cypress.io

Case Study | Optimizely

How Optimizely tests features and feature flags 300% faster with Cypress

Trial and success, not trial and error

Companies including Microsoft, Mailchimp and StubHub use Optimizely's leading progressive delivery and experimentation platform to grow their businesses by delivering better software and products. Find out how Optimizely used Cypress to revamp their automation testing—achieving improved performance, increased stability, and providing quality assurance across multiple platforms and third party integrations.

Simplifying software experimentation

Optimizely's mission is to help companies experiment with and release software quickly, allowing them to test and learn in production before rolling new features out to all users. Their platform uses feature flags and progressive rollouts to simplify A/B/n testing, personalization, multivariate testing and stats acceleration.

Feature flags (or feature toggles / feature switches) are a software development technique that turn certain functionality on and off during runtime, without deploying new code. This provides better control and more experimentation over the full feature lifecycle.

At the time of writing, Optimizely has 100+ active flags in their own code, covering two products and one third-party integration.

An unsustainable testing framework

The Optimizely QA team was founded in 2018 to assess the quality of Optimizely's platform and determine how to improve it. Until then, various engineers across the organization were contributing to a customized Selenium-based end-to-end testing framework that had been set up by a former employee. When that employee departed, there were no test cases, and no centralized team was maintaining the framework.

Tests were often flaky, the exact feature coverage was unclear, and the framework itself was notoriously difficult to use. Regression bugs meant that builds released to production constantly had to be hotfixed. The developers were resistant to using Python, and the pipeline was taking forever to run.

The QA team's assessment revealed that only 72% of the regression features in the Experimentation Platform had test coverage. Elsewhere in non-experimentation areas, the situation was worse: end-to-end testing had 0% automation coverage, for example.

Fixing the Selenium framework was unfeasible and nobody wanted to use it—the framework was very difficult to debug, and onboarding new team members was arduous. The QA team had to find a better way of testing, and quickly.

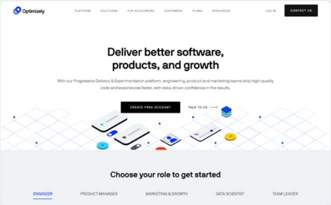
Results & Impact

4x faster
test runs with Cypress parallelization

86% less time
writing and debugging end-to-end tests

40% increase
in new feature coverage

70% decrease
in incoming issues

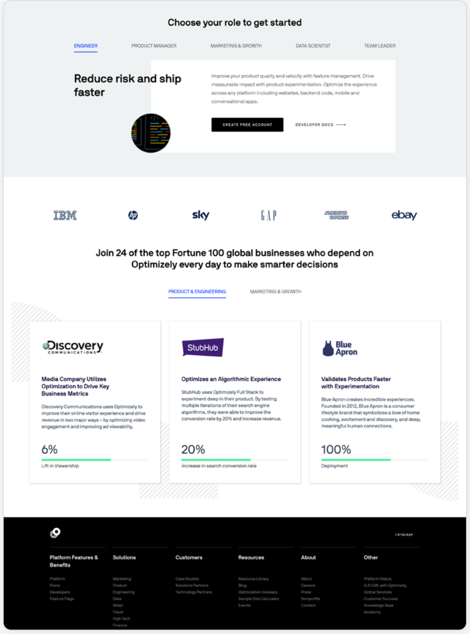


Deliver better software, products, and growth

With our Progressive Delivery & Experimentation platform, engineering, product and marketing teams ship high-quality code and experiences faster, with data-driven confidence in the results.

Choose your role to get started

> *"We've made the decision to sunset our legacy Selenium automation framework and we will be moving 100% to Cypress for our end-to-end test suites."*
>
> **Todd Seller**
> Software QA Engineer, Optimizely



Choose your role to get started

Reduce risk and ship faster

Improve your product quality and velocity with feature management. Drive measurable impact with product experimentation. Optimize the experience across any platform including websites, backend code, mobile and conversational apps.

Join 24 of the top Fortune 100 global businesses who depend on Optimizely every day to make smarter decisions

Media Company Utilizes Optimization to Drive Key Business Metrics

Discovery Communications uses Optimizely to improve their online visitor experience and drive revenue in two major ways – by optimizing video engagement and improving ad viewability.

6%

Lift in Viewership

Optimizes an Algorithmic Experience

StubHub uses Optimizely Full Stack to experiment deep in their product. By testing multiple iterations of their search engine algorithms, they were able to improve the conversion rate by 20% and increase revenue.

20%

Increase in search conversion rate

Validates Products Faster with Experimentation

Blue Apron creates incredible experiences. Founded in 2012, Blue Apron is a consumer lifestyle brand that symbolizes a love of home cooking, excitement and discovery, and deep, meaningful human connections.

100%

Deployment

Why Optimizely chose Cypress

The QA team had heard good things about Cypress and decided to trial it. Their proof of concept was to use Cypress to solve the missing regression test coverage, while comparing Cypress's performance with the old platform.

The trial was a success, with the engineers covering most of the missing regression tests in about a month. They found that the benefits of Cypress included:

- **Developers find it quick and easy to learn.**
- **The team prefers a JavaScript-based platform.**
- **Writing end-to-end tests is fast and straightforward.**
- **Flaky tests are much easier to debug.**
- **Maintaining, organizing and segmenting tests is simple.**
- **Testing in parallel is straightforward and clear.**

Test performance, optimized!

Over one summer, just two QA engineers used Cypress to increase regression testing of the Optimizely Experimentation Platform by 28%—achieving full feature coverage. These improvements dramatically reduced incoming high severity issues. With the testing gaps plugged, the team could focus on writing automation for new functionality.

Running parallelization with the Cypress Dashboard has improved test performance by a whopping 300%, with tests now running on 16 machines for two products and one third party integration. The previous platform's disorganized test suite is a thing of the past, as Cypress allows the team to easily maintain the test suite by organizing and grouping tests into folders, segmenting them, and running groups of tests.

Now, Optimizely's front-end engineers are comfortable and confident writing end-to-end tests. Cypress's time travel capability, automatic failure screenshots, and test run videos now make debugging a breeze for the QA team.

What's next?

Currently, Cypress covers around 20% of Optimizely's new feature coverage, with the team aiming to increase this to 100% soon. The company deploys almost 100% of its new front-end functionality behind Optimizely feature flags—using Cypress to test feature flag on/off functionality. The QA team is working on how to avoid having to write two test cases, and instead have Cypress recognize what variation or feature variable applies before running tests.

To enable this, Optimizely is developing an agent service for their SDKs which can be embedded in their customers' microservice infrastructure. A third party library will instruct the agent service and the Cypress Test Runner to test different Optimizely feature flag scenarios more seamlessly. With complete coverage from a sustainable testing framework, the QA team will be able to spend less time troubleshooting, and more time on innovation.

About Cypress

With millions of downloads and users in over 90 countries, Cypress is the leader in browser-based test automation for the modern web. Cypress enables developers and enterprises to easily, quickly and accurately test anything that runs in a browser – empowering developers to build web applications faster and better.

Using the Test Runner, developers can quickly create and run live end-to-end tests for complex user workflows and interactions, and complex scenarios in applications including e-commerce. The Dashboard service provides collaboration and sharing between teams and records screenshots, video, and test runs – while seamlessly integrating with existing tools and processes. For more information, visit **cypress.io**