



# Maximizing Effectiveness of Google Ads Campaigns

The microservices-based application deployed on Google Cloud Platform uses machine learning algorithms to identify the most relevant keywords for marketing campaigns.

## Project Overview

We developed a campaign optimization tool that leverages the power of Google Cloud Platform to deliver insights into costs, conversions, and keyword relevance. Microservices-based architecture enables the application to scale rapidly and integrate seamlessly with tools and resources on the cloud. The application saves thousands of dollars in marketing spend and helps in creating effective marketing campaigns for end customers.

## Client Profile

A leading US-based digital marketing agency that offers performance and brand marketing, data intelligence, SEO, and web analytics services for businesses across the globe.

## Business Requirements

The client uses traditional data analysis methods to optimize marketing campaigns for their customers. The on-premises hardware and monolithic applications used for campaign optimization were incapable of scaling at a module level. The client wanted a cloud-based solution with scalable infrastructure to improve speed and enhance their potential for business growth.

## Solution

We used Google App Engine (GAE) to design and deploy an application that utilizes resources from Google Cloud Platform and ensures scalability, reach, and personalization of marketing campaigns. The application integrates with Google Ads to aggregate search query stats and creates a database by querying large amounts of data.

Search terms are evaluated using signals from organic results, competition, and conversion volumes. Keeping campaign performance and cost in mind, we used BigQuery to store and analyze data, enabling the application to process 10 million keywords in an hour. The application sources keyword stats from Authority Labs (online keyword rank tracking API). Results are shared with users in BigQuery datasets.

The application follows a microservices architecture where each business capability is encapsulated into individual services. Apache Airflow and Stackdriver logs are used to monitor real-time performance and spot semantic inaccuracies, enabling successful fine-tuning of ads that resonates with the target audience. Google Cloud Console provides usage metrics for each service and helps to identify spikes in API traffic.

Orchestration is done on Google Cloud Composer to maximize application performance. The application seamlessly integrates components from the Google Cloud ecosystem.

# Technologies

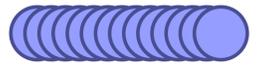


Pub/Sub

**App Engine**

Cloud Functions

Cloud Dataflow



Task Queue

**BigQuery**

Cloud Endpoints

Stackdriver

**Cloud Datastore**

Cloud Storage

**Cloud Scheduler**

**Cloud Composer**

**Cloud SQL**

Cloud Run



ReactJS

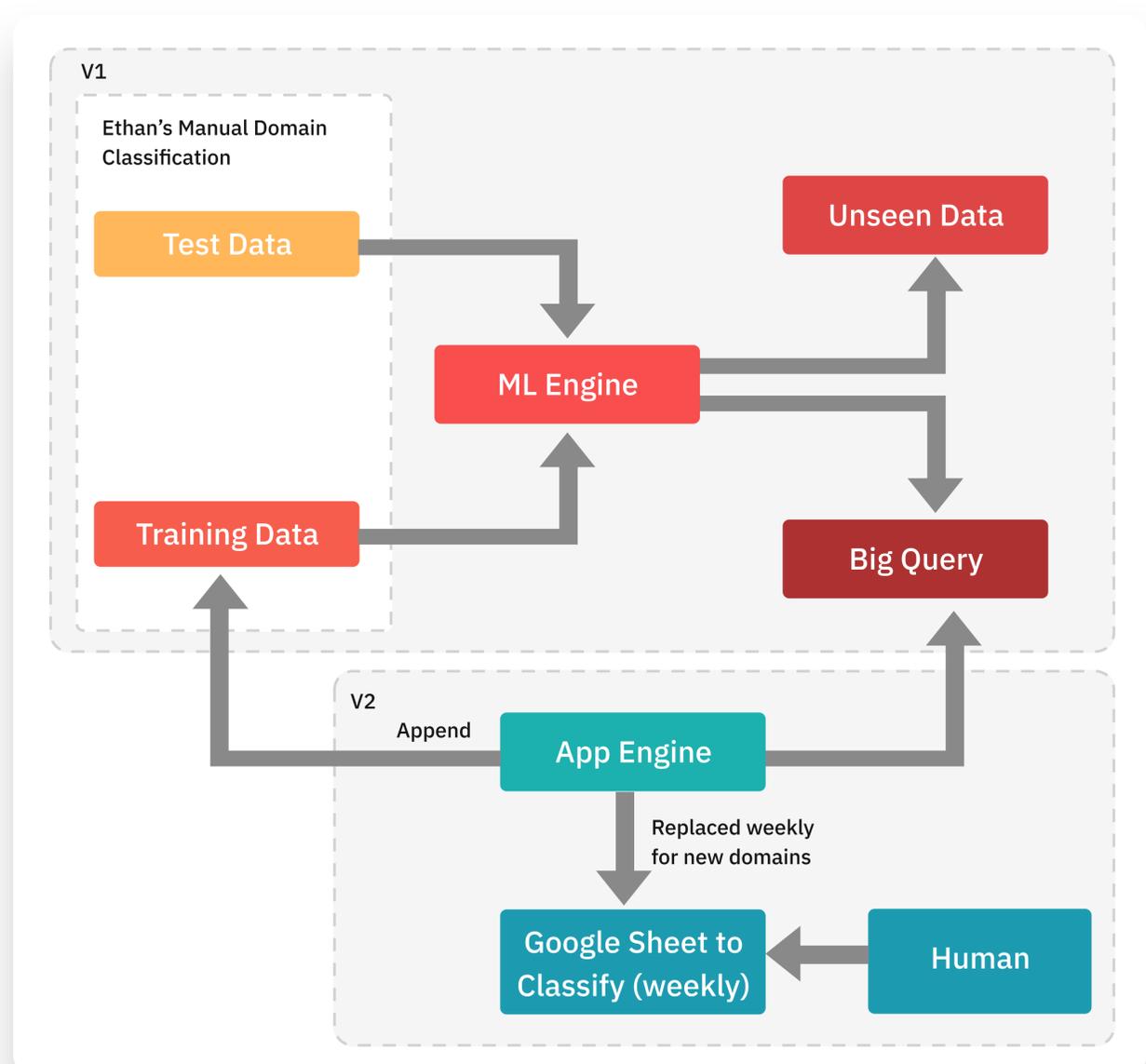
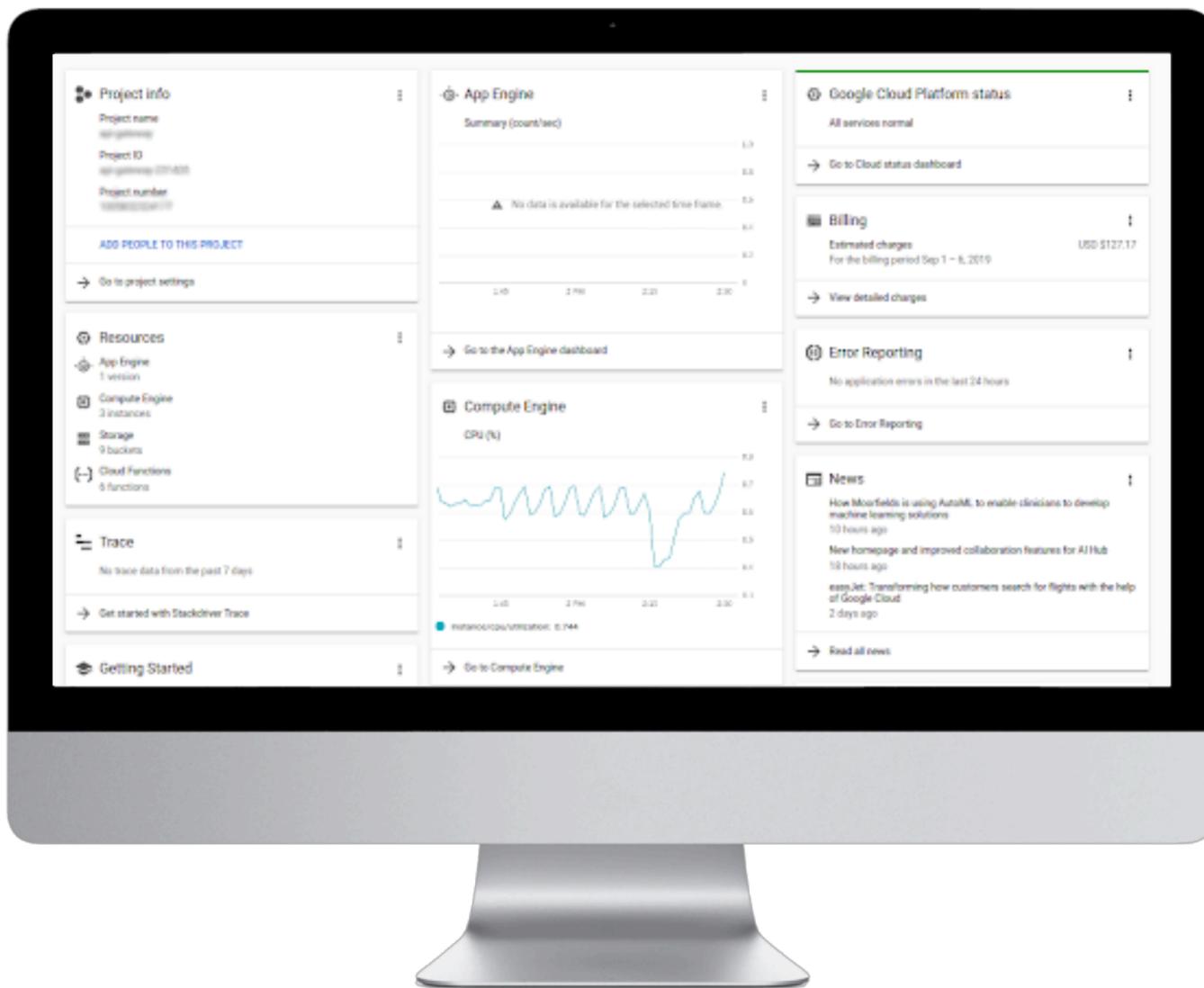


Apache  
Airflow

## Business Benefits

- 10x faster processing speed on periodic reports to clients
- 32% increase in conversions for ad campaigns
- 35% savings in operational costs
- 90% reduction in infrastructure costs with pay-as-you-go pricing from GCP services
- Significantly reduced development cycles for new updates





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