MedDev:

How A Global Medical Device Company Saved $144k In Annual Cloud Testing Expenses

Appsurify

With over **2,000 developers**, MedDev provides thousands of hospitals around the world with advanced medical products and solutions, such as MRI systems, Interventional X-Ray systems, Advanced Molecular Imaging Systems, Ventilators, etc. During the COVID-19 pandemic, MedDev has been a leading contributor for ventilators and masks.

Most of MedDev's products operate with advanced embedded software. As is often the case with big applications, their automated test suites were slow to complete and resulted in delayed feedback for the QA and Development teams. This slow feedback caused teams to wait long periods of time for test results – which resulted in longer cycle time, delayed releases, and lost go-to market timing. Their only options were to work overtime and into the weekends or to run more tests on the cloud.

Who Is MedDev?

Company:
MedDev
(names removed for confidentiality purposes)

Industry:
Medical Products & Services

Employees:
60,000+

Challenges:
Slow testing and slow development cycle times

Solution:
Appsurify's TestBrain

Abstract

MedDev's story is like many other companies attempting to meet growing demand for more feature-rich embedded software, such as smart cars, smart appliances, personalized ecommerce platforms, manufacturing, etc. The company began growing and soon found themselves struggling with slow test feedback, flaky failures, and large cloud utilization bills.

After analyzing different integrative software testing enhancements, they decided to invest in Appsurify's TestBrain, a quality assurance software testing tool. MedDev observed a **90% reduction** in test execution times, a **28% reduction** in development cycle time, and an **80% reduction** in monthly cloud testing bills. TestBrain accomplished this by catching **98.7% of bugs** while only running 10% of tests.

The Problem

Challenge #1: Slow Test Feedback from QA

MedDev's primary pain point was slow feedback from testing. With so many developers submitting new code, builds would pile up and the queue in the CI would stretch from **5 to 15 minutes** at certain high points throughout the day. QA and Developers wanted feedback immediately from testing but were left waiting anywhere from **50-60 minutes** after every change.

This waiting time was calculated to cost MedDev's developer team **59,000 hours** of lost productivity per year.

Challenge #2: Flaky Failures

Like many others with large automation suites, MedDev suffered from unstable tests. These tests were brittle, failing from simple code changes and breaking for no apparent reason, such as a phone being off, a browser crashing, or a needed update.

Challenge #3: Large Expenses

MedDev would spend $15,000/month testing on the cloud because their local infrastructure did not have the resources available to handle such a heavy hit to CPU and Memory. With this bill rising due to market demand for their solutions, MedDev had few options to turn to for faster test results.

"We have over 5,100 Unit Tests that take 22 minutes to complete, 1,200 Integration Tests that take 19 minutes to complete, not to mention the build time, queue, and executions… it can be over 60 minutes before QA and Developers get results back before continuing their task for the day. If we could drop that by 30-40%, that would be incredibly good for us."

- Lead QA Automation Engineer, MedDev

How TestBrain Helps

After assessing offerings of various test automation enhancements, MedDev finally implemented TestBrain. With the help of machine learning, TestBrain leverages predictive test-selection to find and automatically run just the subset of tests that matter most after each developer change. This is how tech titans like Google and Facebook test, and Appsurify has made these best practices openly available.

TestBrain allows teams to ship quality code faster than ever because it's predictive test-selection knows which tests are important at that moment of time. Normally after any developer change, QA teams are forced to run their entire test-suite - which can take considerable time to complete. Now with TestBrain plugged in, MedDev only runs the relevant tests associated with each developer change.

For example, if a developer makes a **3% change** to the application - TestBrain is able to determine the test-scripts associated with that **3% change** area, and subsequently, automatically selects and runs just the tests associated with that small area. Begging the question, **why test 100% of the application when only 3% has changed.**

Additionally, after selecting the correct tests to run, TestBrain's machine learning analyzes each test run and groups failed test-scripts by each particular failure. By grouping failed tests by change/failure, QA teams saved time analyzing the results trying to figure out why tests failed and what caused the failures.

Furthermore, MedDev's user-interface, UI, test-suite was unstable and carried a high degree of flakiness. After each test run, it would be no surprise to have 12-15% of their tests fail for no apparent reason or change to the code. After plugging in TestBrain, MedDev was plagued no longer with an unstable test-environment caused by Flakiness. TestBrain recognizes flaky failures, and automatically isolates and quarantines them, allowing teams to no longer be hampered by flakiness. Quarantining Flaky Failures has removed MedDev's QA team's need to research false failures and save considerable time and resources.

Before

Running Full Test Suite in Cloud

No change to code

Change to code or new defect

After

Running Only Changes in the Cloud

Only running tests with changes to the code

Results

Cut Test Feedback Time

Once TestBrain was plugged in, tests took 90% less time to get results back to team members and saved 52K hours per year in productivity for the team.

Eliminated Flaky Failures

TestBrain's machine learning analyzes each test run to separate flaky test failures caused by code changes. By being able to determine this key distinction, TestBrain quarantines the flaky tests to prevent them from breaking MedDev's builds, freeing up extensive QA resources.
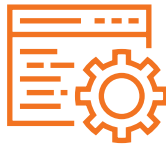
Cut Cloud Expenses

After TestBrain was plugged into their existing test practice, only the important tests were run as opposed to entire suites. This reduced their cloud utilization bill from $15,000 down to $3,000/month, saving the company $144K in annual cloud testing expenses.

Key points:

TestBrain caught 98.7% of bugs while only running 10% of tests.

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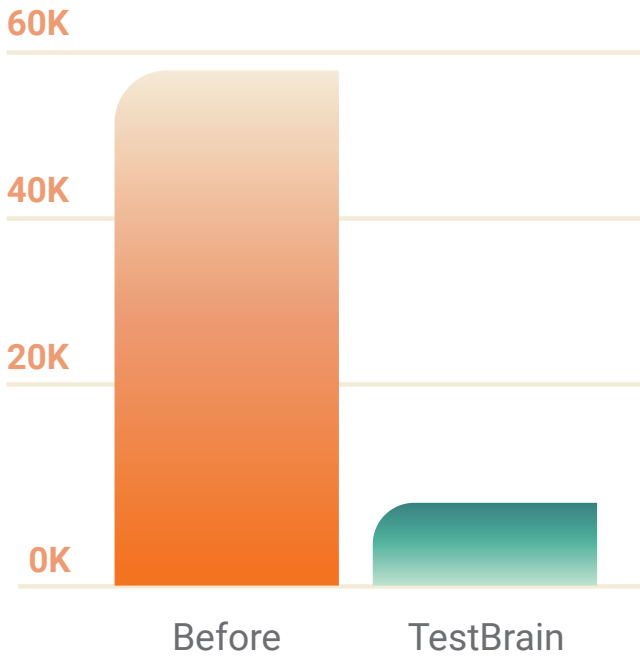MedDev reduced their software delivery cycle time by 28%.

Key points:

Monthly cloud testing bill decreased by 80%.

"Flaky Failures account for about 12-15% of our Selenium and Cucumber automation suites, and we don't always have the time to deal with them... so we just delete them, and we are constantly paranoid we are deleting real failures."
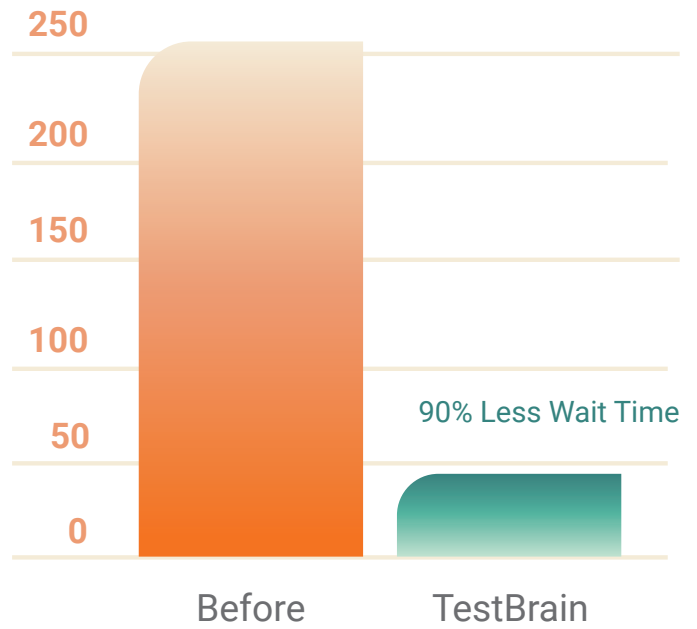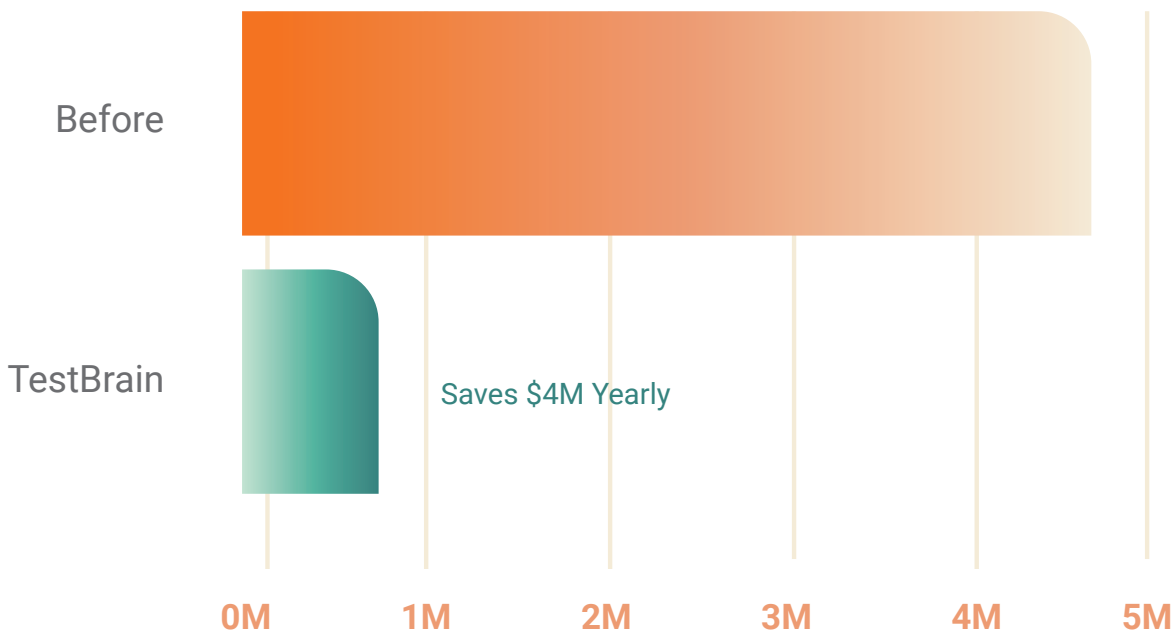
- Automation Engineer, MedDev

Yearly Time Spent Waiting for Test Results

60K	
40K	
20K	
0K	
Before	TestBrain

Daily Team Hours Waiting for Test Results

250	
200	
150	
100	
50	90% Less Wait Time
0	
Before	TestBrain

MedDev's Yearly $$$ Spent Waiting on Test Results

Before

TestBrain   Saves $4M Yearly
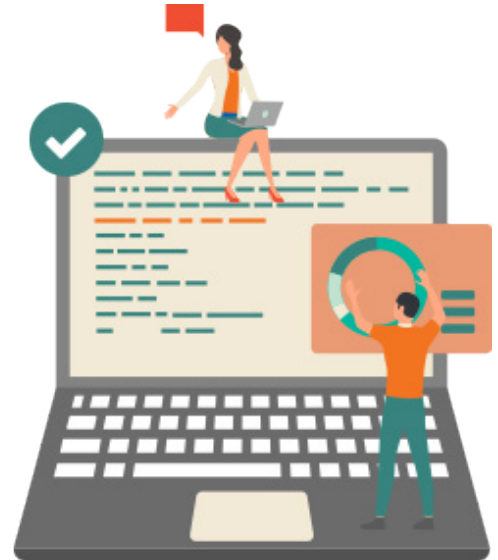
0M   1M   2M   3M   4M   5M

At the End of the Day

Appsurify's TestBrain is estimated to save MedDev more than $4,044,000 per year by cutting feedback time by 90% and reducing the cost to run tests on the cloud by $144K annually.

Now with TestBrain, their developers can test more frequently throughout the day, thereby catching bugs earlier and faster — which accelerates their ability to ship quality products faster and shorten development cycle times.

Conclusion

By installing TestBrain, QA & Developers and Managers didn't have to juggle so many concurrent tasks. They didn't have to chase flaky failures anymore, allowing developers to test more frequently throughout the day and therefore catching bugs earlier and faster.

MedDev's Management was happy, too, because not only was the team shipping higher quality code 28% faster, but they were also saving $144K in annual cloud expenses. The tangible savings on their cloud testing alone freed up the budget to take on other important initiatives.

"TestBrain made our QA team and Developer team actually get along"
– VP of Engineering, MedDev

To learn how Appsurify's TestBrain can meet your specific software testing needs, visit our website or give us a call.

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