



Google Cloud



## Winner

# Utilizing IT operations to drive informed business decisions

Recognizes use of DevOps best practices to break down silos between development and operations teams

## About

[Broadcom Software](#), part of Broadcom Inc., is a world leader in business-critical software that modernizes, optimizes, and protects the world's most complex hybrid environments. With its engineering-centered culture, Broadcom Software offers an extensive software portfolio that enables scalability, agility, and security for its customers.

## Challenges

Broadcom Software's industry-leading infrastructure and security software covers AIOps, cybersecurity, value stream management, DevOps, mainframe, and payment security applications. Many of the world's largest companies and organizations use these products and SaaS services.

Because of Broadcom's history of acquisitions, its software solutions were a mix of architectures, built with different technologies and methodologies, running in multiple public and private clouds, and operated uniquely.

These disparities presented challenges, including inefficient workflows with manual interventions, friction in software deployment, and cost burdens in infrastructure and support.

## Objectives

To provide more value to customers, Broadcom Software's team had several objectives, including:

- Standardize and automate the deployment process
- Simplify the infrastructure footprint
- Optimize resources
- Consolidate the number of technologies

More broadly, the company sought to drive synergies across its software product groups, to scale more effectively, and to optimize its technology stack. A transformation would open greater opportunities for product teams to focus on building superior products and innovating.

Broadcom Software's philosophy is that DevOps is a culture that fosters innovation and collaboration, improves efficiency and productivity, and eliminates friction across development and operations teams. DevOps is a combination of processes and tools that enables teams to deliver quality and secure code with high velocity.



We believe that DevOps is a culture that **fosters innovation** and **breaks barriers** between development and operations teams, **improves efficiencies**, and **increases productivity.**"

-Ganesh Janakiraman, Senior Director of SaaS Operations and Delivery at Broadcom Software

## Solution

Broadcom Software embarked on a transformation journey to deliver its software with Google Cloud. This entailed several key changes:

- Implementing cloud-friendly microservices architecture
- Modernizing applications with containerization
- Orchestrating containers with the Kubernetes system

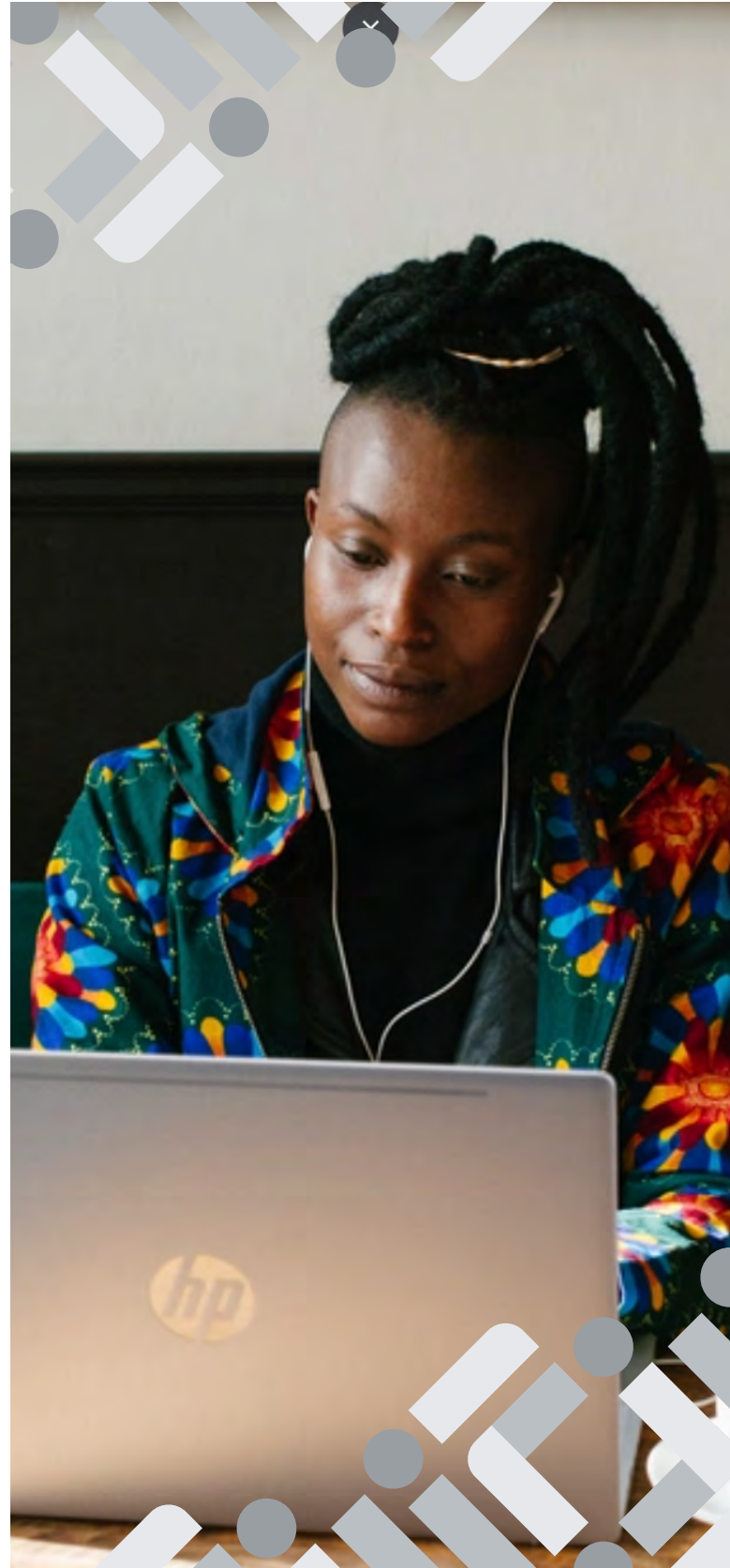
Executing this plan required migrating several petabytes of data and unifying diverse technology stacks running in data centers around the world and in multiple public clouds. These were consolidated in [Google Kubernetes Engine](#) (GKE) on Google Cloud, a managed environment for containerized applications that offers autoscaling.

The team worked with more than 80 applications and services to refactor their code to microservices architecture and containerize them. Standardization through containers and Kubernetes for orchestration in Google Cloud was possible for almost all. Some team members resisted the change initially, but product champions and leadership effectively articulated the vision and the benefits of the change.

Another dimension to the transformation was adopting common DevOps practices across the product teams. This included tooling, CI/CD pipeline, and security provisions.

Broadcom Software designed and built network infrastructure to migrate the data quickly and cost-effectively. This included a fully automated continuous delivery pipeline so developers could deploy code to any target environment with integrated change management and security scans.

The project's complexity was compounded by the variety of security and compliance needs for Broadcom Software's products. Applications had to meet privacy and security regulations under the Payment Card Industry Data Security Standard ([PCI DSS](#)), Federal Risk and Authorization Management Program ([FedRAMP](#)), and SOC 2, a voluntary standard that specifies how to manage customer data.



## Results

The project allowed Broadcom Software to achieve multiple wins across software divisions, including:

- **Faster deployments.** The company gained the ability to deploy anytime, anywhere using the common CD pipeline, enabling faster delivery of products with no manual intervention. On average, Broadcom Software is **deploying more than 6,500 times a day across multiple environments.** Developers are able to get more incremental changes to their customers faster.
- **Streamlined footprint.** The company moved from 60 different data centers worldwide into 27 [Google Cloud Regions](#) and points of presence for a significant reduction in infrastructure.
- **Computing resource optimization.** Adoption of containers and a standard GKE-based platform with features like node and pod autoscaling helped optimize resources significantly. For example, Broadcom Software's Clarity PPM software now uses fewer than 100 nodes, down from more than 6,000, as a result of product optimizations done for the move to Google Cloud.
- **Increased profitability.** The number of people needed to run Broadcom Software's SaaS has been reduced by 70 percent due to standardization, allowing the team to focus on new innovation projects. This has translated into a significant increase in profitability for several product suites.

Moreover, Broadcom Software has made important strides as an organization as a result of embracing DevOps.

"We believe that DevOps is a culture that fosters innovation and breaks barriers between development and operations teams, improves efficiencies, and increases productivity," remarks Ganesh Janakiraman, Senior Director of SaaS Operations and Delivery at Broadcom Software.

As Broadcom Software progressed through its transformation, some similarities across products became apparent, and this opened other avenues to greater efficiencies. For example, teams were able to adopt common practices in observability—monitoring, metrics, alerting, and logging. Janakiraman comments, "We were surprised to see the amount of commonality that was there that we could leverage and make this whole process more efficient."



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## Working with Google

Broadcom Software partnered with Google Cloud to deliver Broadcom's cloud-first software with speed, scale, and efficiency. The company is building a comprehensive portfolio of industry-leading, business-critical software, and Google Cloud is a trusted partner on this journey. The two companies worked together at multiple levels, from executives to product managers, platform leads, support teams, and operations.

Broadcom Software says its initiatives pushed the boundaries of GKE and other managed services. The company worked with Google Cloud to test new features for issues it identified and praised Google Cloud for its responsiveness. Janakiraman concludes, "It's fair to say that without Google Cloud we wouldn't have been able to accomplish what we did over the last few years."

To learn more about Broadcom Software's successful project, [check out this video.](#)