Success Story

A Nigeria-based utility billing platform scales its user base and business using data analytics

Client:

A Utility Billing Platform

Industry:

Internet

Country:

Nigeria

Our Role:

Software Engineering

About the Client

The client is a Nigeria-based digital platform provider enabling consumers to purchase various utilities such as electricity, cable, and broadband internet from distributors digitally. Founded in 2016, the client serves users residing in 8 Nigerian metropolises. Owing to the ease-of-use and streamlined merchant onboarding features of their electricity units billing app, 9 of the 11 existing power distribution companies of Nigeria have established long-term partnerships with our client in a very short span.

Key Facts

66%	**52%**	**80%**
reduction in data processing efforts	GCP costs reduced	reduction in throughput time

The Situation

The client had developed a mobile application that consumers could use to conveniently pay their electricity bills online. The merchant partners with the client were power distribution companies that needed comprehensive data analytics reports around usage, bill payments, new user acquisition, channel efficiency, and so on. However, the client lacked the bandwidth for comprehensive data engineering capabilities.

They needed a dedicated team with sufficient experience in cloud-based data processing and analytics platforms. So, after much scrutiny of leading market players in data analytics, the client chose Daffodil Software due to its proven acuity in the areas of data engineering, analytics, and statistical modeling.

Daffodil was required to conduct complex manipulations with the electricity bill payment platform's data to achieve the following outcomes:

- Optimize analytics and report generation to reduce overall throughput time and costs.

- Automate the reconciliation procedures as required by the merchants.

- Represent cohort analyses with comprehensive views.

- Provide timely reports of end-to-end customer service workflows.

- Extract the efficiency metrics of distribution channels to enable merchants to serve customers better.

The Solution

After preparing a data engineering roadmap, Daffodil went about employing its skills to utilize the large volumes of data extracted from the provider's electricity units purchase app. Data enrichment tools from the Google Cloud Platform (GCP) including DataStream, BigQuery, and Data Studio were leveraged toward the intended purpose. The Daffodil team satisfied the data enrichment needs in the following areas:

Analytics Process Optimization

The existing analytics processes employed by the provider were high on costs and storage utilization, and the throughput time was unsatisfactory. Daffodil extracted the requisite data from a BigQuery warehouse and using Advanced SQL queries and multiple schemas, the processing was made more efficient. Advanced SQL queries were applied for building efficient Extract, Transform, and Load (ETL) pipelines to enable cutting-edge analytics for the finance team of the provider.

Hourly Replication

Data were processed and analytics were conducted on an hourly basis. To accommodate the hourly data replication, proper partitioning of tables was done, thereby further reducing the associated GCP expenditure. Earlier, on average for each refresh, nearly 4 GB of data had to be processed, which was reduced to a minuscule 129 MB after Daffodil's optimization efforts.

Automated Reconciliation

The payment figures in the accounting systems were properly matched up with transactions reported by the payment gateway. Every settlement event, processing event, and the post-settlement event was automated to make the overall reconciliation of payments more streamlined and effortless. Exceptions for chargebacks and payment reversals were also handled concisely.

Comprehensive Cohort Analysis

Cohort analysis or the grouping of customers based on demographics, psychographics, and other traits was presented comprehensively through dashboards. With background querying, multiple views were available across dashboards, including those for customers waiting to get value notifications, the average time to resolve payments, failed payment attempts, and other data to offer merchants an incisive understanding of their customers.

Customer Service Reportage

Merchants required proper reports about customer service activities so that they could keep a regular account of all ongoing and pending service calls. As merchants could properly monitor customer service metrics, their end users were highly satisfied. This allowed the purchase app provider to build better relationships with the merchants as well.

Channel Efficiency Metrics

The reporting of electricity meter recharges of the power suppliers' respective customers was also carried out. This helped merchants keep tabs on customers whose payments may have gotten delayed or whose recharges failed at the payment gateways, ensuring channel efficiency. Statistical modeling helped create dashboards to monitor distribution efficiency.

Granular Reporting Capabilities

By building multiple observability systems, the finance team of the provider could obtain transparency in customer and merchant information in granular graphical views. While only generalized data metrics spanning across days were available earlier, the data analytics work by the Daffodil team ensured that every few seconds of system changes could be viewed.

The Impact

The Daffodil Data engineering team helped the client cut down data processing by 66% which helped reduce throughput time by 80% and Google Cloud costs by 52.86%. The team has also presented the provider with the possibility to integrate the real-time monitoring of payments reconciliation and channel efficiency metrics in the future.

Services Used

Product Engineering

Business Intelligence

Technology Stack

- python™
- **Advanced SQL**
- Google Cloud Platform
- Google Big Query
- Google Data Studio
- DataStream

About Daffodil

For more than 20 years, Daffodil Software has been a trusted software technology partner to organizations across the globe. We take pride in our ability to look beyond technologies & deliver innovative solutions.

Daffodil is a CMMI level 3 accredited organization with innovation, tech agility & process orientation rooted deep within the core. Our team of 1000+ technologists strive to shape the tech industry and help businesses elevate their value proposition through technology.

Technology Partnerships & Certifications

Microsoft Partner Silver Application Development partner / **Microsoft Partner** Silver Collaboration and Content	**Google Cloud** Premier Partner	**aws** partner network / Advanced Consulting Partner
salesforce registered consulting partner	**CMMI** level 3	**PubNub**
CERTIFIED ISO 9001:2015 COMPANY	ISO 27001:2013	International Organisation for Standardization ISO 20000

Awards & Accolades

Deloitte. Technology Fast500 APAC Winner	**IT EUROPA** EUROPEAN IT & SOFTWARE EXCELLENCE AWARDS	zinnov ZONES	Great Place To Work. Certified INDIA
W mobilewebaward 2020	INDIA'S MOST ADMIRED BRAND 2020	MUSE DESIGN AWARDS 2020 SILVER WINNER	The Economic Times BTb BEST TECH BRANDS 2021