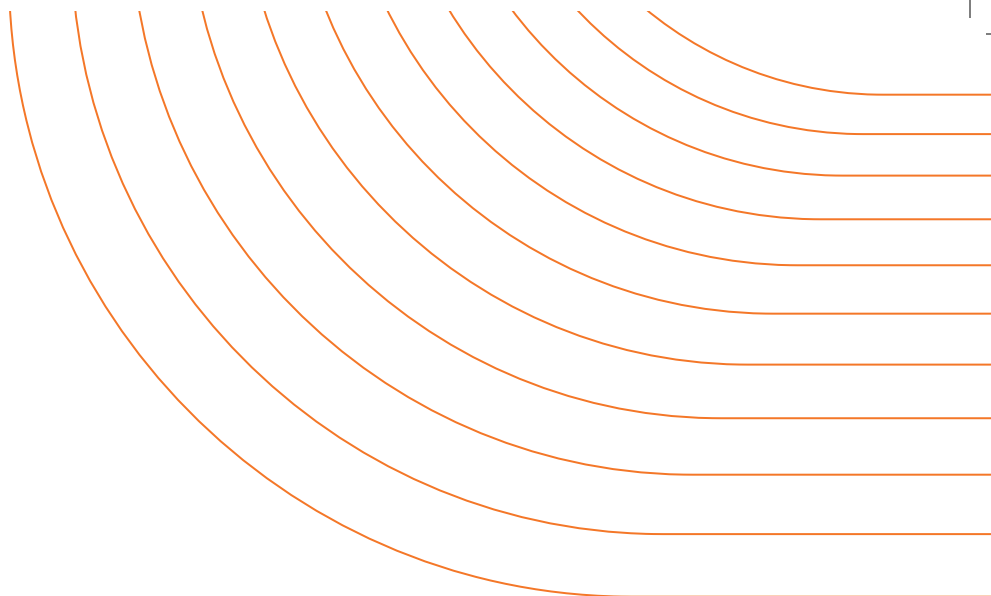




Google & Persistent

A Winning Formula for Accelerating Cloud Journeys

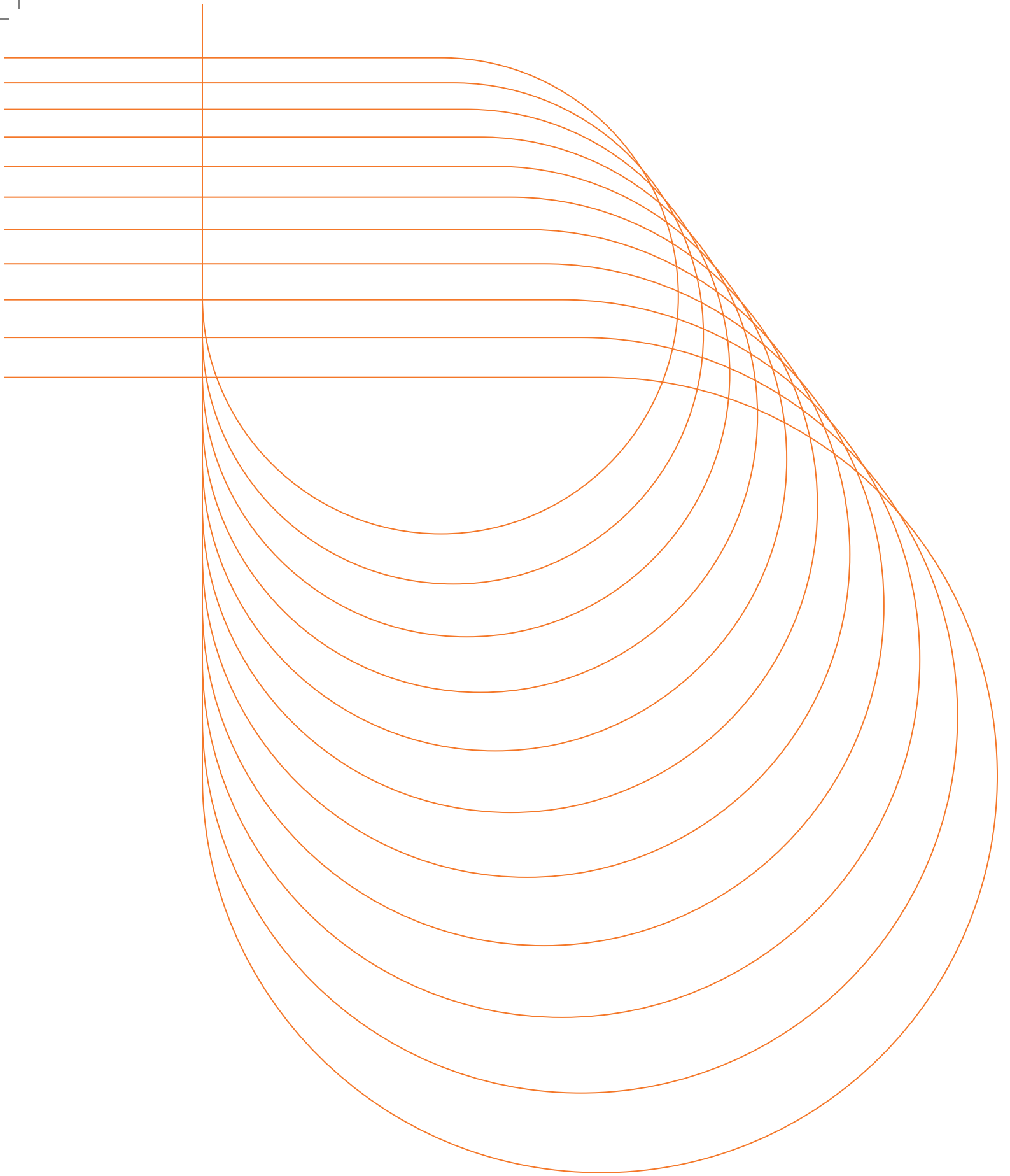




For 10+ years, Persistent has partnered with Google to help global enterprises accelerate their digital transformation journeys.

As a Sell, Service, and Build Google partner, Persistent combines domain knowledge, engineering, and technology expertise with hands-on experience on Google to provide solutions to your complex business challenges. As a Google Partner, we've continued to deliver innovative services across Google Cloud, Google Workplace, and location-based intelligence — enabling fast, flexible, and scalable access.

This document provides examples of how we design, build and manage cloud-based solutions on Google for our global clients that help them unlock new business models, modernize infrastructure, increase business agility, and accelerate time to value.





Persistent Capability Summary

Google Cloud Premier Partner

46

Google Cloud Partner
Expertise

5

Partner Specializations

250+

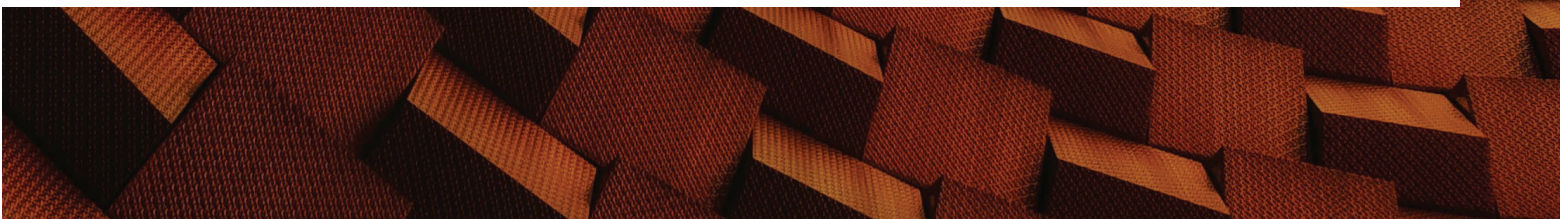
Sales Engineers

1,400+

Google Cloud Certifications

550+

Google Cloud Engagements



Gartner® Recognition

We're proud to have been named a 'Challenger' in the 2023 Gartner® Magic Quadrant





Data & AI Service Offerings Overview

At Persistent, we are deeply committed to arming our clients with the tools and insights they need to thrive in an increasingly data-driven world. We understand that data is the cornerstone of innovation, and as such, we are dedicated to helping our clients build robust data foundations that serve as the bedrock for transformative business strategies, all while harnessing the incredible potential of generative AI. The following is an overview of our Data & AI services.



GenAI and Machine Learning

- \ Insights AI
- \ Document AI
- \ Conversational AI (CCAI, Dialog Flow)
- \ Generative AI
- \ MLOps using Vertex AI



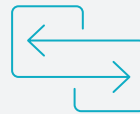
Data Lake & DWH Modernization

- \ Data ingestion, transformation and processing for real time and batch use cases
- \ Cloud-native Data & Analytics platform
- \ Data lake, Data mesh, Lakehouse architecture



BI Modernization

- \ Embedded analytics
- \ Data distribution using APIs
- \ Visualizations and Analytic dashboards
- \ Migration from traditional BI tools



Hadoop / Spark Migration to Google

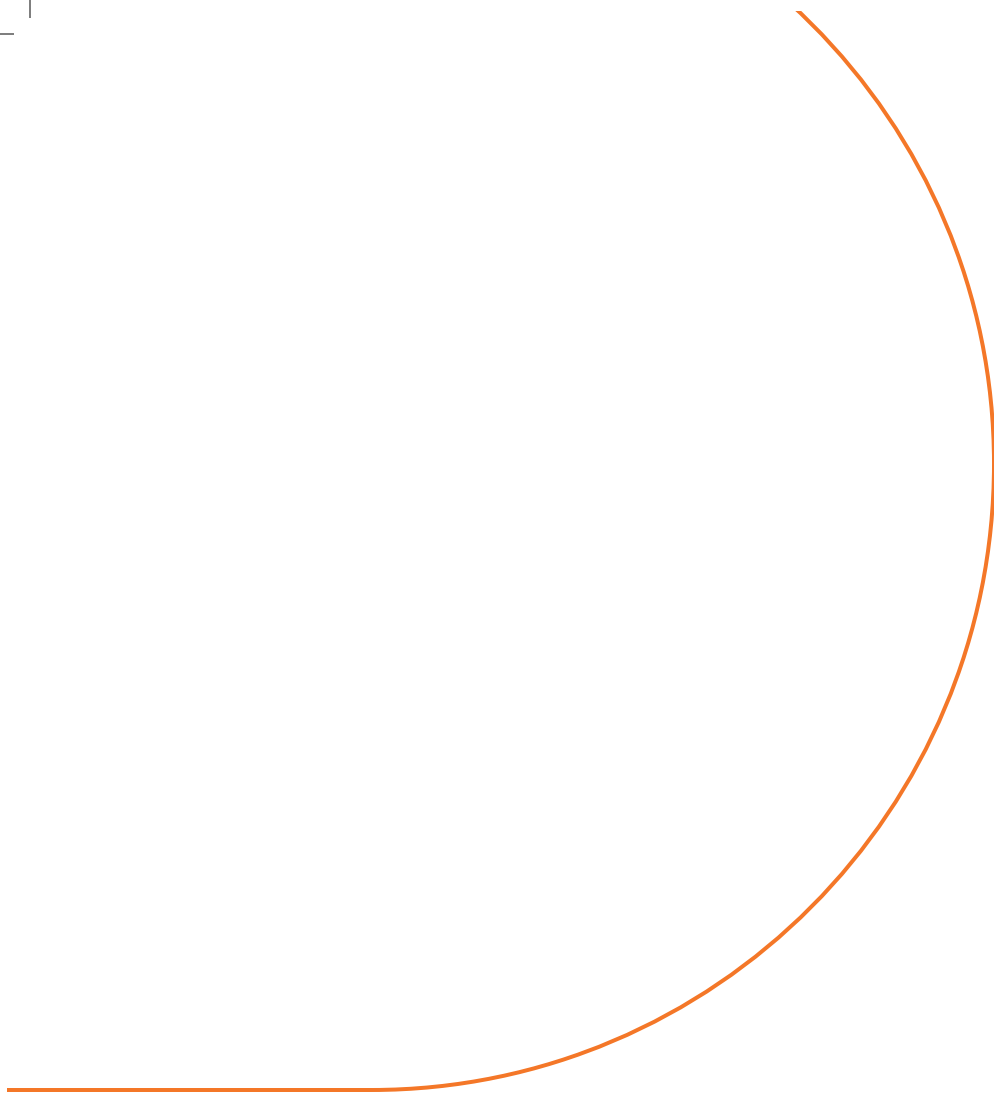
- \ Migrate existing Hadoop and Spark workloads to GCP
- \ Serverless Spark on GCP
- \ Migrating AWS EMR and Databricks workload on GCP



Application and Infra Modernization

- \ Application Portfolio Assessment
- \ Application Modernization
- \ API Strategy
- \ Cloud Native Application Development
- \ Database Modernization

Case Studies



**Google Cloud
Storage and
BigQuery help
a multinational
healthcare firm slash
experimental costs
by 60%**

Healthcare

The Challenge

Drug discovery is a complicated process. It requires high precision to analyze big data sourced from various instruments, smart wearables, or across labs — all of which pile up as operational inefficiencies that can cause delays and cost escalations.

The client ran its lab workflow on legacy systems requiring high manual intervention. This was time-consuming and hindered scale-up. A single experiment took a fortnight and 20 scientists; the client could only run 80 weekly experiments. Rerunning these experiments was a costly proposition.

The client commissioned Persistent to help it automate the lab workflow, enabling its scientists to visualize the experiment and see its real-time status to draw timely insights that could lead to faster turnaround at lowered costs.

The Solution

Persistent's team of Google experts, five onshore and 20 offshore, created a platform that automated the client's lab workflow, helped its scientists visualize the process, and analyze data in real-time.

Our team leveraged some of Google Cloud Platform's (GCP) best-in-class solutions, starting with GCP Foundation to quickly set up an enterprise-ready foundation on Google Cloud, including billing, identity management with Google SSO for authentication. We established a secure protocol to connect source and ingestion to GCP and automated data fetching from sequencer pipelines. We leveraged GCP's Cloud Storage for storing unstructured raw data and plugged-in compute engines for on-demand data processing.





The Outcome

The real-time processing of data and automated workflow helped the client:

Slash experimental costs
by 60%

Scale-up experiments by 125 times,
from 80 per week to 10,000

Improve turnaround time with
reduced manual errors

Google Cloud Platform

Big Query

Cloud Storage

Compute Engine

The Challenge

The client is a leading lifestyle products and services company continually striving to connect with its customers through unique products and engaging store designs. Its brand identity closely mirrors its customers, based on a deep understanding of the clientele and the ability to pivot according to shifts in customer preferences. This required keeping a constant tab on customer behavior and purchase decisions.

To effectively do this, the client needed help to fetch a consolidated view of sales, footfalls or online traffic, and conversion rates from its 700 global brick-and-mortar stores and an online storefront. It also lacked benchmarks to assess a day's performance against business milestones.

The client commissioned Persistent to enable real-time data analysis with a store dashboard that acts as a single source of truth for online and offline stores and offers timely insights into customer preferences, conversion rates, and fast-moving products.

**Multinational retailer
deploys Google
DataFlow and
BigQuery to glean
real-time insights
from over 75,000
daily sale orders**



Retail

The Solution

Persistent started by creating a data foundation that integrates sales data from the client's physical and digital storefronts into a findable, accessible, interoperable, and reusable (FAIR) format that enables the machine learning models to generate deeper and faster insights.

We created a data pipeline with Google DataFlow that extracts, transforms, and loads the streaming into a machine-learning algorithm. The insights are displayed on BigQuery, a Google Cloud dashboard that can be queried for granular insights with Cloud SQL.

With over 50 Google Cloud expertise designations, Persistent was able to quickly identify the right tools to build this solution, leveraging Google Cloud's ready-to-go, off-the-shelf accelerators to deliver this project within 15 weeks.

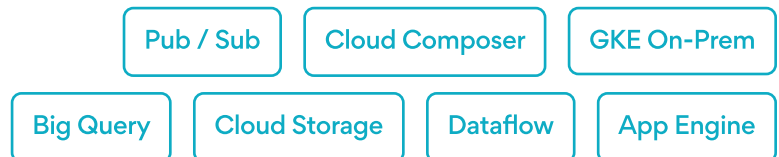
The Outcome

With the breaking of data silos, and an automated data pipeline that sourced and integrated data from multiple sources, the client was able to:

Clean real-time insights from over 75,000 daily sale orders

Improved understanding of customer preferences

Benchmark sales and other performance metrics with the store dashboard



**Google Vision AI
helps US' innovative
pharma company
automate 50,000
testing hours for
gamified digital
therapy**



Healthcare



The Challenge

Digital Therapeutics treats cognitive disorders with gamified therapy that helps individuals navigate behavioral impairments such as attention deficit hyperactivity disorder (ADHD). A US pharma company develops video games to help patients with cognitive disorders practice responding to real-life situations, potentially improving concentration, decision-making, and thinking.

The client used simulated data from bots to test the video game backend, but it wasn't accurate. Generating 3D data from 2D images was complicated but necessary for an immersive patient experience and better therapy results.

The client turned to Persistent, for its rich data science and machine learning capabilities and the product engineering DNA to help accelerate the testing in line with real-world scenarios.

The Solution

Persistent deployed Google Cloud's Vision AI to superimpose a bot powered by artificial intelligence (AI) and machine learning (ML) on top of the existing bots. This allowed us to create a visually immersive experience that emulates actual gameplay, generating valuable and actionable data, not simulated ones.

We used JSON to gather data from game frames and developed ML models to improve bot efficiency. We also built an entire operational reporting backend that seamlessly ingested data from multiple sources and placed it into a centralized data hub, also developed by us. This helped us to create custom reports for functional departments such as marketing and finance.

The Outcome

With AI and ML-backed super bot, and by successfully generating the 3D data points from 2D images, we were able to:

Automate 50,000 hours of bot testing, a task that would have been impossible manually.

Test coverage for 100s of hours of gameplay

Google Cloud — Vision AI

Real-time data analytics help US-based electric utility mitigate asset failures

The Challenge

The client is one of the US' largest electric utilities and a long-time leader in renewable energy and energy efficiency. The client launched a grid resilience project that monitored and predicted energy demand from customer utility assets, such as electric cars, home utility meters, etc., to anticipate the surge in demand and to prioritize supply to areas with a surge. This was essential to remediate asset failures and pre-empt hazards related to the electric system in high-fire-risk areas.

The client collected swathes of unstructured and structured data as images which had to be analyzed in real-time to glean actionable insights.

The client turned to Persistent to create an image analytics framework that could ingest large volumes of structured and unstructured data in real-time for timely intervention around electricity supply.

The Solution

The team of Google Cloud experts at Persistent successfully developed and deployed an image processing workflow using Cloud Composer, Kubernetes Engine, Cloud Storage, and Dataflow.

With the powerful capabilities of VertexAI, we were able to build an analytics engine for near-real-time insights.

To improve the processing model, we switched to an event-based approach and utilized BigQuery and ElasticSearch as dashboards for a comprehensive view of electricity consumption.

Electric Utility





The Outcome

10X improvement in data processing capabilities, enabling more vendors to upload images

Real-time image processing for object detection and immediate feedback to image vendors

