



Five AWS customers who depend on GitLab for DevOps workflow

Learn how five AWS customers use GitLab to:

- » Increase productivity
- » Modernize infrastructures
- » Reduce security risks
- » Simplify toolchains



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Introduction

Over the past decade, DevOps went from being considered a trendy solution for software tech companies, to a dependable workflow that improves nearly any business process. However, creating a successful DevOps workflow remains a challenge for many organizations.

For some, DevOps processes become difficult because teams focus on too many different tools. With a complicated workflow, maintenance becomes a priority and takes up the time and effort once spent on developing the products.

A variety of tools can also impede user transparency and collaboration. Visibility in a DevOps workflow is imperative to continuous integration and deployment. If the tools in place aren't integrating, then the Dev and Ops people using them aren't communicating effectively.

Another common DevOps challenge is making sure to have the right tool when making the leap from a monolithic system to microservices. The planning, coordination, and cost all factor in the success of making the switch, but the correct DevOps tool makes all the difference. A singular platform with an easy user interface and the ability to integrate seamlessly will make the move less of a hurdle.

Learn how Trek10, KnowBe4, Wag!, Ask Media Group, and Axway all overcame significant software development challenges. Get a better understanding of how each company turned to AWS and GitLab for up-to-date software releases, high-end efficiency, scalable workflows, and unmatched deployment capabilities with two companies known for setting industry standards.



DevOps workflow challenges

Keeping cloud customers informed

Trek10, a professional technical consulting firm, helps enable enterprises to migrate to cloud native architectures. The small Indiana-based company was founded in 2013 and reaches customers across four continents. As a services provider, Trek10 is responsible for keeping companies up to date with cutting-edge technologies.

Trek10 was having challenges keeping their clients informed and updated. Client feedback is a high priority for Trek10 to create custom solutions, so collaboration is imperative in keeping clients satisfied.

The development teams were also lacking collaboration and transparency within their own workflow. The teams were using a variety of different tools, causing discrepancies and lag time between the tools and reality. Trek10 was looking for a tool that could offer visibility and bridge the communication gap, not only between internal teams, but also with their clients.

Constant context switching

KnowBe4 is the provider of the world's largest security awareness training and simulated phishing platform. KnowBe4 has nearly 25,000 customers and is ranked highest in 'Ability to Execute' and 'Completeness of Vision' on the 2019 Gartner Magic Quadrant for Security Awareness CBT.

The security platform was using three separate tools for its deployment toolchain, with three solutions in use, codes, tests, and deployments living in various places. The tools didn't integrate,

causing additional stress and security issues. "Context switching was constant, and due to everything running concurrently, you never achieved the correct continuous pipeline," said Alex Callihan, Director of Site Reliability Engineering at KnowBe4.

The engineering teams were looking to improve deployment speed by consolidating to one tool that could provide end-to-end visibility. Other priorities for a new toolset included a platform that could be self-hosted, reside in AWS, integrate with Jira and Docker, and scale their Git solution.

Lacking pipeline and infrastructure capabilities

Wag! is an on-demand dog walking, sitting, daycare, and boarding platform that started in 2015. Wag! provides millions of walks across the United States annually. The company uses GitLab for SCM, but the teams were struggling with their existing CI, pipeline, and infrastructure capabilities. "We were previously using a combination of a popular CI/CD tool and other random technologies, and we just wanted something with a little bit better interface, a little more control, and something that we owned as far as the hosting and the management," said Dave Bullock, former Director of Engineering, Wag! "We really wanted to move towards a single, full-service application."

The teams also had zero autoscaling in place, a flat VPC, no staging area to test infrastructure changes, and only one security group to rule them all. A single error in the code had the potential to destroy user capabilities. Monitoring services were not ideal in finding bugs prior to deployment. All of these issues led Wag! to search for a new, singular platform that could solve their challenges, save money, and integrate with AWS.



Limitations of a monolith

Ask Media Group operates over 30 websites and provides enriched search results, articles, galleries, and shopping sites to over 100 million unique visitors each month. Ask Media wanted to improve sales by drawing advertisers and expanding its audience.

Why Modernize?

Slow Speeds



Routine tasks like onboarding new developers or releasing to production take too long

Hidden structure



Monolithic architecture limits what's possible and who can contribute

VM costs



Inefficient use of infrastructure means paying for unnecessary compute time

The teams had a monolithic system in place that limited capabilities and added financial burdens for services that went unused. Routine tasks like software releases and onboarding developers were time consuming. Ask Media was looking for a tool that could help the teams improve customer service.

Disadvantages of another open source tool

Axway Software is an independent API gateway vendor, providing on-premises and cloud software to customers. The company has over 2,000 employees spread across 17 countries. Over 11,000 organizations worldwide rely on Axway for their integration needs. In 2016, Axway transitioned from another open source version control system to GitLab for source control management. However, they were looking to enhance software delivery and improve operational efficiency through cloud services.

In 2018, the **Axway workflow** consisted of using a copy of a popular open source tool deployed as a Docker image and pulling pipelines from GitLab to run. That method only worked while the SaaS product was in its infancy with approximately 15 microservices. As Axway matured, they expanded to more than 24 microservices, and the team was unable to maintain the toolchain. The development teams were in need of a simplified, end-to-end platform that could deploy on AWS, and completely move off of their old tool altogether.



How GitLab improves DevOps workflow

Delivering better products faster

For Trek10, the decision to use GitLab came after testing out several other tools that offer collaboration and visibility. GitLab stood out because it delivers full transparency throughout the development lifecycle with unmatched integration. “Essentially, we look at GitLab as a building block, and we just build whatever we need on top of it. Whether it’s a wiki or a custom integration, GitLab helps create an engineering culture,” said Jared Short, Director of Innovation, Trek10.

With GitLab in place as the project management application, Trek10 focuses on innovative solutions for its clients. The company has increased developer velocity, improved client relationships, and fostered trust and transparency. The review apps have become an essential part of customer success. Clients now have increased communication with developers, which allows customers to have an active role in the development lifecycle.

“Our business runs on GitLab. It’s a central point of our operations.”
–Jared Short, Director of Innovation, Trek10

Reduced security and compliance risks

KnowBe4 adopted GitLab after successfully shipping a product that was scheduled during the proof-of-concept phase. One of the key elements in their adoption decision was the ability to ensure security by keeping code in-house. “As our company has grown, being compliant

across multiple standards has been a key goal of our development and infosec teams. GitLab’s tooling for security and ability to host within our own infrastructure was a big selling point to get approval for the POC,” Callihan said.

GitLab is now at the heart of the software development lifecycle. KnowBe4 teams have standardized the development lifecycle for over 60+ microservices. “Due to that standardization, the simplicity of starting new projects or troubleshooting existing ones is incredibly easy. We all know how projects will build, release, and ship regardless of codebase or design,” Callihan said. “With a healthy mix of Docker, Terraform, and GitLab in GitLab pipelines, we’ve got a system in place that is super efficient.” Time to production is decreased with 20+ development environment deployments per day.

“The GitLab migration in general is one of our largest successes. Of the primary implementations that Site Reliability Engineering has brought to engineering at KnowBe4, the choice to move the department to GitLab ranks up there as one of the best.”
–Alex Callihan, Director of Site Reliability Engineering at KnowBe4

Enhanced operational efficiency with autoscaling

In a two-phase process, Wag! moved its entire platform to a new environment within a few months. Wag! created an automatic system for the application pipeline, with the ability to containerize applications, automatically scale Amazon Elastic Cloud Service, implement blue/green and canary deployments, and democratize deployments.

The infrastructure was rearchitected, including the ability to define everything as code, ensure autoscalability, tier VPC subnets, minimize permissive network security groups, and enable application deployments via GitLab.

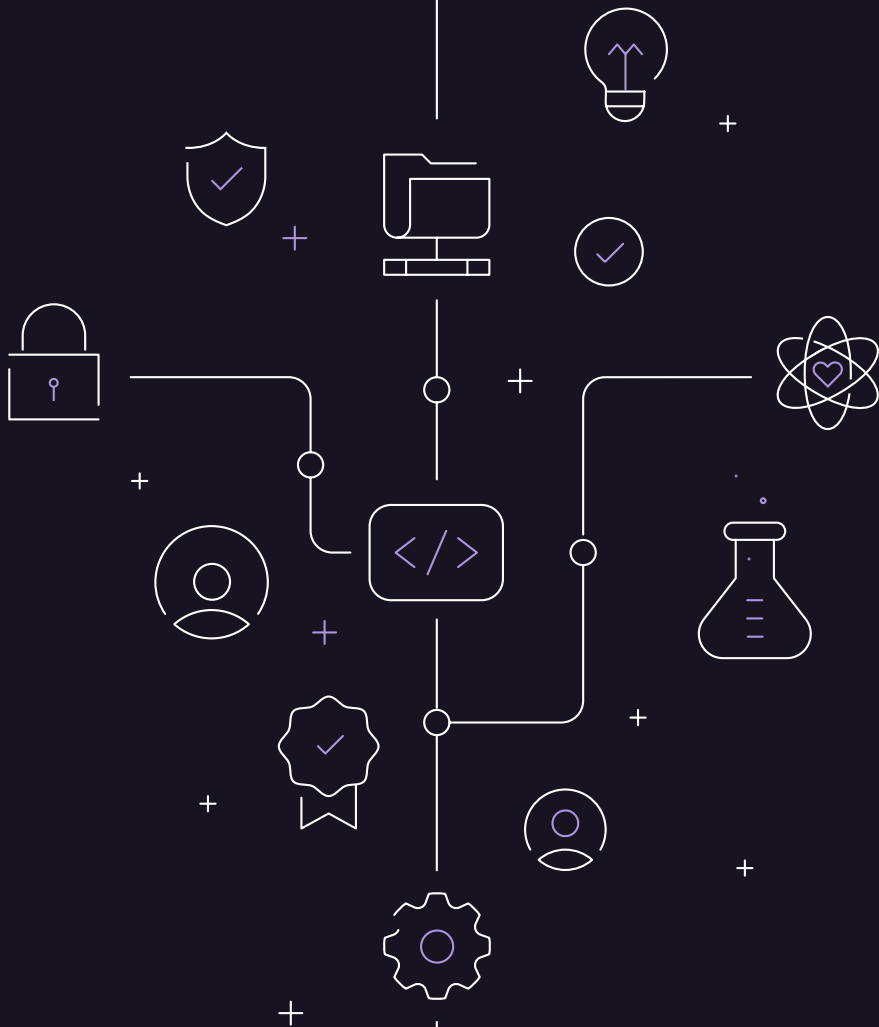
“GitLab has this great functionality where they do autoscaling runners. Before we had static runners in [a popular CI/CD tool] that allowed for 20 at a time. With autoscaling at GitLab, you can set it to up to 500 at a time and set windows when they’re active. It’s really, really efficient and got rid of a ton of our bottlenecks in the pipeline,” Bullock said.

A full paradigm shift

GitLab helped Ask Media transition from a monolith to microservices. GitLab’s ability to integrate empowers developers to improve customer experience, release software quicker, and leverage AWS cloud services. “We needed a system that could handle change,” says Chenglim Ear, principal software engineer at Ask Media.

Ask Media’s entire workflow shifted when they adopted GitLab. “When we look at what we did to speed up development, to make it simple and transparent, and control the cost, we see a paradigm shift. GitLab gave us push button releases. Docker and Kubernetes enable us to switch to a microservices architecture and AWS enabled auto scaling,” Chenglim explains. “On Amazon, we started building Kubernetes clusters and GitLab became our command and control interface.”

	Before	After
Speed	Multi-step multi-team releases	Single-button self-service release
	Ops incident management team	Dev incident management with PagerDuty
	Siloed teams	Cross-team working groups
Clarity	Monoliths	Microservices
	Developing services	Composing services
Cost	Self-hosted	AWS
	Installing packages on VMs	Container registry, Kubernetes, and YAMLS
	Static runtime environments	Dynamic runtime environments



One less tool to manage

GitLab is now an intrinsic tool in Axway's continuous integration process. Developers get faster feedback, a clean dashboard, and more time to focus on product releases. GitLab also allows the teams to move toward continuous deployment, with security at the forefront. "We transitioned to

Gitlab to have a single point of contact system, so we don't have to jump from multiple tools and that helps developers to deliver faster," said Eric Labourdette, VP cloud operations, Axway.

With over 600 developers onboarded, each developer uses GitLab without forced standardization. "Moving all of our pipelines into GitLab gives our developers faster feedback every day and it's one less tool to manage. It's much easier when you're reasoning about the service you're building to have everything in the repo for the service, rather than have to fish around on Jenkins and go hunting to figure out where things broke down," said Vince Stammegna, Senior Director of Engineering, SaaS at Axway. "So, all of our security scans, such as Fortify and Twistlock, are actually done within the CI pipeline and GitLab so we get results back."

AWS and GitLab: Better together

Secure deployments across many AWS accounts

Trek10 is an Amazon Web Services Advanced Consulting partner, MSP Partner, and AWS Partner Competencies in DevOps and IoT. The teams use GitLab to run operations for everything from collaboratively developing internal software and laying out and managing client projects to documentation via wikis and management of deployments via GitLab CI.

“All of our GitLab infrastructure runs within our own Virtual Private Cloud in AWS (VPC). We use GitLab CI to build, test and deploy AWS infrastructure. Whether it be containers on AWS Fargate and Amazon ECS, or serverless solutions with AWS Lambda and API Gateway, GitLab and its integrated CI help us seamlessly and securely manage deployments across many AWS accounts on a daily basis for our clients as well as our own practice,” Short said.

With GitLab and AWS, Trek10 has strengthened customer relationships, improved innovation, and increased developer velocity. Trek10 was also a finalist for the Indiana Tech Company Scale-Up of the Year award.

Running hundreds to thousands of test jobs daily

Prior to GitLab, KnowBe4’s tests had the potential to fail after a deployment. “With GitLab we are able to consolidate this process into a single tool and ensure the pipeline is executed in order,” according to Callihan. Now, GitLab is the central point in KnowBe4’s software development lifecycle.

The workflow usually follows these steps: A developer opens a feature branch off of the master in GitLab. Leveraging GitLab pipelines, they can deploy an on-demand development environment. After the development environment is verified working by QA, a developer opens a merge request to master. Every commit then runs test pipelines until that merge request is approved and merged. After the merge, the pipeline starts to build and release the Docker image to AWS. After the release, the deployment pipeline kicks off and leverages Terraform to roll-in the latest image into production.

All of this is orchestrated by GitLab runners deployed in AWS with end-to-end visibility. **Production deploys five or more times a day for any application and development environments deploy 20 or more times per day for any given application.** With AWS running on GitLab, hundreds to thousands of test jobs run every day across all applications.

Auto DevOps transformation

Wag! teams now own their own deployments. Using Ansible and Packer, the teams have built out pipelines. With Amazon Route 53 and a layer of HAProxy, Wag! now monitors loads and can scale down or roll back as needed. Development teams work locally, apply changes, send it through QA, and then press the button to get it into production. **Wag! cut their release process time from 40 minutes down to six.**

Wag! made the move to a multi-AWS account Amazon S3 backend that was managed by Terraform, making testing, staging, and deploying easier to scale. With CI/CD for the Terraform repos with GitLab, all of the phases are automated. Recently, Wag! passed the **AWS Well-Architected Framework** review. By cutting out other CI/CD tools, Wag! saves 60% month over month.

Building Kubernetes clusters

Ask Media wanted to move over to microservices and to leverage Kubernetes. With GitLab in place, they were able to create a new container world. “When we looked at GitLab, it was very complete in providing what we needed to be able to build images, to run on containers. It’s got that built in a registry. The CI pipeline was really powerful stuff and...was pretty much a very big deciding factor. GitLab had everything that we needed,” according to Ear.

With AWS, they are able to leverage services that were once unavailable with the monolithic toolchain they had in place. “With AWS we wanted a product that was fairly complete and mature. AWS has a lot of history and lots of services. We definitely wanted to be able to leverage those services and to be able to build on a platform that was solid. We set off to build Kubernetes clusters, right on Amazon EC2 instances. We continue to look at opportunities to leverage the resources available through AWS,” Ear said.

With containers, Ask Media is able to keep costs down, speed up, and functionality at the cutting edge of AWS technology.

Partnership with AWS

Axway has been successfully deploying cloud offerings on AWS for over six years and is an AWS Advanced Technology Partner. “AWS is the leader in the Infrastructure as a Service market. The speed of delivery of services and innovation is unmatched. AWS has a high level of security compliance and services and provides a partnership to support us into the cloud journey,” Labourdette said.

Axway uses a variety of AWS services, including Amazon EC2, Amazon S3, Amazon EBS and AWS PrivateLink, as well as Amazon RDS managed services. Axway’s successful AMPLIFY™ platform is container-based and uses Kubernetes ECK for orchestration.

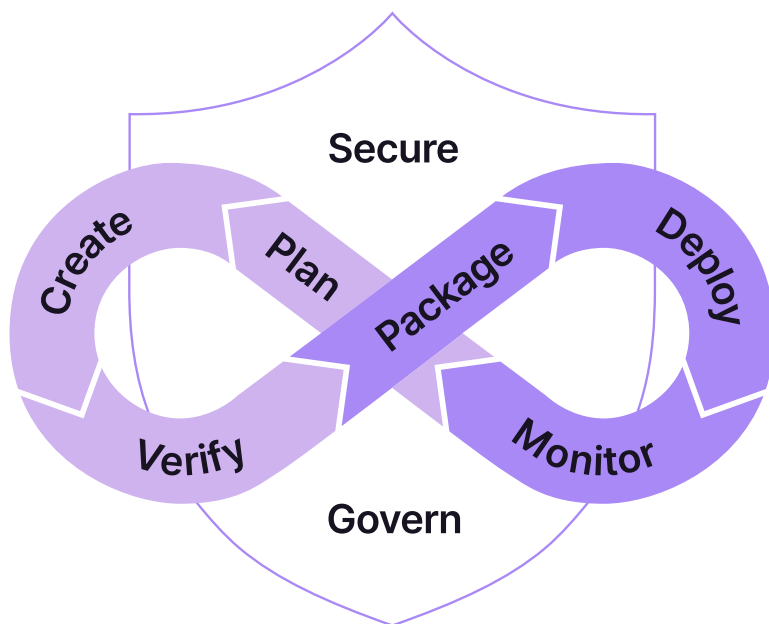
Deployment has sped up since pipelines are now properly in place. Over 3,000 projects have been migrated. Workflow improvements include SaaS deployments happening once per hour to once per day. Any outage never lasts longer than two hours. **The lead time to change is between one to seven days and the change failure rate is less than 15%. Release cycles are now 26 times faster than they were before GitLab and AWS.**



The complete DevOps solution

With the right platform, a concurrent workflow enhances collaboration, communication, and productivity. GitLab is a complete open-source DevOps platform that fundamentally changes the way development, operations, and security teams build software. As a single platform, GitLab takes away the stress of multi-toolchains, reduces development costs, increases productivity, and curtails application vulnerabilities.

Part of the flexibility of GitLab is its ability to deploy anywhere from cloud to on-premises. As a single end-to-end software development and delivery application, GitLab provides a bring-your-own infrastructure compliance. The DevOps workflow is optimal by running GitLab on AWS and using GitLab to deploy software to AWS.



Integration with Amazon Compute Cloud (EC2), Amazon Elastic Container Service for Kubernetes (EKS), and Amazon Elastic Container Service (ECS)

GitLab is available both as a self-managed package to install, configure, and administer on your infrastructure or as a SaaS offering that you can simply sign up and start using. GitLab Self-Managed runs great on everything from bare metal and VMs to AWS. GitLab can be installed to Amazon EC2 using an Amazon Machine Image (AMI) or to a Kubernetes cluster on Amazon EKS using the GitLab helm chart.

AWS Advanced Technology Partner – DevOps Competency for CI/CD

GitLab is a complete DevOps platform, delivered as a single application, fundamentally changing the way Development, Security, and Ops teams collaborate. GitLab helps teams accelerate software delivery from weeks to minutes, reduce development costs, and reduce the risk of application vulnerabilities while increasing developer productivity. GitLab provides unmatched visibility, radical new levels of efficiency and comprehensive governance to significantly compress the time between planning a change and monitoring its effect.



About GitLab

GitLab is the most comprehensive AI-powered DevSecOps platform for software innovation — only true cloud-agnostic end-to-end platform that brings together all DevSecOps capabilities in one place.

With GitLab, organizations can create, deliver, and manage code quickly and continuously to translate business vision into reality. GitLab empowers customers and users to innovate faster, scale more easily, and serve and retain customers more effectively. Built on Open Source, GitLab works alongside its growing community, which is composed of thousands of developers and millions of users, to continuously deliver new DevOps innovations.



