



Winner

## Most improved documentation quality

Recognizes successful integration of DevOps into the workflow using Google Cloud tools

### About

[Clover](#) offers cloud-based point-of-sale tools for small and medium businesses including hardware and software. Owned by Fiserv, Clover processes billions of dollars in card transactions annually.

### Challenges

Clover has grown exponentially as stores and restaurants have embraced its [Android](#) point-of-sale payment solutions. Since its founding as a startup in 2010, the company has transformed as a result of rapid growth and being acquired in 2012 and 2019.

These changes stressed Clover's development processes. Clover's constraints included monolithic architecture and challenges bringing new on-premises servers online fast enough to keep pace with expanding transaction volume. Rather than event-driven systems, engineering teams implemented less-optimal solutions that took more time to support and slowed the delivery of value to customers.

### Objectives

Clover set out to modernize, move to microservices, and achieve resource elasticity with cloud infrastructure through Google Cloud. The company also aimed to quicken its release cycle, better positioning itself to compete with startups in the payment-processing industry and bolster its market leadership.

Clover went through Google's [DORA assessment](#), an evaluation of its DevOps processes against key benchmarks. Deeper investigation revealed that the team resisted more frequent updates because Clover engineers worried about the potential for bugs and for updates to burden users.

Out-of-date documentation, a result of rapid growth, was a major cause of uncertainty around deployments. So improving documentation became a key objective to drive faster release frequency.

### Solution

Clover's team identified several ways that stronger documentation could support its goal of faster deployments.

- Removing outdated information and adding documentation where it did not exist helped speed up coding and decrease quality problems.
- With better documentation, new engineers reached productivity sooner and the team was more efficient.
- Troubleshooting issues before they entered production became easier, and this helped the team focus on creating more value.

Some of the specific improvements included documentation reviews, efforts to communicate with users affected by changes, and resources to help internal customers with questions. Development workflows now include steps that promote stronger documentation such as architecture templates and records in GitHub for version tracking and visibility. The team also provides video demonstrations, walkthroughs and recorded screenshares.

Engineers established a Slack channel where they support users across the business and geographies. This surfaces gaps and weaknesses in documentation that can then be addressed.

Clover created *Documentation Fridays* which are used by the entire team to address the backlog of documentation needs. This demonstrates the priority the company places on good documentation by giving team members adequate time to produce high-quality, current information.

## Results

Clover has moved from widely spaced deployments to most of its teams being able to release at will. **Most teams are putting new code into production code every few days and some teams do so multiple times a day.** This is also backed by greater confidence in code quality and user experience.

The wider benefit is a cultural shift at Clover in which DevOps feels jointly responsible for the full spectrum of both development and operations. More support is in place in terms of automation that reduces manual work, knowledge resources, and team members to guide others.

“Engineering teams are now equipped to build products that serve our customers in far less time than ever before,” Clover leadership notes. “Engineering teams are empowered to run as fast as they can and deliver products for our customers as fast as they can in ways that our customers need them,” notes Rishi Malik, Clover’s Vice President of Platform Engineering.

Accompanying these changes are greater self-service capabilities through automation and improved [site reliability engineering](#) (SRE). That frees the platform team to focus on building products, including internal tools that support other engineering teams, rather than dealing with manual chores and production issues.

Together these shifts have enabled Clover to scale more effectively by being more efficient. “Instead of needing to add more DevOps engineers, we can actually add more product teams. We can build more in ways that directly give customers value because we have internal systems that can support more engineering teams than they could before,” Clover leadership notes.



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-Rishi Malik, Clover’s Vice President of Platform Engineering



## Working with Google

Clover collaborates closely with the Google Cloud team through weekly meetings and via a shared Slack channel for quick support and weekly meetings.

To learn more about Clover Network’s successful project, [check out this video](#).