends, enhancing customer engagement, improving satisfaction, boosting sales, and driving sustainable growth.

Cloud Architecture for Medi Quick

Medi Quick Pharmacy's cloud architecture integrates data sources into a seamless pipeline, processed with Azure tools and visualized through Power BI. This ensures actionable insights, enhancing customer engagement and driving business growth.

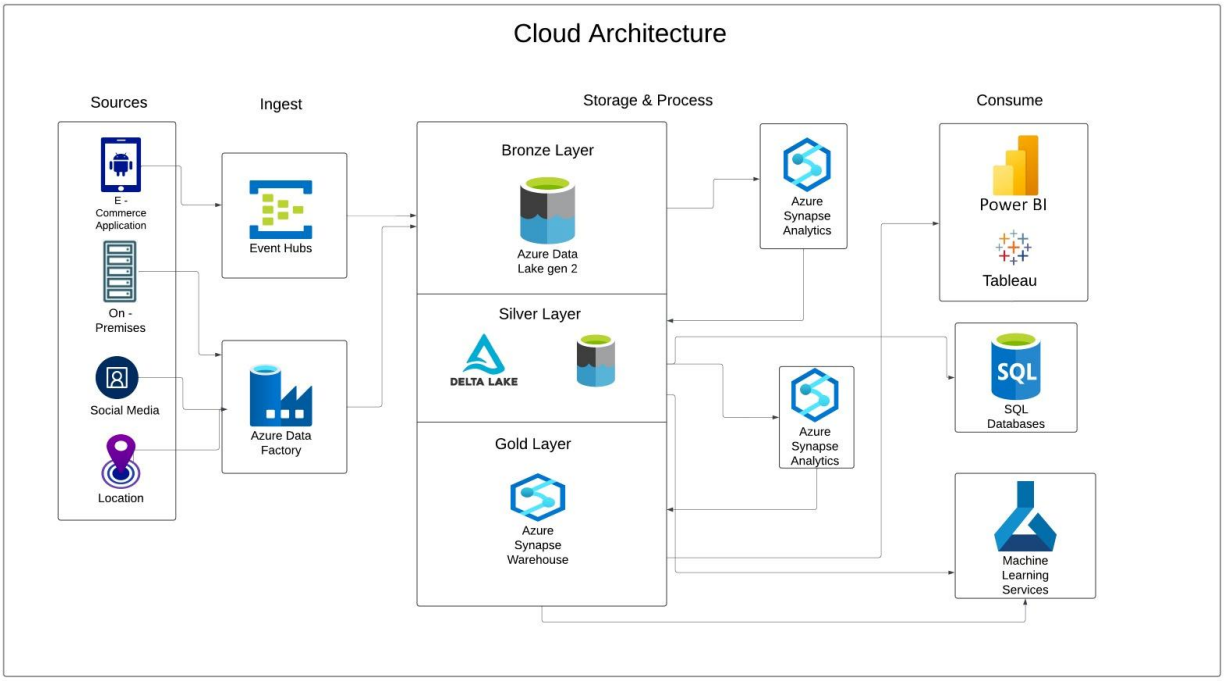

Fig 1: Cloud Architecture for the Medi Quick Pharmacy application.

Pipeline Strategy

The Medi Quick Pharmacy pipeline strategy follows a multi-layered approach to efficiently process and analyze data:

1. **Ingestion (Bronze Layer)**: Raw data from various sources, including e-commerce, on-premises systems, social media, and geolocation, is ingested using **Azure Data Factory** for batch processing and **Azure Event Hubs** for real-time data.
2. **Transformation (Silver Layer)**: Data is cleansed, filtered, and transformed using **Azure Delta Lake** for ACID transactions and schema management, and **Azure Synapse Analytics** for further transformation and integration.
3. **Aggregation (Gold Layer)**: The data is fully aggregated, enriched, and optimized for analytics, using **Azure Synapse Analytics** for complex queries and data modeling.
4. **Consumption Layer (Sink)**: The processed data is made available for consumption through **Power BI** for reporting and dashboards, and **Azure SQL Database** or **Azure Synapse Analytics** for storage and downstream consumption.

This pipeline ensures seamless data flow, real-time insights, and efficient decision-making while supporting business growth.

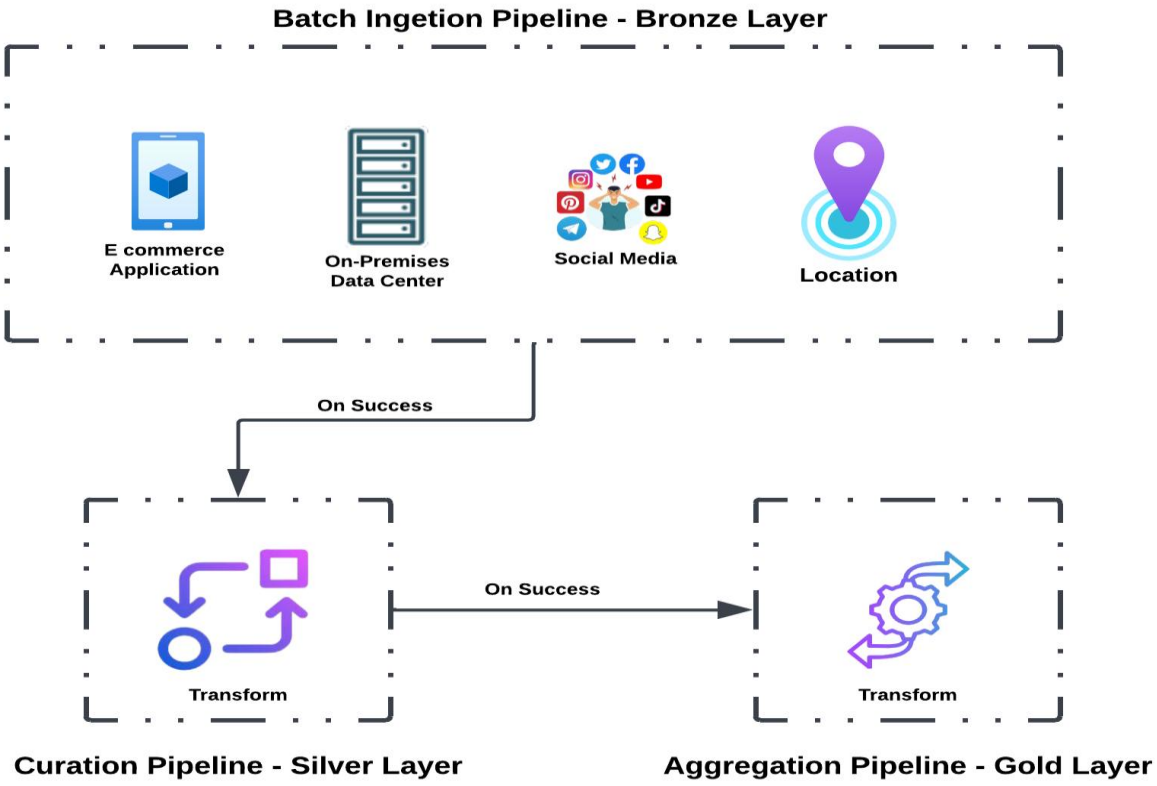

Fig 2: Picture shows that the development of the Master Pipeline for Medi Quick.

Conclusion

The cloud-based data architecture integrates multiple sources for real-time sales and customer engagement analysis. Using a hybrid pipeline strategy with Azure Data Factory, Delta Lake, and Power BI, it streamlines data processing and KPI tracking, such as patient wait times and bed occupancy. With built-in schema handling, governance, and security, the scalable solution enhances decision-making, boosts non-prescribed product sales, and improves customer engagement.