

THE CUSTOMER

Founded in 2015, [Curve](#) is a financial services company that offers an integrated online banking platform for all of Europe. In an increasingly connected world, money is still a mess. Curve solves this problem with its mission to build a simpler, smarter, connected world of money. Over 1.3 million Curve customers spend from all of their accounts using only one Curve card, and simplify their finances through one smart, secure mobile application.

The site reliability team, known in Curve as the Platform team, are responsible for ensuring that all of their services are secure and available for customers 24/7/365. All card transactions and traffic from the Curve application, which has processed over £1.6 billion, travels through the platforms that the site reliability team looks after.



"A big one is definitely compliance and auditability; GitOps is a perfect fit as we have, with no extra effort or tooling, a fully auditable, permanent record of what is being merged to the repo and deployed into our production environments." - Garry Wilson, Site Reliability Team Lead

CHALLENGES

Comply with strict regulations

As a company dealing with credit card information, Curve is monitored under strict PCI compliance requirements. Those rules govern who can make changes to their systems. Curve needed to implement transparency and auditability at all levels of their platform to ensure that they could provide a full audit trail including logging when required.

Mitigate security risks

Being a financial institution, Curve takes security very seriously. They were nervous about having anyone external getting access to their environments. It was important to find an in-house solution that could deploy tools and applications, and that also adhered to their strict security requirements.

Lack of observability

The platform team lacked observability of their system because they were unable to provide an accurate list of what was running in any of their environments at any time.



Industry: Financial Services

Location: United Kingdom

HIGHLIGHTS

- Deployment speed 50% faster
- Deployment frequency 50% faster
- Developer productivity 75% more
- MTTR reduced from days to hours

KEY BENEFITS

- Weaveworks solution provides automated workflows at scale
- Secure and compliant workflows
- Reduced MTTR and developer operations, increasing reliability
- Easy onboarding for new engineers

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Improving disaster recovery

The platform team needed to be confident that should a major incident occur, all of their services could be quickly and fully recovered to a previous point in time.

Kubernetes operations too complex

The team needed to automate configuration file updates. If changes were required to any Kubernetes cluster, the Curve engineers had to manually update the YAML files themselves. This not only requires a good knowledge and understanding of Kubernetes across the team, but it also took time since changes with a manual approach can be error prone.

SOLUTION

Curve engineers were using Jenkins to deploy to Kubernetes but they needed an accurate, auditable, and historical view of all of their Kubernetes environments. They loved the idea of using Git, a familiar and secure software built for and trusted by developers due to its strong process of correctness. As a result, they started researching GitOps as a potential solution.

The platform team were looking for tooling that had support for Helm, including a way to abstract a lot of the Kubernetes YAML files away from developers. Helm is a great way for teams to use standardized templates that any engineer can use without having to know everything about the underlying code.

In late 2019, Curve started using Weave Flux within the Platform team, initially, to deploy internal tooling such as monitoring and security services. Due to the ease of managing deployments, the team rolled it out across all of their containerized applications, ensuring that hundreds of their deployed services to Kubernetes was being managed by Weave Flux. The platform team have since had to split from one Helm Operator deployment to several others in order to keep the increased scale of their releases running smoothly.

Curve combined GitOps with its Helm Operator, together with the standardized Helm charts written by the Platform team, as a solution for deploying all of their containerized applications.

All of Curve's microservices, including those that process payments, through to the APIs called by the Curve application for their customers, are now deployed using GitOps. This reduced complexity and also saved time.

GitOps provides reliability and stability

The platform team are big fans of being GitOps driven and everything they do is now based on a Git repo that contains a description of the current state of all of Curve's environments. The team has slowly started implementing GitOps to automatically deploy new builds and update the repo itself, within their development environments.

Curve previously used Jenkins to deploy their services to Kubernetes but they have since implemented Gitlab deployed by Weave Flux to automate their CI/CD pipelines in their production environment.



GitOps feels like the right way to manage Kubernetes clusters. Other pre-containerization CI/CD tools are flakey, fragile and take up valuable time - engineers should focus on solving code problems, and not on the deployment process.” - Garry Wilson, Site Reliability Team Lead

RESULTS

Curve saw some early benefits of using GitOps when they created an entirely new Kubernetes cluster for load testing and found the set-up to be as simple as pointing Weave Flux at a folder in the Git repo. Unlike their previous setup, they can now use Git history to trace back and find the exact times for when deployments happened which is proving useful for debugging issues.

Easy on-boarding

New engineers joining the team can swiftly get to work using Git, which they are familiar with, allowing them to make updates directly to the cluster without needing to fully understand how Kubernetes works. Furthermore, with the implementation of GitOps and Helm, a lot of required knowledge is now abstracted away thanks to their standardized Helm charts. This has flattened the learning curve for new engineers deploying their first service.

GitOps adds security and compliance

Since GitOps runs in the environment it's deploying to, it doesn't require access to any servers and it runs with a minimal set of privileges with read-only access to the Git repo. Curve's environment now uses merge request controls, CODEOWNERS, and other protections on the repo to make it both secure and compliant.

The team provisions new Kubernetes clusters with Terraform and automatically deploys all of Curve's services from Git using GitOps. The platform team is now confident that should a major incident occur, they can recover everything within hours of a major incident, whereas before it could have taken days.

More deployments in less time

By implementing automated GitOps workflows, Curve reports that their development team spends **50% less time** on operational tasks. This has further had a positive **50% increase** on the teams' deployment frequency with a reported **50% increase** in release velocity.