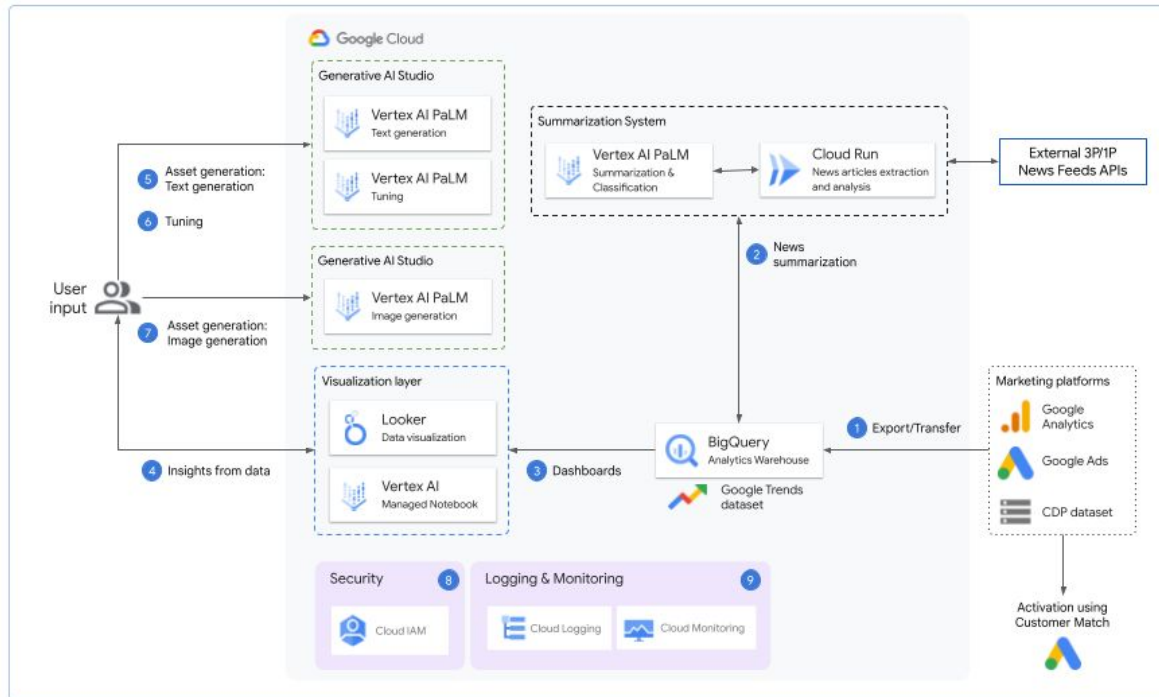# Sample Reference Architecture

Reference Architecture
Generative AI for "Hacking the creative process" [Marketing]

This reference architecture shows configuring GenAI PaLM APIs to assist marketers in the creative process.

Persona: Stephanie is a brand manager for her company's new sugar free beverage

Use case: Their slogan is 'Sugar Free is Fun'. Their target market is very wide and has a complex marketing strategy to reach potential customers with brand content that ladders up to their strategic goals of new customer acquisition for the campaign. Taking into account relevant key trends, Stephanie is able to create and deploy advertisements for her campaign faster than was ever possible before.

Components Description

1. **Export data from marketing platforms:** A systems administrator sets up marketing platforms (Analytics, Ads and CDP) to automatically export their data to BigQuery, a serverless data warehouse platform.

2. **News summarization:** News articles are retrieved from a third-party API based on insights from Google Analytics, Ads and CDP. The text is pre-processed and the Vertex AI PaLM API provides a summary and a classification of the article. The data is then written to BigQuery.

3. **Dashboards:** A consolidated visualization of the collected data is provided on a Looker Dashboard or a Vertex AI Workbench notebook.

4. **Insights from data:** To understand which ads are performing the best, one can explore data from Google Ads to analyze their performance metrics, such as number of clicks and conversion rate. Data from Google Analytics and CDP can be used to determine the audience that is consuming these ads, and data from Google Trends can provide additional insights on search terms.

5. **Asset generation - Text:** A prompt that incorporates instructions and examples derived from the insights generated by previous steps is used to generate an asset.

6. **Tuning:** The model can be further adapted to generate better assets by tuning on a high quality datasets build based on top performing ad copies.

7. **Asset generation - Image:** After creating some ad copies, you can use them, along with a detailed description of how to generate an image, to create images for your ad copies.

8. **Security:** Leverage all the security and data residency features of Vertex AI and BigQuery platforms.

9. **Logging/Monitoring:** Use logging and monitoring features from BigQuery and Vertex AI to understand data usage and resources consumption over time. This information can help you identify potential problems with your data pipelines or infrastructure, and make necessary adjustments to improve performance.
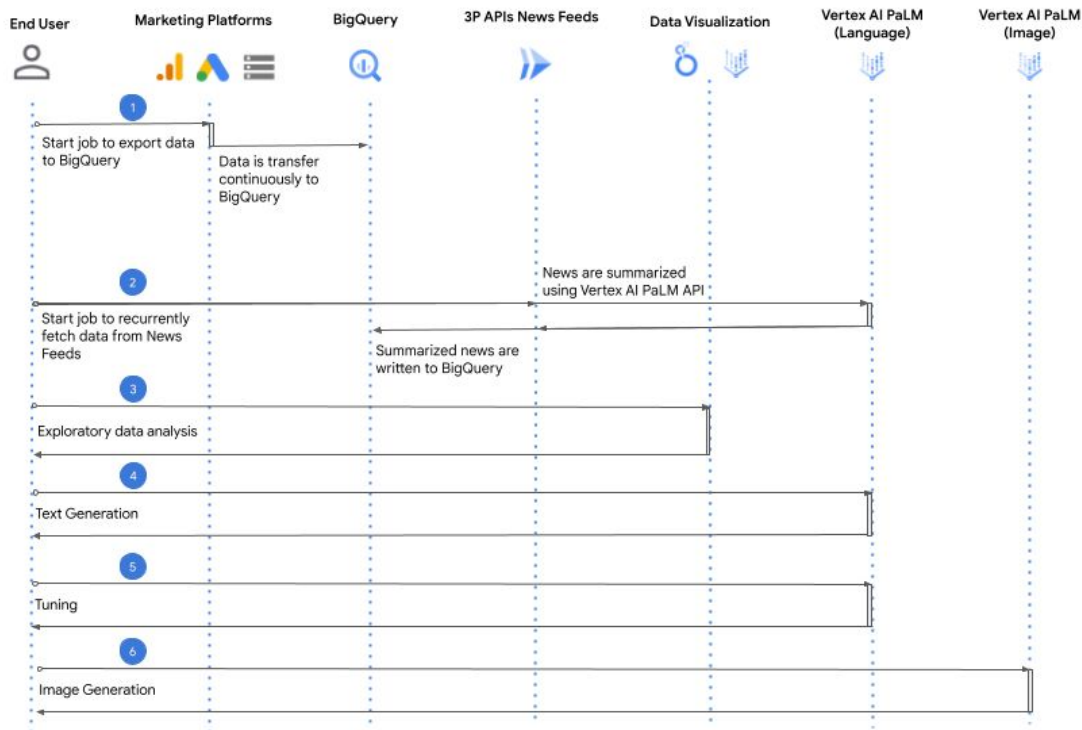
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End User | **Marketing Platforms** | **BigQuery** | **3P APIs News Feeds** | **Data Visualization** | **Vertex AI PaLM (Language)** | **Vertex AI PaLM (Image)**

(1) Start job to export data to BigQuery — Data is transfer continuously to BigQuery

(2) Start job to recurrently fetch data from News Feeds — News are summarized using Vertex AI PaLM API — Summarized news are written to BigQuery

(3) Exploratory data analysis

(4) Text Generation

(5) Tuning

(6) Image Generation

User Interaction Flow

1. User configures marketing platforms (Analytics, Ads and CDP) to automatically export their data to BigQuery.

2. User configures a job to recurrently fetch news articles from a 3P service and summarize it with Vertex AI PaLM API

3. To understand which ads are performing the best, one can explore data from Google Ads to analyze their performance metrics, such as number of clicks and conversion rate. Data from Google Analytics and CDP can be used to determine the audience that is consuming these ads, and data from Google Trends can provide additional insights on search terms.

4. A prompt that incorporates instructions and examples derived from the insights generated by previous steps is used to generate an asset.

5. The model can be further adapted to generate better assets by tuning on a high quality datasets build based on top performing ad copies.

6. After creating some ad copies, you can use them, along with a detailed description of how to generate an image, to create images for your ad copies. Use Vertex AI Generative AI Studio for that.