

# Marketing Data Analytics

## Google Cloud Platform

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# Introduction

Name

Role

## Agenda

Requirements

Primary Architecture

Alternative Architecture

In depth Analysis

Recommendation and Next steps

# Solution Architecture Considerations

## Data Sources

- Double Click

- Data from other Marketing Platforms

## Data Volume -

- Daily Volume -12TB

- Future scalability

## Data Load Strategy

- Daily data load

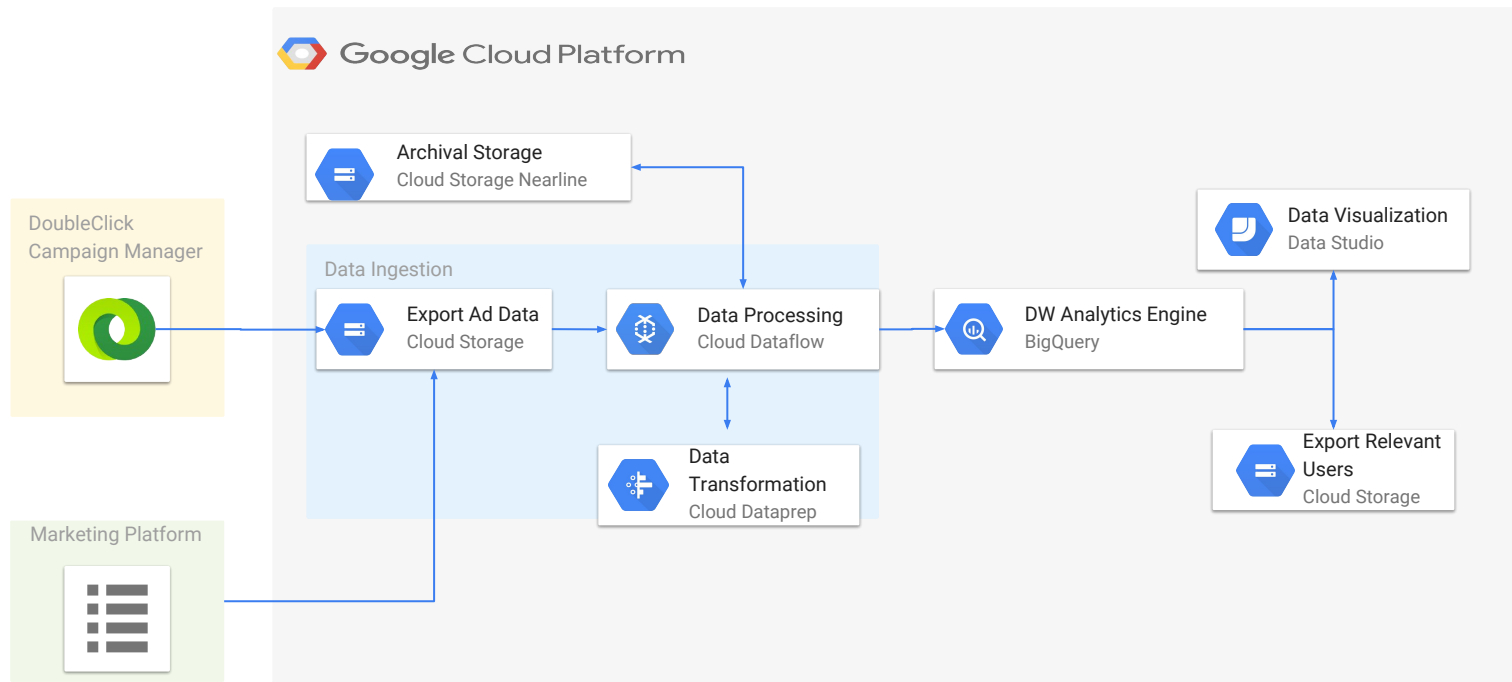
- Backfill data load

## Reporting and Data Export requirements






- 500 Customers

# Big Data > Aggregating and Analyzing Marketing Data

## Architecture: Advertising Agency Analytics System

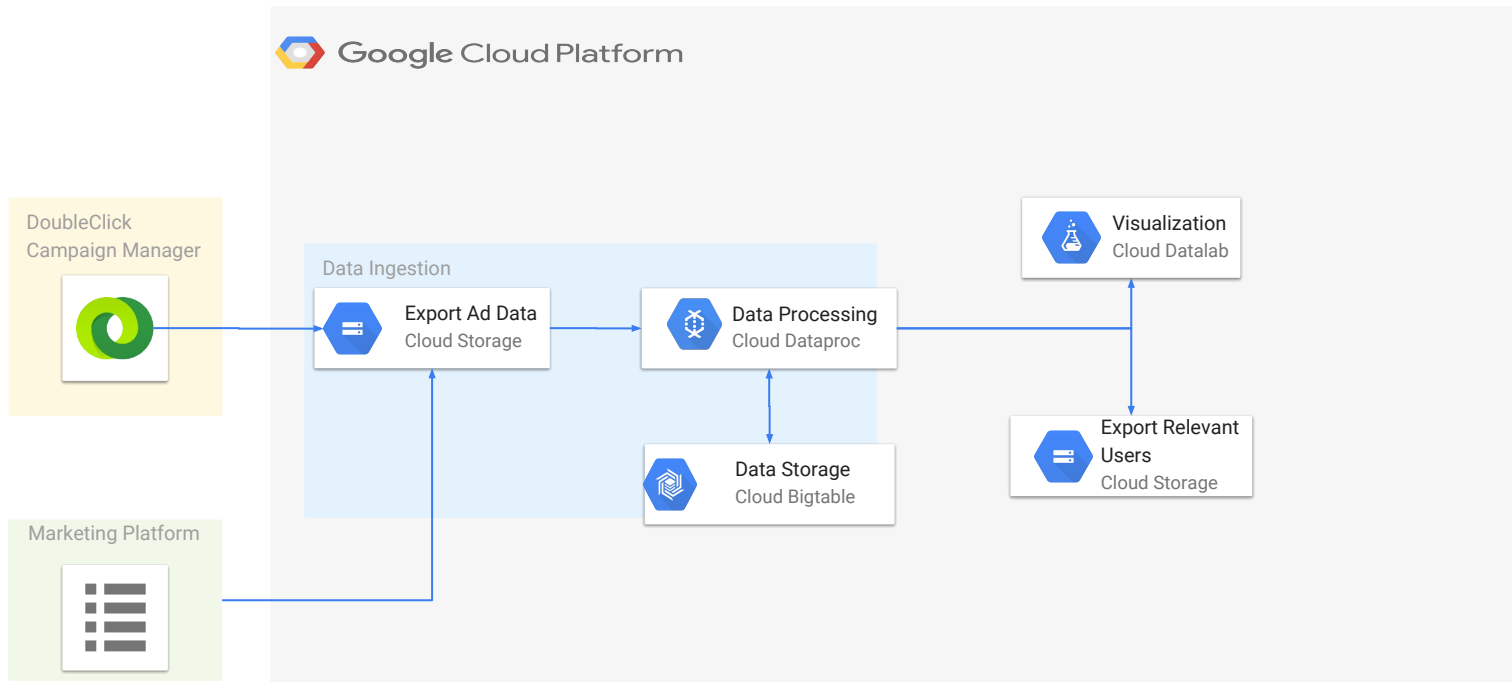


# Data Flow and Component Description

Data Flow Sequence	Components	Component Description
1. Impression Data in CSV format from various platforms are exported to Cloud Storage	 Export Ad Data Cloud Storage	A scalable, fully-managed, highly reliable, and cost-efficient object / blob store.
2. The extract, transform, and load (ETL) process extracts data from Cloud storage and loads to BigQuery using Cloud Dataflow and Cloud Dataprep.	 Data Processing Cloud Dataflow	<b>Cloud Dataflow</b> is a fully-managed service for transforming and enriching data in stream (real time) and batch (historical) modes
3. Backfill files(late arrival) are read and processed to BigQuery.		
4. CSV files are archived after the daily processing.	 Data Transformation Cloud Dataprep	Google <b>Cloud Dataprep</b> is an intelligent data service for visually exploring, cleaning, and preparing structured and unstructured data for analysis. Cloud Dataprep is serverless and works at any scale.
5. Run the denormalization job to load data to denormalized schema for analytical processing.	 Analytics Engine BigQuery	<b>BigQuery</b> is Google's serverless, highly scalable, low cost enterprise data warehouse
6. Updated data is refreshed on the charts built for reporting to perform data analysis.	 Data Visualization Data Studio	<b>Google Data Studio</b> turns your data into informative dashboards and reports that are easy to read, easy to share, and fully customizable.

# Alternative Architecture - Cloud Bigtable(Data Storage)

Architecture: Advertising Agency Analytics System



# Architecture Analysis

Parameters	<b>Architecture with BigQuery -</b> A scalable, fully-managed Enterprise Data Warehouse (EDW) with SQL and fast response times.	<b>Architecture with Bigtable -</b> A scalable, fully-managed NoSQL wide-column database that is suitable for both real-time access and analytics workloads.
Data Volume	Can scale seamlessly to store and analyze petabytes	Scale to hundreds of petabytes automatically,
SQL Query support	BigQuery supports a standard SQL Availability of Browser based querying interface.	Not Available.
Data Visualization	Ability to directly connect to Data studio and Data lab for data visualization. Charts are updated directly on the screen once the data is updated at the Backend.(Bigquery).	Require storage layer and integration layer to transfer/transform data for Data visualization.
Performance	Effective for Massive row updates and High Availability. Google BigQuery runs blazing-fast SQL queries on gigabytes to petabytes of data	Handle massive workloads at consistent low latency and high throughput. Cloud Bigtable has a higher performance under high load than alternative products.
API for Source Connectivity	BlgQuery Data Transfer API Provides ODBC and JDBC drivers	Require Data ingestion process.
Total Estimated Cost - 1 Month	<b>\$182,569.01</b> <a href="https://cloud.google.com/products/calculator/#id=a65419b2-28c2-4d26-8ced-750e88d0a319">https://cloud.google.com/products/calculator/#id=a65419b2-28c2-4d26-8ced-750e88d0a319</a>	<b>\$279,569.08</b> <a href="https://cloud.google.com/products/calculator/#id=ff384275-039b-4b44-8cc5-eb52efd960b5">https://cloud.google.com/products/calculator/#id=ff384275-039b-4b44-8cc5-eb52efd960b5</a>



## Recommendation-BigQuery Architecture

- Meets current and near future Objectives.
- OTB API Integrations
- Cost Effective

## Next Steps

- Environment Sizing ,System Architecture.
- Design and Development
- Data Migration Plan
- Production Release

Q&A