Google Cloud | Tech Mahindra

Big Data Analytics on Google Cloud for a leading Semiconductor OSAT company

CASE STUDY.

Connected World.
Connected Experiences.

Legacy data warehouses are struggling to keep up with business demands, user expectations, and ever-growing data volumes. As a result, customers face increased management costs and restricted agility in managing their data.

Tech Mahindra helped a leading Semiconductor Manufacturer modernize their legacy data warehouse with Google BigQuery resulting in an agile, cost-effective Data Warehouse solution

CLIENT BACKGROUND

The client is an Outsourced Semiconductor Assembling and Testing(OSAT) company providing semiconductor packaging, design, and test services.
They are headquartered in the US and have manufacturing and development centers across 7 different regions including USA, Europe, East/ South east Asia. They work with the world's leading semiconductor companies, foundries & electronics OEMs.

The client has been growing rapidly with each manufacturing line growing at the rate of 10-15%scaling along the data as well. They were creating ~300 reports per day for just one production line.
The existing reporting was done through canned excel reports with no option of ad hoc analysis. This meant the client was not able to take advantage of advanced, predictive analytics for real time insights.

The client chose Tech Mahindra as their partner in modernizing their data warehouse to the Cloud.

CHALLENGES

The client's legacy data warehouse architecture could not handle the explosive growth that resulted in multiple challenges for the client. The reporting portal was based on legacy OLTP database leading to a limited reporting capability. The major challenges included:

01 Legacy Big Data Architecture
Issues with unscalable systems and higher cost of operations

02 Legacy BI & Analytics System
Excel based canned reports limited their reporting features with NO real-time reporting capabilities

03 Need for improved business operations
No provision for advanced analytics (predictive, prescriptive

04 Need for Faster time to market
Excessive time wastage for developing and updating existing reports

SOLUTION PROVIDED

The client needed a serverless big data analytics framework which is highly scalable, high performing and easily integrate-able with BI reporting and ML solutions.

Tech Mahindra did a comparative study on various Cloud/Hybrid Solutions for the client's landscape to derive on a suitable data environment. The parameters considered were Performance; TCO; Data Migration & ETL capabilities; Efficient ML Engine; Visualization features and so on.

Big Data Analytics Modernization using Google BigQuery
BigQuery(GBQ) on Google Cloud was chosen to be a perfect fit to meet the client's business demand.
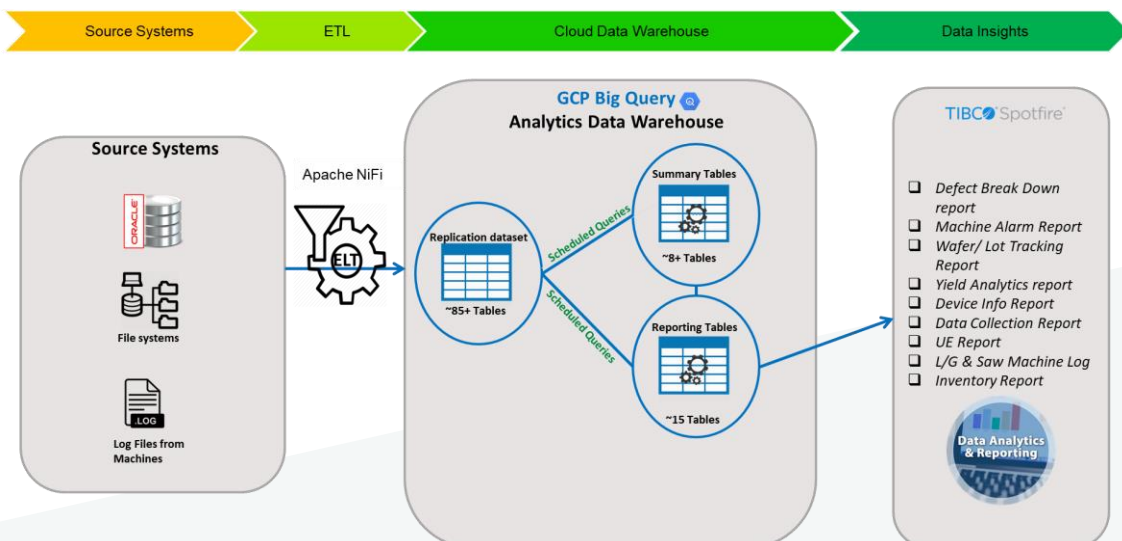
- We migrated 15+ TB of data from multiple data sources like Oracle, MySQL, machine generated Log files to GBQ
- We Implemented an ELT approach to load data to Google BigQuery and then transform the data

- Apache NiFi was used to orchestrate data ingestion from on premise source to target data store in BigQuery.
- The data is loaded in to staging area; post transformation loaded to a processed area from which reporting tables are built.
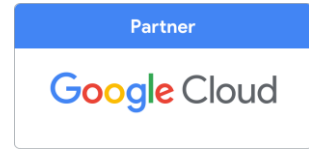- Visualizer tools used to connect to BigQuery and generate reports

BUSINESS IMPACT

- Significant reduction in development effort to create a new report from weeks to hours
- Effort to enhance any existing report reduced from days to hours
- Leveraging GCP BQ scalable architecture has given the option to scale data as per needs but only pay for data consumption
- Capability for developing "On the Fly" and Self-service reporting
- Unstructured data analytics by ingesting Machine log files and structuring them in to GCP BQ
- Provision to integrate with Advanced analytics tools using AI/ML

HIGH LEVEL SOLUTION ARCHITECTURE

ABOUT TECH MAHINDRA & GOOGLE PARTNERSHIP

Tech Mahindra is a Managed GSI Partner for Google Cloud and holds certified Expertise in Healthcare; Automotive & SAP on GCP. With over 5,500 Cloud professionals, we help our customers become agile, lean and build reliable platforms and applications on Google Cloud.

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