Redefining Connectivity with Google Cloud's Application Integration

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Introduction

In today's rapidly evolving API integration landscape, organizations are struggling to connect to disparate systems required for data integration and seamless business operations. An API-centric approach and hybrid connectivity is the need of the hour to solve this problem and drive innovation and operational efficiency. Google now has an answer with the release of their Application Integration iPaaS solution that addresses the future of connectivity and augments the capabilities of their Apigee API Management platform.

Traditionally, organizations using Apigee as their API Management solution on Google Cloud have had to rely on outside vendors for solutions like MuleSoft or SnapLogic to meet their diverse integration needs. With the introduction of Google Cloud's Application Integration iPaaS solution, clients can now have a more comprehensive solution that integrates seamlessly with Google's Apigee API Management platform without leaving the Google platform. Together, this combination strengthens the Apigee platform, offering a holistic solution that extends beyond API Management to facilitate end-to-end connectivity and orchestrate data flows across the entire ecosystems.

In this blog, we'll explore the robust capabilities of Google Cloud's Application Integration, delve into implementation best practices, and review the pros and cons of this connectivity solution.

What is Application Integration?

As a cloud-native product, Application Integration helps automate business processes by connecting any application, both home-grown and third-party SaaS solutions, with simple point-and-click configurations. Key features include:

Visual Integration Designer

An intuitive drag-and-drop interface that allows anyone to build workflows without complex coding.

Plug-and-Play Connectors

A library of 75+ pre-built connectors for easy integration with Google Cloud services and third-party applications like Salesforce and MongoDB.

Automated Triggers and Transformations

A visual data mapping editor with comprehensive mapping functions to address complex data transformation requirements quickly. Execute integrations on API calls, Pub/Sub events, Salesforce events, or using Cloud Scheduler.

Unified Platform

Built-in tasks to define individual actions within an integration to facilitate seamless data transfer, communication, and synchronization between applications, providing comprehensive culpabilities for various use cases.

Why We Like Google Cloud's Application Integration

While Blue Altair works with a variety of cloud integration platforms, Google's Application Integration has become our go-to solution due to its robust suite of application integration features that streamline workflows and unlock the power of our cloud ecosystem. Here's what sets it apart:

Seamless Connectivity

It effortlessly connects various applications within the Google Cloud environment, ensuring smooth data flow and eliminating silos.

Simplicity at its Finest

Its intuitive interface makes building integrations a breeze compared to complex tools we've used on other platforms.

Built to Scale

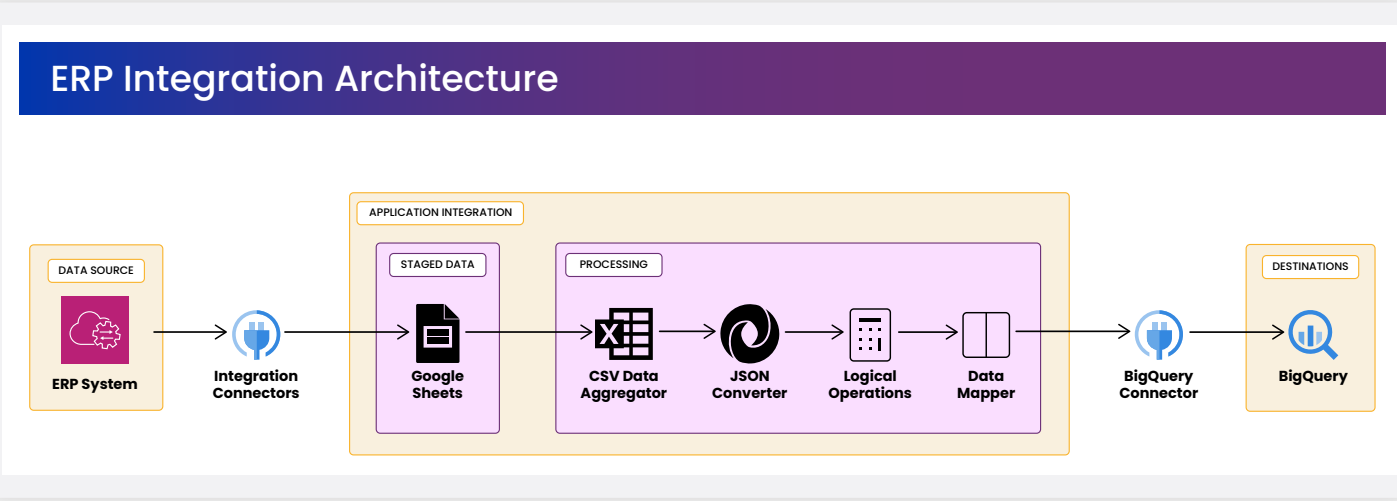
It scales effortlessly to accommodate growing business needs, future-proofing our integrations.

Case Study ▶ How we integrated ERP Systems with Google's Application Integration

The Challenge

One of our clients wanted to generate periodic business reports for tracking their employee expenses. For this they had to move data from their ERP system into Google's BigQuery after doing certain data transformations and imposing critical business logic. We developed a streamlined financial integration for tracking employees' expenses based on their monthly expenditure in different categories. Below, Figure 1 represents the overall solution architecture.

Figure 1: ERP Integration Architecture



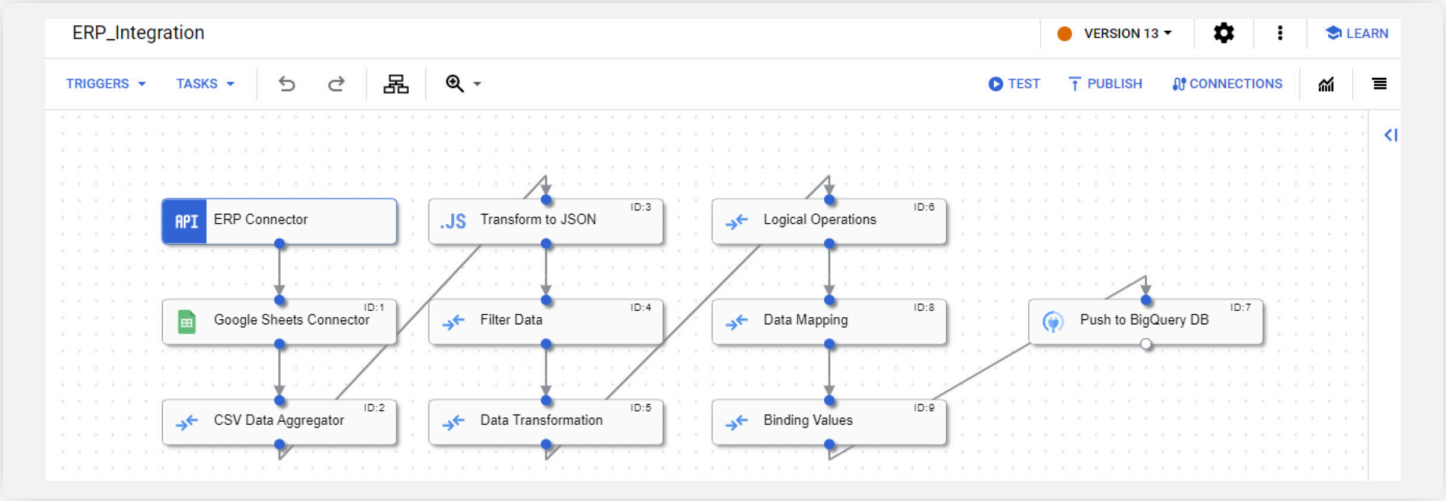
The Solution

To address these challenges we utilized Google's Application Integration solution. To begin, we fetched data from ERP into a CSV file, containing financial data, then transformed it using required business logic and loaded it into the BigQuery database. The CSV files contained expenses related to travel, office supplies, and meals & entertainment. The business requirement was to aggregate, calculate and normalize the data to generate daily, weekly, and monthly reports.

Scheduled triggers were used to fetch data from the source ERP system and stage it on Google Sheets using connectors. The data was then converted from arrays to the expected JSON format using a JavaScript task.

Multiple ‘Data Mapping’ tasks were added for every transformation phase. The data was then passed into the ‘Big Query’ connector for data push to the Big Query database. Figure 2 below shows a snapshot of the stepwise flow for an ERP integration solution pipeline built using Application Integration.

Figure 2: ERP Integration



Capabilities of the Solution

- Transformation of data using in-built functions of Application Integration
- Connectivity with ERP systems and Google products with built-in connectors
- Authentication using different API security mechanisms like OAuth, token generation, etc.
- Parallel as well as sequential processing which provides conditional logic through “Edge”

Strength and Weakness of Application Integration

After implementing this solution for our client, we can say that the Application Integration platform is very flexible and user friendly.

Overall, the platform provides flexibility in connecting various applications and data sources, catering to diverse integration requirements by providing a comprehensive set of tools and services that seamlessly integrate diverse applications, data sources, and services. It also offers a wide range of connectors, adapters, and pre-built integrations to streamline processes and offers intuitive low-code tools and APIs that empower developers to design, deploy, and manage integrations efficiently. Lastly, it supports popular development languages and frameworks, facilitating rapid application development and deployment.

However, we must admit the documentation left something to be desired. While informative, it could be more comprehensive to better help guide users through the setup process and resolve errors when configuring the services.

Configuring connectors also proved to be a bit of a task initially, requiring some trial and error to get everything up and running smoothly. During the testing or development phase, we would recommend there be an option to disable the tasks and triggers. We also recommend adding a function/task to map the extracted data from CSV to JSON or vice-versa.

In Conclusion

The platform's potential for handling complex integration tasks is undeniable. Google Cloud's Application Integration offers a robust solution for connecting, automating, and orchestrating workflows, driving digital transformation and agility. While there is always room for improvement, especially in the initial configuration phase, the platform's strengths in scalability and seamless connectivity make it a standout choice. As we continue to implement similar solutions, we anticipate further enhancing operational efficiency and innovation within our organization.

About the Author

Shivan Bhatia is a Manager at Blue Altair, where he leverages over 9 years of experience in technology and strategic leadership. With expertise in Digital Application Development, Application Integration, and API development, Shivan plays a pivotal role in driving innovation and business growth. He has successfully managed multiple clients across the USA, Europe, Australia, Canada, and the Middle East, delivering complex IT solutions tailored to diverse business landscapes. Known for his strategic planning, problem-solving skills, and ability to foster cross-functional collaboration, Shivan is passionate about cutting-edge technologies and continuous learning. He is dedicated to delivering impactful solutions that enhance operational efficiency and drive business success.