Maximizing Effectiveness of Google Ads Campaigns

A microservices-based campaign optimization tool deployed on Google Cloud Platform (GCP) that uses machine learning algorithms to identify the most relevant keywords, significantly boosting campaign effectiveness and reducing marketing spend.

Overview

QBurst delivered a scalable, microservices-based campaign optimization tool on GCP, transforming the client's campaign management from a manual, monolithic process to a real-time, automated intelligence system.

- **Performance Leap:** The application processes over 10 million keywords in an hour, resulting in a 10x faster processing speed for periodic client reports.

- **Conversion and Cost Savings:** Achieved a 32% increase in conversions for ad campaigns while delivering a 35% savings in operational costs.

- **Scalable Architecture:** Deployed on Google App Engine (GAE) with a microservices architecture, ensuring rapid scalability and a 90% reduction in infrastructure costs.

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.

Challenges

- **Scalability Limitations:** Monolithic applications and on-premises hardware were incapable of scaling rapidly or modularly to meet the demands of global campaign optimization.

- **Slow Processing Speed:** Traditional methods were too slow to effectively query and analyze the massive amounts of data required to evaluate keyword relevance in real-time.

- **Wasted Spend:** Inability to accurately identify the most relevant keywords, leading to inefficient marketing spend and lower conversion rates.

- **High Infrastructure Costs:** Maintaining and upgrading complex on-premises infrastructure was costly and hindered business agility.

Solution: AI-Powered Campaign Optimization

QBurst architected a cloud-native, microservices-based campaign optimization tool deployed on Google Cloud Platform (GCP). The application utilizes resources from the expansive Google Cloud ecosystem to ensure superior scalability, real-time data analysis, and personalization of marketing campaigns.

Key Solution Components

- **Microservices Architecture:** The application follows a microservices architecture, utilizing Google App Engine (GAE) and Cloud Run for deployment. Each business capability is encapsulated into individual, rapidly scalable services.

- **Data Aggregation and Analysis:** Integrated with Google Ads to aggregate search query stats and utilizes BigQuery to store and analyze large volumes of data, enabling the processing of 10 million keywords per hour.

- **Optimization Engine:** Search terms are intelligently evaluated using signals from organic results, competition, and conversion volumes. Apache Airflow on Cloud Composer is used for orchestration and monitoring.

- **Real-Time Monitoring:** Stackdriver logs and Google Cloud Console provide real-time performance monitoring and spot semantic inaccuracies, enabling successful fine-tuning of ads.

Technical Highlights

- **GCP Ecosystem:** Leveraged key GCP services including BigQuery, App Engine, Cloud Composer, Cloud Dataflow, and Pub/Sub for orchestration and data processing.

- **Massive Data Processing:** Used Apache Beam (for batch/streaming) and BigQuery for analysis, enabling the application to process 10 million keywords per hour.

- **Microservices Orchestration:** Orchestration is managed on Google Cloud Composer (Apache Airflow), ensuring maximized application performance and robust real-time monitoring.

- **Cost-Efficient Deployment:** Deployment relies on App Engine and Cloud Run, ensuring high scalability with the cost efficiency of GCP's pay-as-you-go pricing model.

Impact

The cloud-native optimization tool delivered substantial financial returns and operational acceleration:

- **Conversion Increase:** The use of machine learning to identify relevant keywords resulted in a 32% increase in conversions for ad campaigns.

- **Processing Speed Acceleration:** Processing periodic reports to clients became 10x faster, significantly improving client service and reporting cadence.

- **Cost Efficiency:** The streamlined development process and reliance on GCP's pay-as-you-go model achieved a 35% savings in operational costs and a 90% reduction in infrastructure costs.

- **Operational Scalability:** The microservices architecture and cloud-native deployment significantly reduced development cycles for new updates and ensured high reliability during peak loads.

- **Data Intelligence:** Provides actionable insights that resonate with the target audience, transforming the client's brand marketing strategy.