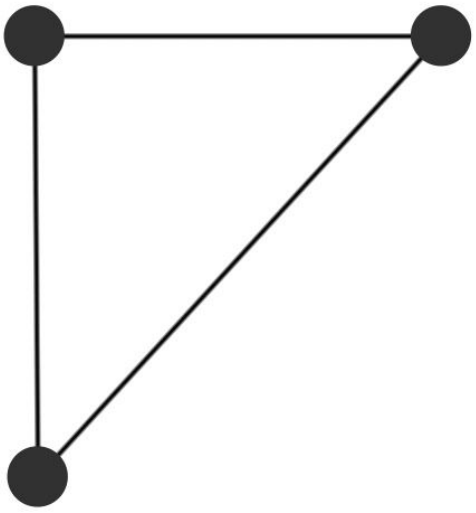
# Google Cloud Platform

Automation Logic



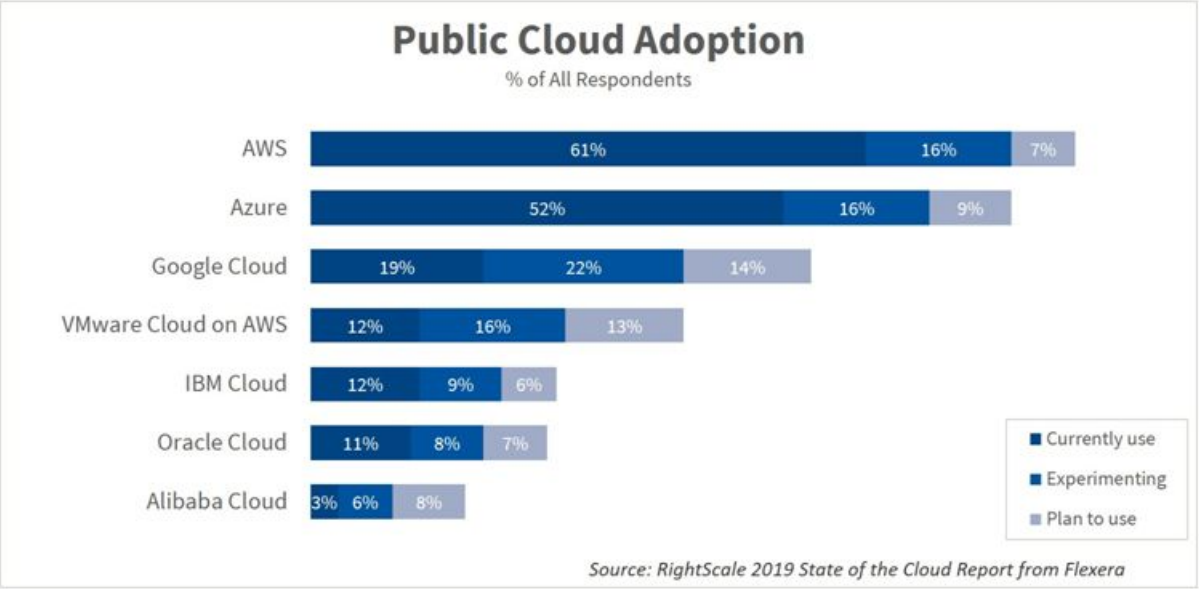
# Table of Contents

# Google Cloud Platform (GCP)

The shift to Cloud computing continues to move at pace, in fact a Cisco Annual Internet Report predicts that *'by 2020, cloud traffic will represent 92 percent of all data center network traffic'.*

Google Cloud Platform (GCP) is Google's suite of cloud computing services. Google's growing number of services span compute, storage, networking, database, operations, data analytics, AI & machine learning, migrations, serverless and more.

Although GCP is typically placed third, behind Amazon Web Services and Microsoft Azure when it comes to cloud computing market share, they are growing and becoming ever more competitive with the below 2019 study from RightScale showing that more organisations are experimenting with or plan to use GCP. It's important to remember that Google also launched their cloud computing service in 2012, far later than the other major providers, and now has an estimated customer base of more than 4 million and growing.




## The Benefits of GCP

Google has been popular with small and medium size businesses for some time but their strategy continues to evolve to become more attractive to the enterprise buyer and to position GCP as an enabler to wider digital transformation through their investment in and enhancing services in machine learning, data and analytics.

Google runs on the same infrastructure as provided to their customers and focuses on providing world-class security as their core differentiator.

They also seek to simplify and increase the flexibility of cloud migration and operations through providing  fully managed, serverless offerings and hybrid and multi-cloud capabilities, helping

organisations with complex, legacy environments to modernise while still complying with any regulatory challenges they may face.

Google's single, pay-as-you-use pricing model is also attractive to many organisations as it's simpler than many of their competitors and they offer significant discounts for sustained usage.

# Our Experience

## Case Study: Google Vulnerability Analytics for a UK Bank

Automation Logic were engaged by a leading UK bank to build a Google Vulnerability Analytics (GVA) platform within Digital Cyber Security. The goal of the platform is to provide vulnerability management services to internal users and business stakeholders, and to digitally transform the value stream and align to the bank's cloud first strategy.

The AL team was required to build an automated data pipeline and supporting platform on Google Cloud, which is now live. The platform retrieves data from various internal and external sources and consolidates all vulnerability data into a central data store. It enables vulnerability data ingestion from varied sources, analysis, triage, remediation and reporting. It also gives the users the ability to apply analytics and machine learning models to the data to identify potential issues and help keep the bank secure.

AL are now working with users, educating them on platform best use, creating reports for executive stakeholders and looking to further exploit the platform and ingest more data sources.

### Challenges and Goal

The bank has made a commitment to adopt a Cloud First Strategy and therefore the AL team set about building the Google Vulnerability Analytics Platform on Google Cloud, to be a central repository for Vulnerability + Compliance Data.

A key challenge the bank needed to address was that, as the vulnerability management and testing (VM&T) disciplines have matured over the last few years, there has been an increase in the volume and variety of vulnerability data. As a result, each discipline stores vulnerability findings in different repositories, in different formats and on different platforms.

To help address this AL were engaged to;

- Build a fully automated data pipeline to retrieve information about vulnerabilities from a variety of public and internal sources, so that users can apply analytics and machine learning models to this data and help keep the bank secure.
- Build a highly secure, self-contained platform on Google Cloud to host this pipeline.
- Add data science capability to the platform and in the future potentially automate business logic with the aid of data analysis and machine learning.

## How We Did It

**Automated CI/CD approach from the outset**

- Used Terraform to deploy all GCP infra, all run from GCP Cloud Build after initial bootstrap
- Deployment process designed to be as automated as possible, handling IAM and GCP API dependencies natively in Terraform wherever possible
- Automated deployment pipelines triggered by Github events (code changes) for route-to-live environments
- Binary attestation of microservice container images
- Code and image versioning for controlled releases (via a strict approval process as required by the bank)
- Static code testing using Sonarqube

**Secure by default**

- GCP organisation and project level controls
- Firewalls and routing deployed early
- Use of Google's Security Command Centre and Forseti for monitoring and compliance
- Security best practices employed for Kubernetes (GKE) clusters
- Container vulnerability scanning
- All Virtual Private Cloud (VPC) egress routed through Symantec WSS (via Cloud VPN) for data leak protection
- Customer-managed, HSM keys used to encrypt all at-rest data as per bank requirements

**Upskilling and knowledge transfer in Google**

- The whole team took an intensive course in GCP Data Engineering
- The team rotated areas of the platform to gain experience with the various components (e.g. Terraform/infra deployment, Kubernetes/Helm, ETL microservice development (Python), security, networking)
- AL's DevOps engineers have also actively participated in Knowledge Transfer & Learning sessions with the Vulnerability Analytics and Cyber Development teams sharing DevOps best practice and GVA processes as part of the business handover.

## Results

Now live, the Google Vulnerability Analytics provides:

- A secure, highly automated platform for the bank's vulnerability data
- A centralised data store for data scientists to work from
- Accessible platform enabling simple and complex analysis & reporting
- Risk assessment and analysis at an aggregate level
- Our customer's security as the measure of our success

As the platform continues to be rolled out with further data ingestion and platform enhancements, the GVA platform will continue to deliver improvements to security and to productivity.

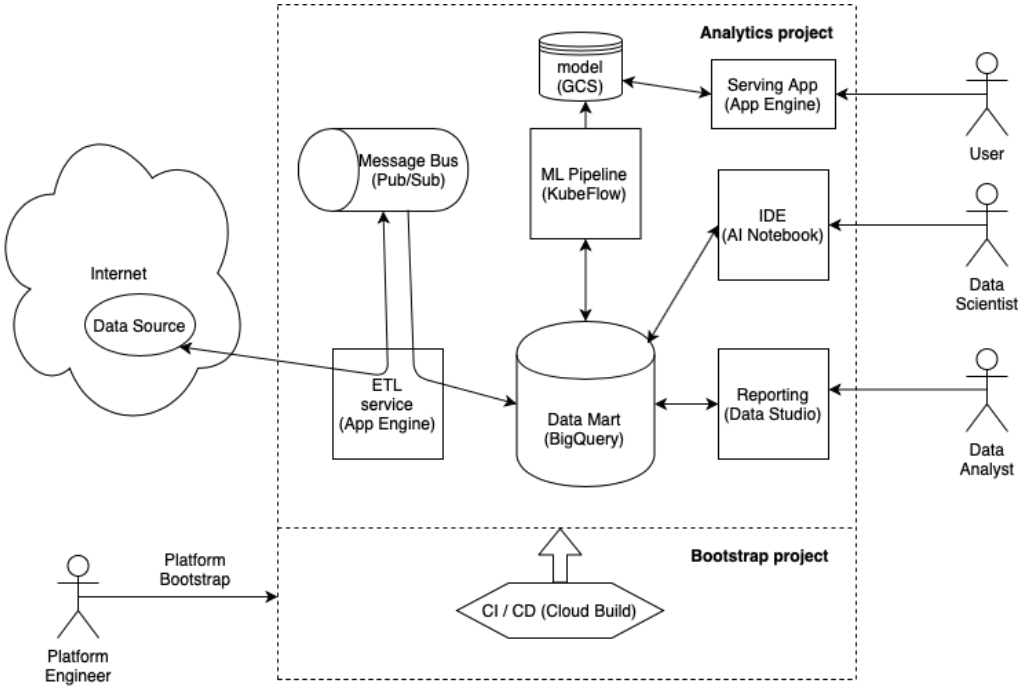
# Automation Logic's GCP Analytics Platform

Based on experience building and launching a platform for a UK bank, Automation Logic's Innovation Lab consolidated learnings from the team to build a Google analytics platform that can ingest, aggregate and manipulate different formats of unstructured data from multiple data sources, allowing users to apply analysis and data science capabilities to derive new insights and improve decision-making.

Using the platform as a starting point can help organisations;

- To have a quicker and simpler way of aggregating large volumes of different data types
- To utilise a pre-configured platform to explore and make use of GCP's analytics and ML capabilities
- To consolidate data to produce actionable insight and inform business decision-making
- To visualise and report data points for different user needs

The platform was designed in a modular way giving us the flexibility of choosing from a number of products GCP has to offer. For the proof of concept implementation we used App Engine in combination with Pub/Sub for ETL and ingestion. The storage solution we selected was BigQuery. On the other end of the PoC pipeline AI Platform Notebooks and Data Studio were used for exploring and visualising the data. Lastly, we also Kubeflow Pipelines and App Engine for building and hosting example ML models.



# Request a Demo

Automation Logic's current GCP Analytics Platform serves as an accelerator for migration to GCP and to begin to make use of GCP's data, machine learning and analytics capabilities.

A demonstration of the platform can be delivered by an experienced engineer and could also be customised based on specific data use-cases to help visualise how utilising an analytics platform could benefit your business.

**To organise a demo contact info@automationlogic.com today to book a session**