Google Cloud

Make decisions that make a difference:

6 smart choices that will impact your modern cloud application strategy

In this guide

We make thousands of decisions every day. Most are minor, but a handful can have a major effect. And for IT leaders like you, these critical choices can make a generational impact on your organization. That's especially true when it comes to decisions about modern cloud applications, which can help you ship faster, unlock new value from existing investments, and find much-needed flexibility. To help you make the right choices, let's narrow in on six key challenges—and how you can crush them as they come.

01: Speed »

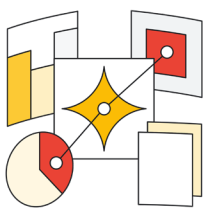
How can I ship what I want, when I want?

No matter your industry, speed matters. Those who ship faster than their competitors win.

02: Security »

Do I need to sacrifice speed to stay secure?

The best companies deliver more often while improving their security posture. You can too.



03: Modernization »

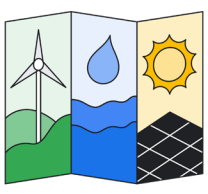
How can new technologies work with my current investments?

The key is to keep innovating while finding fresh value in the legacy software you already have.

04: Multicloud »

Should I invest in multiple clouds?

Your first cloud got you this far. Now you're looking to optimize—opting for data, compute, and ML/AI services that may come from additional cloud providers.



05: Sustainability »

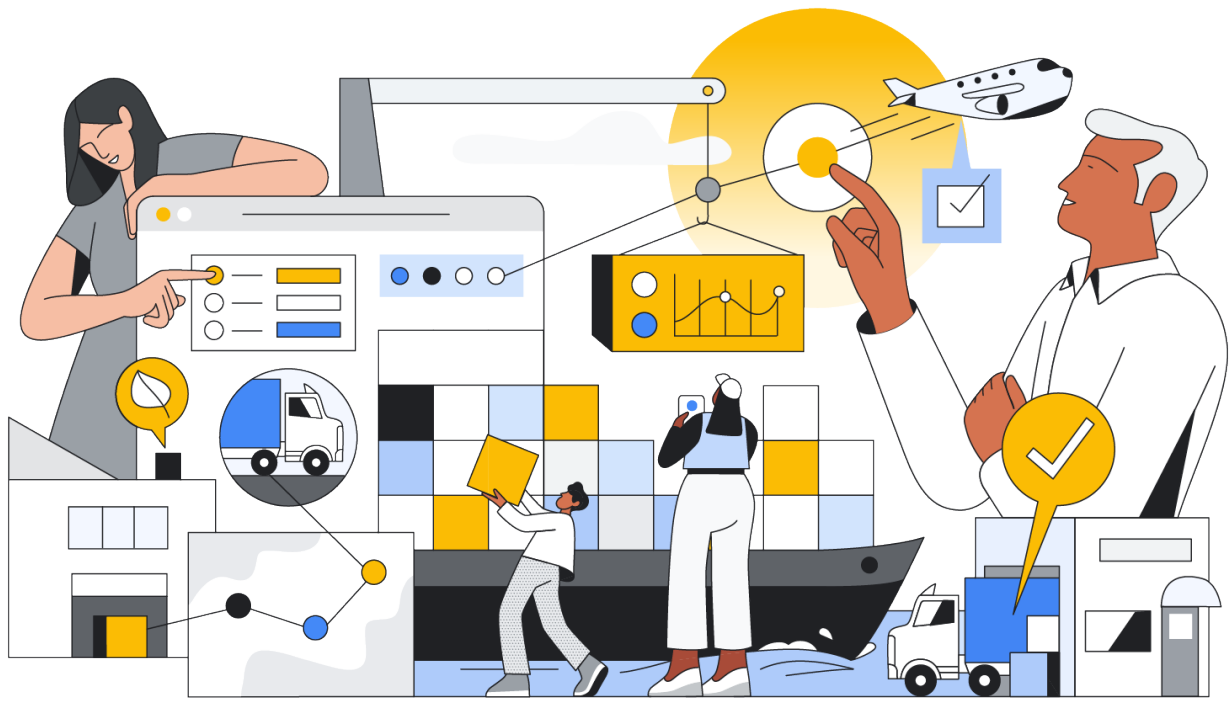
Does my strategy help or hurt the planet?

Make a positive impact with your technology choices by using more of the public cloud.

06: Talent »

What can I do to retain top talent?

Inspiring your team while preventing burnout gives you an edge.



01: Speed

Full speed ahead

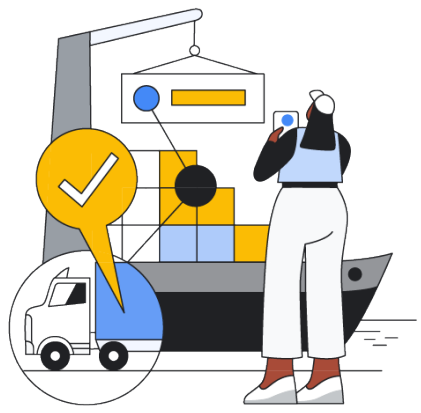
Are you quicker than the competition? No matter your industry, standing out requires speed, and research shows the ability to ship software on demand is a key differentiator. According to the 2022 Accelerate State of DevOps Report,

> "The use of [continuous delivery] CD* is a predictor of higher software delivery performance, both alone and in combination with other DevOps capabilities."

In other words, if you're capable of shipping software to production multiple times a day, you're a high performer. That means better outcomes and higher employee retention. But delivering software at speed requires coordination across teams, systems, and processes—all while staying agile. Cutting corners won't cut it, but making smarter choices will.

The need for speed

Consider these three areas as you make decisions to help your organization deliver at speed.



Build a test-oriented culture and continuous integration (CI) platform.

How does your team handle builds? Do you use a continuous integration product at the team or organization level? The 2022 Accelerate State of DevOps Report referenced earlier says that **“high performers who meet reliability targets are 1.4x more likely to use [continuous integration] than others.”** By investing in your test discipline and a CI* platform, you can trust your builds and, in turn, allow unattended deployments. Also, consider using shared platforms to consistently and securely build software for later deployment.

Don’t wait to automate.

Some existing systems won’t be programmable, and key processes like change management can be complex and manual. By adding APIs* to manual processes and wrapping current systems in automation, you can cut production constraints. One way to speed the process and bring you closer to shipping? Automatically opening and closing change tickets.

Keep the changes coming.

High-performing teams don’t just ship quickly—they keep their systems online more often and recover faster from failures. But that doesn’t mean sacrificing stability for speed. Instead, you can use techniques like canarying* and blue/green deployments* to develop a modern deployment strategy. Concepts like chaos engineering* can also help identify fragile parts of your architecture that can’t cleanly handle changes.

Cloud Success Story

Gordon Food Service serves up an unmatched ordering experience.

To stand out in the ultra-competitive wholesale food distribution market, GFS set out to transform their ordering process for their 100,000 customers.

Earning a competitive edge

By teaming with Kin + Carta, a Google Cloud Premier Partner, GFS delivered a brand-new customer ordering application built on Google Kubernetes Engine. With an assist from Cloud Build to simplify container builds, GFS delivered the pilot in just 209 days.

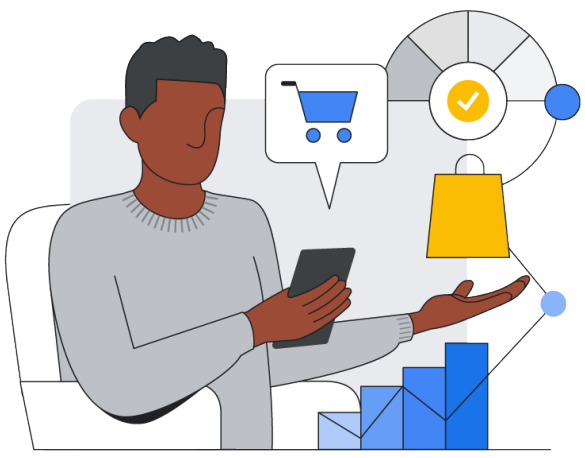
99%

increase in responsiveness to customer feedback

Went from

4 to 2,920

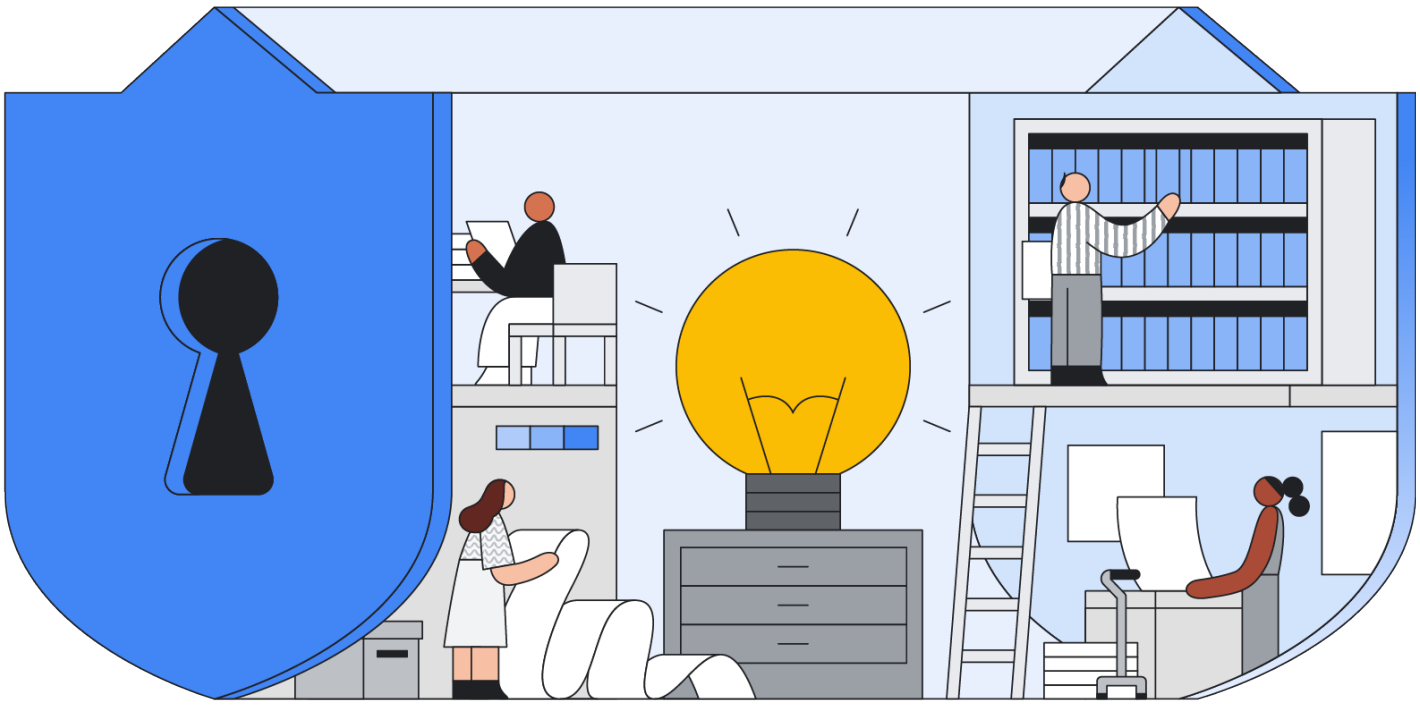
deployments a year



> Since we launched, we've had zero customer-facing downtime, so customers can always place orders.
>
> **—Derek Pontius, Software Architect, GFS**

Fast-track transformation with these Google Cloud solutions:

Cloud App Modernization Program (CAMP) | Cloud Build and Cloud Deploy | Cloud Run

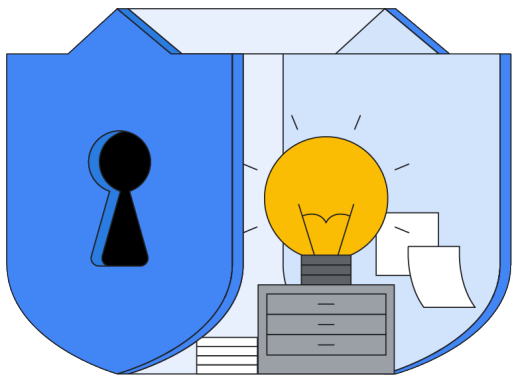


02: Security

Face your insecurities about security.

Security is job zero for nearly every organization, and it comprises an incredible variety of tools and processes, including identity and access management, encryption in transit and rest, managing secrets, configuration management, policy and governance, threat monitoring, and more. All of these elements serve a purpose, and security professionals are rightly concerned—in 2021, over 22 billion records were exposed due to data breaches.

Unfortunately, traditional approaches to keeping your company safe are often barriers to speed. To protect your organization, your security team might have to restrict remote access or perform extensive security reviews and testing before applications go into production. But who says you have to sacrifice speed for security? By adopting modern security approaches, you can protect your business without bringing production to a crawl.



Stay safe and sound.

Focus on these three actions when crafting a modern approach to security.

Protect your software supply chain.

Shift security left by protecting your applications from the get-go. Pay special attention to software dependencies. Modern software isn't built in isolation. Programming languages depend on outside "packages" to bring key functionality to apps, and those using containers to package software are pulling "base images" from somewhere. By ensuring that dependencies are trustworthy, you can help protect your enterprise from risk.

Prioritize best practices.

It's not about adding steps to your security checklist or asking developers to somehow moonlight as security experts. Instead, make smart choices that incorporate security into your daily routines. Consider using hardened platforms* by default, providing automated security guardrails that conform to your organization's security policies, and adhering to zero trust principles when designing system and network access.

Make monitoring at scale easier.

As more teams ship software faster, scaling your security organization at the same rate is virtually impossible. Take advantage of smart platforms and a comprehensive means to continuously analyze the environment and detect noncompliant configurations. Your organization might also benefit from being on a cloud network that continuously monitors suspicious traffic patterns and automatically protects your business workloads.

Cloud Success Story

Black Kite helps customers trade risk for rewards.

To continue empowering companies to find trustworthy third-party vendors, intelligence platform Black Kite wanted to scale swiftly and securely. To do that, they needed a technology partner to help them process, analyze, and store enormous amounts of sensitive data.

Protecting safety at scale

Through the Google for Startups program, Black Kite teamed with Google Cloud to create risk assessments using Google Kubernetes Engine, Cloud Functions, and Cloud Run. The platform now allows Black Kite to run millions of cyber-risk assessments at scale.

300

satisfied customers

5,000

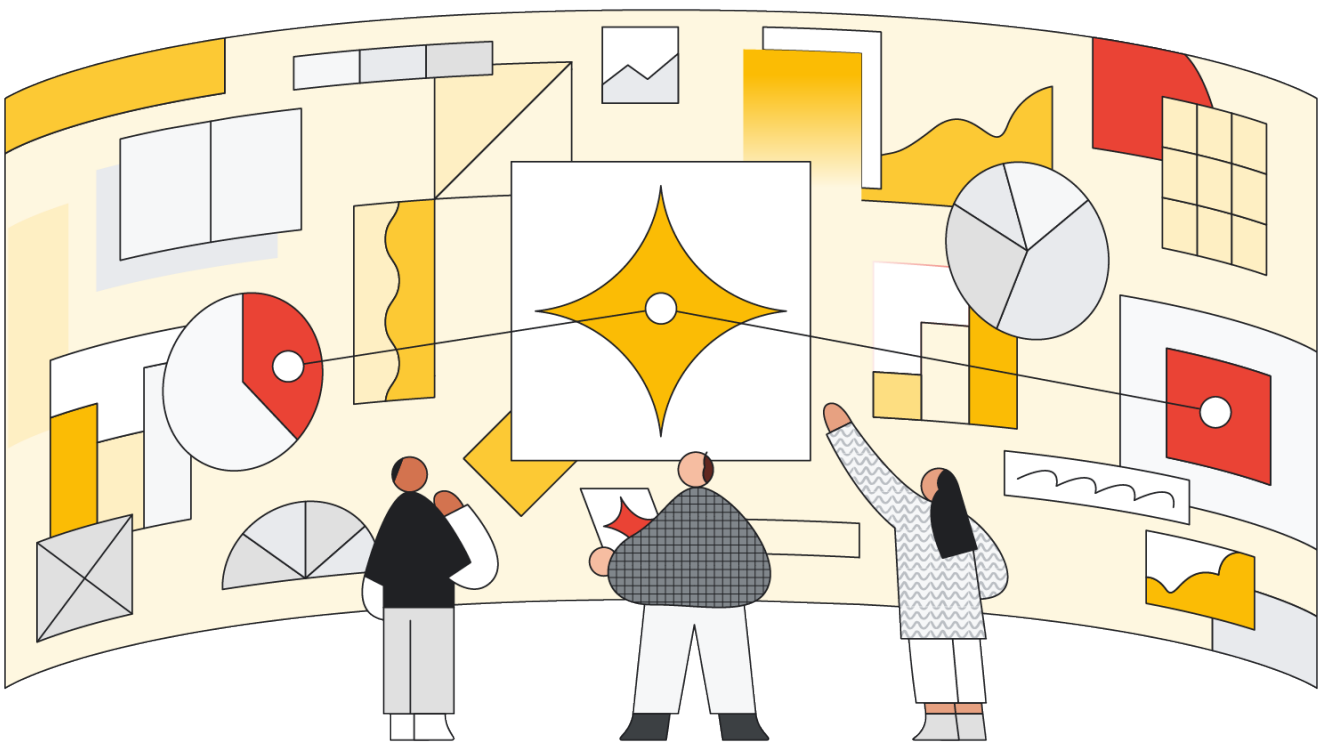
microservices optimized

> Google Cloud gives us a highly secure-by-design infrastructure that complies with major international data privacy laws and standards.
>
> **—Candan Bolukbas, CTO and Co-Founder, Black Kite**

Put safety first with these Google Cloud solutions:

Software Delivery Shield | GKE Autopilot | Anthos Config Management

Assured Workloads | Security Command Center

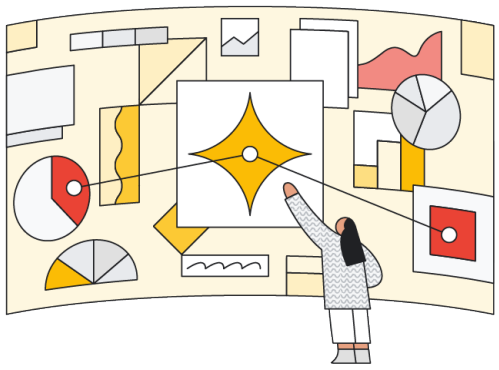


03: Modernization

In with the old, in with the new

Your current software investments have helped you run your organization and kept you going for years. But are they ready to help you evolve with time and grow your business? There's a good chance that some key systems were designed for internal users, not direct customer access. And some software may have been intended for desktop environments, not mobile users, or optimized for on-premises use and not for cloud. Maybe the software wasn't part of a data ecosystem when it first launched, but now it has data needed by transactional and analytical systems.

With ever-evolving organizational needs, strategic updates are key. The trick is taking steps to ensure your new software and cloud systems cleanly interact with your existing management tools, systems, and data platforms.



Unlock a unified portfolio.

Take a look at these three tips when deciding how to add fresh value to existing software.

Think big picture.

Some existing investments need an upgrade. You can improve the infrastructure, the platform, the architecture, the code itself, or the processes around it. Or you could do a combination of some or all of them. Getting started usually involves collecting data about the current state. What do you have, how is it performing, and what is it costing you? From there, you can create a repeatable program to modernize the necessary dimensions.

Manage your must-haves.

Identify nonnegotiable integrations, whether it's your ERP system*, logging infrastructure, identity management solution, or messaging middleware. By architecting new systems with prior investments in mind, you can ensure your applications work with existing tools. It might force you to pick different foundational technologies for your new applications, or to build proxy components that translate between new and old systems.

Be strategic.

Major business changes can be a good time to revisit the status quo. Don't hold too tightly to existing investments and simply lift-and-shift to the cloud—you'll be disappointed with the results. Cloud adoption is a once-in-a-career opportunity to boldly introduce strategic changes to your approach. But you don't have to change everything, or all at once. Maintain some of your existing investments in tools and skills while injecting modern patterns, services, and knowledge into your organization.

Cloud Success Story

StubHub taps into next-gen cloud technology.

To effortlessly handle surges and to scale down systems during low demand, ticket giant StubHub began searching for a way to improve their flexibility. The solution? Migrating their systems into the cloud.

Fit for the future

After successfully implementing BigQuery, StubHub sought to modernize applications with a focus on migrating Oracle workloads. By running Oracle applications and databases on the Google Cloud Bare Metal Solution powered by Intel, StubHub has seen improved service reliability, functionality, and efficiency.

Increased platform availability

Reduced costs and resource demands for IT management

“We saved a lot of time during our migration because we did not have to rebuild all our old tooling and reports. From a system management perspective, overhead has been reduced and our team spends much less time managing and scaling services now that we work with Google Cloud and Intel.

—Todd Northcutt, Senior Director, Head of Product, StubHub

Sync your systems with these Google Cloud solutions:

App Rationalization Workshops | Apigee | Anthos and Identity Services | Eventarc

04: Multicloud

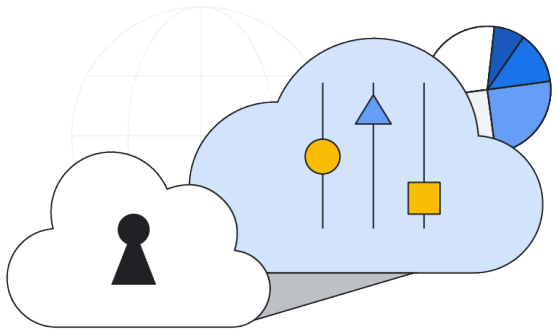
Enjoy multicloud nine.

There's a good chance that when you first selected a cloud platform, the landscape looked different and there were limited choices available. As leaders assess what's available today, they realize that their first cloud choice might not be their next—or only—cloud. In fact, 76% of organizations are already multicloud.[1]

Organizations can now mix and match cloud providers for a range of reasons, from wanting to access the best services available to addressing compliance needs. However, multicloud isn't without risks. You could experience a higher TCO if you find yourself duplicating technology and teams to support it, and your architectural complexity could increase when you start building applications that span cloud boundaries. So is multicloud for you?

[1] HashiCorp 2022 State of Cloud Strategy Survey

Multiply growth with multicloud.



Consider these three areas as you decide if a multicloud approach is right for your organization.

Move forward with purpose.

The benefits of going multicloud should outweigh the costs. Good reasons to make the jump? Building great customer experiences with the most innovative services available, accommodating the existing certifications and knowledge of team members and empowering them to use the cloud that works best for them, or meeting regulatory requirements like avoiding concentration risk.

Anchor bets that work across clouds.

You're going to make a handful of bets on technologies—including identity management—to get consistency across clouds. You'll want one identity federation solution* that helps you use a common identity in every cloud. And be sure to prioritize open-source interfaces and cloud-managed services so that you have the flexibility to run your software and whatever other software you need to integrate.

Picture multicloud in practice.

Always consider developer, system administrator, and operator experiences. Otherwise, you'll have a system that developers don't use, and operators can't run effectively. How will your developers push code? What will deploying security patches be like for operators? How do they locate problem areas and bring systems back online? Make choices with these groups and questions in mind.

Cloud Success Story

GitLab assists customers with digital acceleration.

GitLab helps organizations around the world plan, build, test, and ship their software faster. To provide a better hosted option, they decided to move their hosted GitLab.com service to Google Cloud with support and service from Rackspace Technology.

Seamless shipping and service

Moving to Google Cloud has improved performance, security, and availability. GitLab and Google Cloud are also aiming to lower the barrier of adoption for customers to architect scalable, cloud-native solutions. With this goal in mind, GitLab is giving customers an easy-to-use front end to Anthos, a hybrid and multicloud platform based on Kubernetes.

1.5x

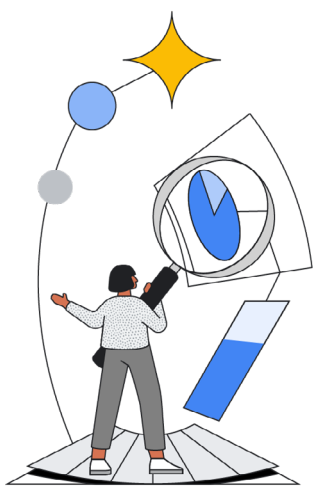
improvement in deployment speed on the service level

61%

increase in availability

> Our GitLab.com instance is the largest GitLab instance in the world, and it runs seamlessly on Google Cloud. Rackspace Technology [a Google Cloud premier managed services partner] can help any customer build, ship, and patch like we do, because they see it every day at scale. If they can do it for us, they can do it for you.

—Brandon Jung, Vice President Alliances, GitLab



Manage multiple public clouds with these Google Cloud solutions:

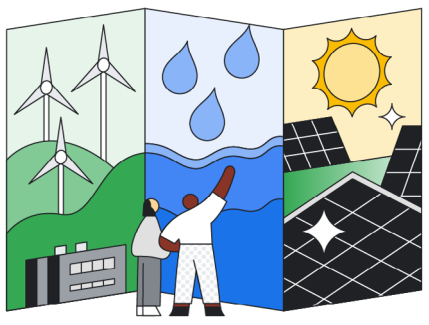
Anthos and Cloud Logging | Cloud Build and Cloud Deploy | BigQuery Omni | Looker

05: Sustainability

Give the green light to eco-friendly technology.

Thanks to the internet, anyone can operate in the global economy, and this interconnectedness helps us think beyond our local experience. We're all on this planet together, and want to ensure that it's a wonderful place to live for generations to come.

Realistically, your software architecture or cloud journey won't single-handedly change the climate or "fix" any damage done to the Earth. But we all need to do our part to make good choices, and 74% of IT executives believe sustainability can drive powerful business transformations. Here's how your technology team can play a part.



Support sustainability.

Keep these three ideas in mind to craft an IT strategy that's better for your organization—and the planet.

Consider how you see benefits.

When deciding on your technology investments and cloud partners, consider both the benefits you get simply by using certain products, and where your team has to explicitly act to get the desired outcome. Because Google Cloud operates the cleanest cloud in the industry, you're making a positive impact simply by running in one of our data centers—no extra work required. At the same time, you can actively choose to run in low-CO2 regions, and developers can pick them when deploying workloads.

Drive decision-making with visibility.

Data transparency has historically been a challenge. Do you know the carbon impact of the pre-production databases in your on-premises data center? Choose cloud platforms that can collect, analyze, and report on the environmental data you need to make good choices.

Emphasize efficiency.

Dramatically improving your efficiency is the biggest environmental impact you can make. Avoid running fleets of underutilized servers or, even better, leverage serverless technologies to automate the optimization of your server use. As you adopt cloud services that are elastic, managed, and automation-centric, you can better align your capacity to actual needs.

Cloud Success Story

Paccurate slashes shipping costs and carbon emissions.

Shipping and fulfillment optimization platform Paccurate helps customers engage in smarter packing to create a more efficient and sustainable supply chain. They needed a scalable cloud-based solution to reliably support tens of millions of high-speed, low-latency queries.

Millions

of optimized shipments per month

A plan to help the planet

Through the Google for Startups program, Paccurate was able to cost-effectively scale and expand to meet increased customer demand. The secure-by-design infrastructure of Google Cloud enables retailers to efficiently pack and deliver items at more affordable prices.

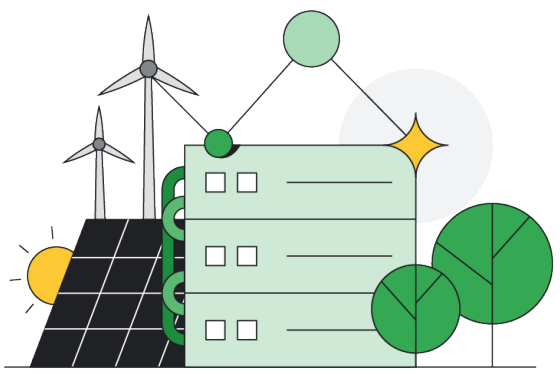
20%

decrease in overall fulfillment costs

“

With the help of Paccurate and Google Cloud solutions, our customers save an average of one square foot of cardboard per carton while lowering overall fulfillment costs by over 20%.

—James Malley, Founder and CEO, Paccurate



Focus on your footprint with these Google Cloud solutions:

Cloud Run, Cloud Functions, and Google Kubernetes Engine | Google Cloud Carbon Footprint

06: Talent

Build your dream team.

Competition for top talent is fierce, and the best and brightest are looking for fulfilling, flexible jobs at companies that are making a difference. Your most gifted employees don't want to be buried in the back office doing repetitive tasks, or working with 20-year-old technologies that keep the lights on. But how do we keep our teams challenged, motivated, and capable of leading us forward?

Prioritize your people.

Commit to these three strategies to make your difference-makers happy.

Reduce daily obstacles.

Research shows a top reason for developer dissatisfaction is friction in day-to-day work. Do they spend 40% of their time coding and the rest in meetings? Do outdated tools slow them down? Are they waiting days to get results back from your testing team? These and other issues that impact productivity can send top performers packing.

Get developer buy-in.

It's crucial to identify which technologies developers want to use, and which will accelerate your business. Otherwise, you may end up with an overly complex architecture and an unmaintainable stew of technology. Establish a process to continually evaluate technologies and introduce the ones that excite developers and improve your systems.

Invest in your people.

To develop and retain existing staff, cultivate a continuous learning culture by making a true investment—in both time and money—in your team. Offer work hours to prepare for certification exams, participate in open-source projects, and encourage employees to join user groups or speak at events.

Cloud Success Story

ASML creates the ideal environment for world-class engineers.

At the cutting edge of the microchip industry, ASML needed a way to give their engineers the tools to rapidly test innovations and perfect software. The company's goals made cloud infrastructure, with its ability to scale at speed to match demand, a natural fit.

An exciting cultural shift

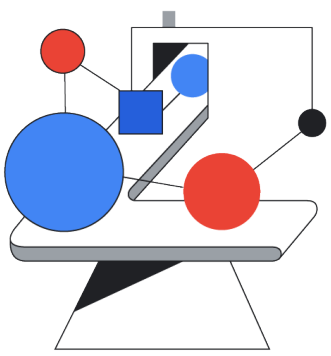
With support from cloud consultancy Rackspace, ASML migrated to Google Cloud and a serverless solution. This change not only eliminated the need of maintaining a Kubernetes cluster, it allowed test results to be delivered in under an hour. Faster testing has helped create a new development culture that encourages innovation.

Increased

innovation, efficiency, and employee satisfaction

80%

reduction in time taken to test code



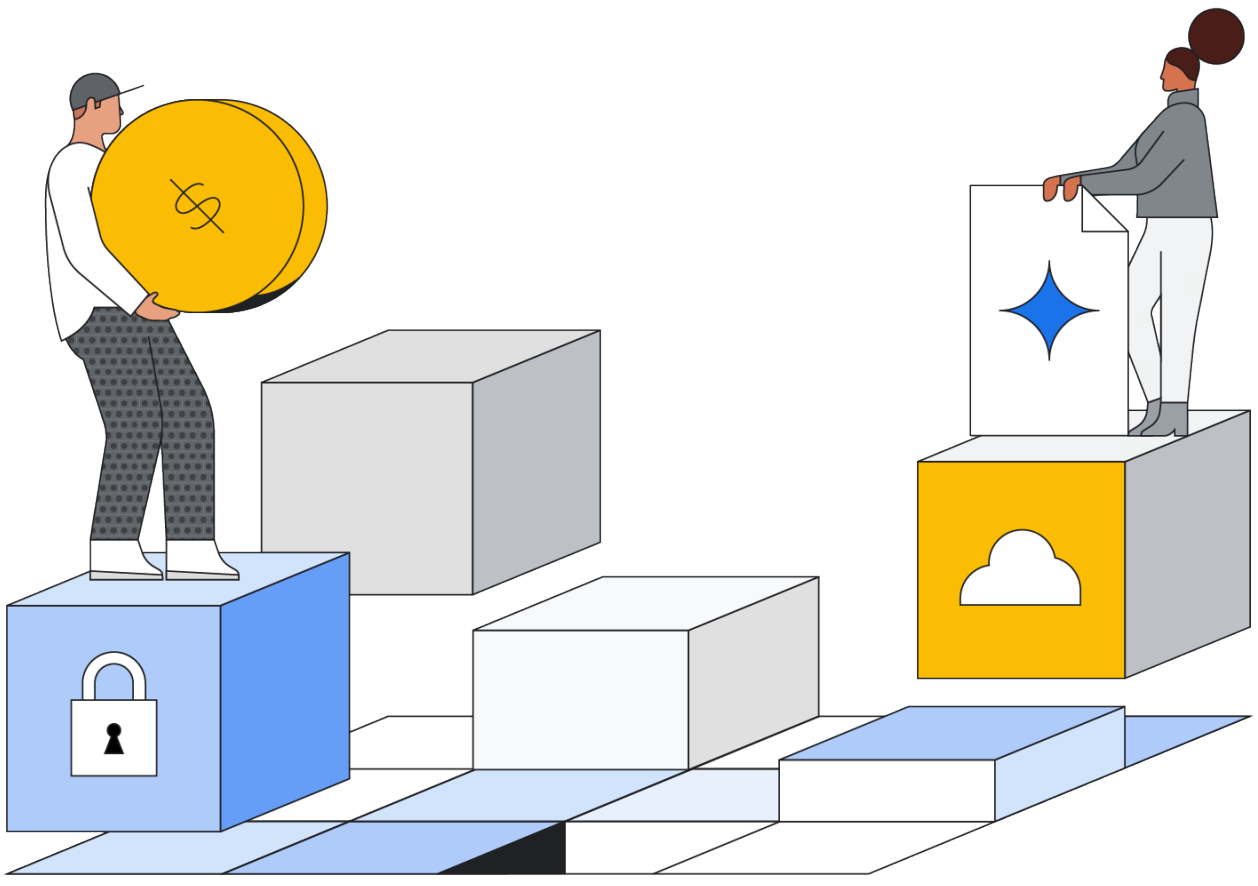
"The biggest impact from this project is in the reactions of our developers. We're seeing a cultural change towards making immediate repairs which directly improves their work satisfaction.

—Andre de Brito Passos, Software Engineer, ASML

Retain top talent with these Google Cloud solutions:

Google Kubernetes Engine, Istio, Knative, Kubeflow, and TensorFlow

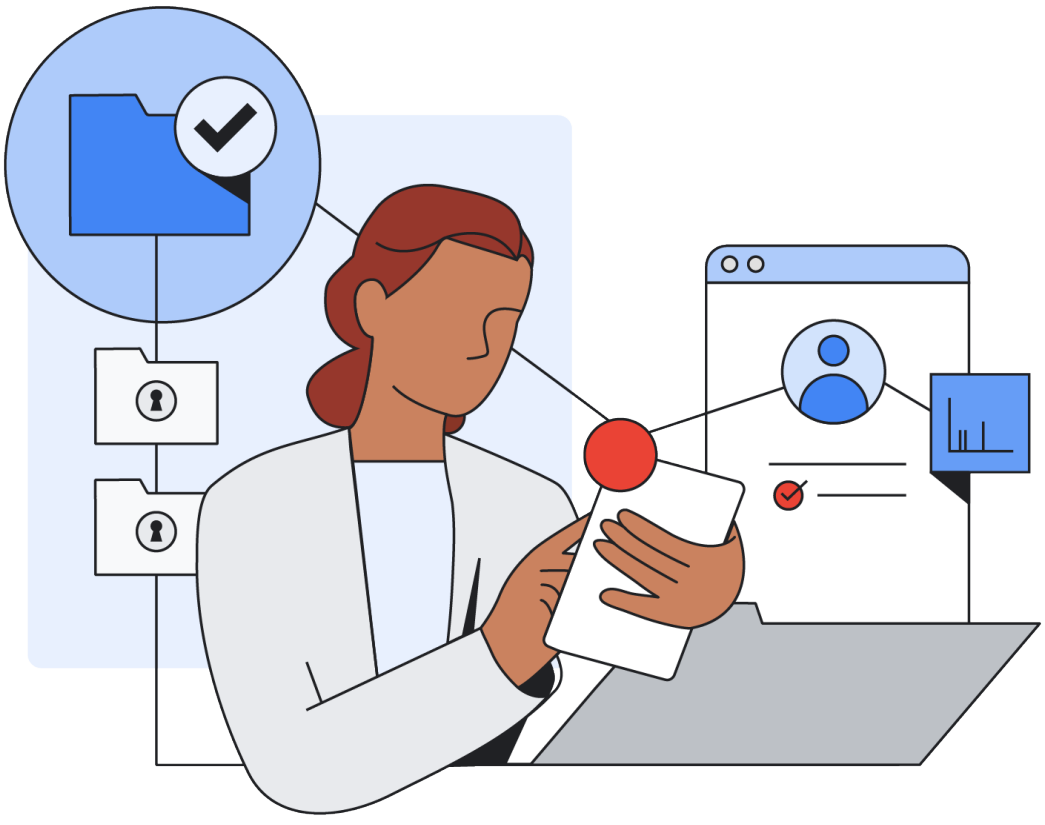
Angular, Go, and Flutter | Cloud Skills Boost



Conclusion

As an IT leader in today's world, you're dealing with economic uncertainty, a workforce in flux, rising technical debt, and the relentless needs of an evolving market. A modern cloud strategy is critical to moving your organization forward. Making the right decisions about cloud challenges matters now more than ever.

It's time to lean in and emerge stronger. Reach out to our team today and find out how Google Cloud can help you innovate with modern cloud applications and accelerate your business.



Glossary: Dive deeper into key terms.

Application programming interface (APIs): Software programs that give developers access to computing resources and data

Blue/green deployment: A strategy in which the new version of your application is released alongside the current version

Canarying: The first instance of receiving live production traffic about a new configuration update

Chaos engineering: A practice that introduces actual failures into different components of production systems under load in a safe environment

Continuous delivery (CD): The process of automating deployments across multiple environments in a safe, low-risk, and quick manner

Continuous integration (CI): The process of automating the building and testing of changes to code to detect problems early

Enterprise resource planning (ERP) system: Software that helps companies manage day-to-day business activities

Hardened platforms: Platforms where steps have been taken to minimize and mitigate security vulnerabilities

Identity federation solution: A way to grant on-premises or multicloud workloads access to Google Cloud resources without using a service account key

Appendix: Get to know Google solutions.

Angular: A web application framework

Anthos: A managed platform for all of your application deployments, both traditional and cloud native

Anthos Config Management: A service that enables companies to automate policy and security at scale for Kubernetes clusters on-premises, on GKE, and on other public clouds

Apigee: A platform to help companies design, secure, and scale application programming interfaces (APIs)

App Rationalization Workshops: Workshops focused on the process of going over application inventory to determine which applications should be retired, retained, reposted, replatformed, refactored, or reimagined

Assured Workloads: A product that provides the ability to apply security controls to an environment, in support of compliance requirements, without compromising the quality of the cloud experience

BigQuery Omni: A flexible multicloud analytics solution that lets organizations access and analyze data across Google Cloud, Amazon Web Services (AWS), and Azure

Cloud App Modernization Program (CAMP): An end-to-end framework to help guide organizations through their modernization journey by assessing where they are today and identifying their most effective path forward

Cloud Build: A service that executes your builds on Google Cloud infrastructure

Cloud Deploy: An opinionated, serverless, secure continuous delivery service for GKE

Cloud Functions: A serverless execution environment for building and connecting cloud services

Cloud Logging: A fully managed service that allows you to store, search, analyze, monitor, and alert on logging data and events from Google Cloud and Amazon Web Services

Cloud Run: A fully managed compute platform that automatically scales containers

Cloud Skills Boost: A learning platform that provides developers with online courses, skills development, and certifications

Eventarc: A unified platform for migrating and modernizing with Google Cloud

Appendix: Get to know Google solutions.

Flutter: A UI toolkit for building beautiful, natively compiled applications for mobile, web, and desktop from a single codebase

Go: Quickly build scalable apps using Go programming language on Google Cloud

Google Cloud Carbon Footprint: Provides carbon emissions cloud usage so you can measure, report, and disclose carbon emissions for ESG reporting

Google Cloud Databases: Fully managed databases, such as Cloud Spanner, Cloud Bigtable, AlloyDB for PostgreSQL, and Cloud SQL, that provide industry-leading reliability, scale, and open standards

Google Kubernetes Engine (GKE): A managed, production-ready environment for running containerized applications

Google Kubernetes Engine (GKE) Autopilot: Default mode of operation in GKE in which Google manages your cluster configuration, including your nodes, scaling, security, and other preconfigured settings

Identity Services: A product that consolidates multiple identity offerings under one software development kit

Istio: A solution for managing the different microservices that make up a cloud-native application

Knative: A Kubernetes-based platform to build, deploy, and manage modern serverless workloads

Kubeflow: An open-source Kubernetes-native platform for developing, orchestrating, deploying, and running scalable and portable ML workloads

Looker: An enterprise platform for BI, data applications, and embedded analytics that helps you explore and share insights in real time

Security Command Center: A platform that helps strengthen your security posture by evaluating your security and data attack surface; providing asset inventory and discovery; identifying misconfigurations, vulnerabilities, and threats; and helping mitigate and remediate risks

Software Delivery Shield: A fully managed, end-to-end software supply chain security solution

TensorFlow: An end-to-end open-source platform for machine learning