Future-Proofing Media & Telecom Services with Webomates' AI-Powered Testing

Table of Contents

Abstract

The media and telecommunication industry is experiencing explosive growth, driven by various factors, such as the unprecedented surge in smartphone usage and the high consumption of streaming services worldwide, which is consequently spurring the demand for high-speed internet access.

As consumers are getting accustomed to a hyper-connected lifestyle, their expectations for rich user experience, seamless service, and a diverse range of content are constantly growing. Companies like Comcast must adapt and evolve their offerings by leveraging cutting-edge technology to drive innovation to achieve this. However, it is imperative to rigorously test every new release to identify and address potential issues before they impact millions of users or disrupt essential services, ultimately damaging customer satisfaction and brand loyalty.

Comcast has several divisions, business and technical, handling a variety of portfolios, and several of them were looking to future-proof their quality assurance process to handle growth and deliver high-quality products much faster and more effectively.

This paper focuses on the following three applications:
- Unified Planning Application
- MyEffectv
- Custom web applications and Salesforce

Partnering with Webomates, Comcast teams embarked on a journey to streamline their software testing efforts, accelerate release cycles, and improve efficiency by leveraging its State-of-the-art AI-powered testing solutions.

With Webomates CQ, they could implement and execute automated tests with **phenomenal speed**, significantly reducing the time and resources required for testing. The results were transformative, and they experienced notable cost savings, improved efficiency, and expedited releases.

This paper highlights Comcast's journey with Webomates CQ and demonstrates the value of AI-powered testing in driving innovation and optimizing the software release process.

About Comcast

Comcast Inc is a global telecommunications conglomerate based in Philadelphia. It's one of the largest pay-TV, largest cable TV, and largest home internet service providers in the US.

Comcast's expansive portfolio includes film production,television broadcasting, digital media and theme parks, in addition to the internet and cable, propelling it to the second-largest broadcasting and cable television company globally by revenue.

Comcast has gained a dominant position in the telecommunications industry by continually evolving to meet the consumer demands. To cater to the dynamic market demands it invests heavily in infrastructure upgrades and emerging technologies for streaming services, in order to enhance network capacity, deliver faster speeds.

Name	Comcast
Website	https://corporate.comcast.com
Industry	Media & Entertainment, Telecom
Headquarter	Philadelphia, Pennsylvania, USA
Revenue	US$121.6 billion (2023)
Employees	186,000 (2023)
Founded	1963

About Webomates

Webomates is a state-of-the-art patented AI software Testing as a Service platform residing in Amazon cloud, that provides functional software testing for User Interfaces (including native), mobile applications, APIs, and set-top/gateways.

Webomates' platform is both language-agnostic and deployment environment-agnostic.

Webomates CQ leverages the power of its patented AI engines and the experience of capable testers to create hundreds or thousands of test cases and scripts and execute them using multiple testing execution techniques like AI automation, and AiHealing®.
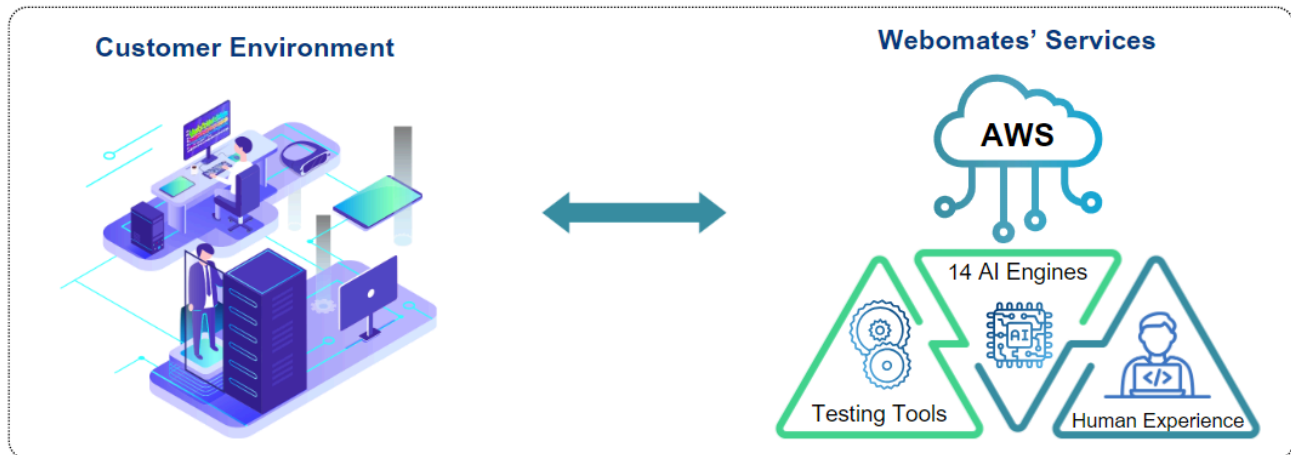
Performance is guaranteed by way of 24 hour (full regression testing) and (8-hour overnight testing) of software modules with **guaranteed performance SLAs**.

At the end of the test execution, actionable triaged defects are logged with supporting artifacts for the customer's software QA team to review and approve.

Our Solutions and services

Test Automation Setup

Webomates CQ platform leverages the power of AI/ML algorithms to generate:

- Test strategy for the application.
- Human readable Test cases that can be executed on multiple automation systems

The customer team then reviews the test cases. They have the flexibility to approve a test case or suggest changes. The Webomates team then reviews the suggestions and incorporates them into the test cases, which are again reviewed by the customer before the final approval.

Our patented AI-based system ensures that, *every time the application changes, either due to new feature additions or bug fixing, the test cases/scripts are **always updated** to match the latest build.*

Test Regression Cycles

The following test executions are available to our customers:

- **Full Regression:** Every build undergoes a 24-hour FULL regression in a staging or pre-production environment before being released to production**.** The test cases are AiHealed, wherever required, and retested within the same test cycle. In addition to FULL regression, expert Webomates testers conduct Exploratory testing to cover scenarios where a test case-based approach may fall short in the frequent test cycles.

- **Overnight Regression:** For specific module-level changes, overnight regression testing is conducted, and the results are delivered before 9AM EST, next business day, with an updated test package. Additionally, the test cases that change due to a defect fix or feature change are also validated in the same regression. This targeted approach helps in detecting bugs much earlier in the software development cycle.

- **Smoke Tests:** Smoke tests are done for a module-based subset of test cases, and the results are delivered in **15 minutes to 1 hour.**

AiHealing®

False failures are one of the biggest challenges in automation testing. Often, these failures are not defects but false positives, and a retest with an update to the test cases or test script is required. *Normally, this can take weeks but with Webomates' trademarked "AiHealing® " it is* **reduced to less than a day**!

Webomates' trademarked "AiHealing®" addresses false failures by identifying and fixing false positives in the test automation. The true Pass and true Fail reports and in-depth analysis of automation failures are readily available to the teams on the CQ portal.

AiHealing®" defines the power of AI in a quantitative way to measure the efficacy of AI Automation systems in fixing automation scripts broken due to locators, timeouts, feature change etc in a **fixed** amount of time.

Smart Analysis and Reporting

Test reports and analysis are critical components of the testing process. They aid in improving the quality and accelerate the releases.

Webomates has a comprehensive process when it comes to defect triaging and reporting. The defect report contains:

- Defect Summary
- Steps for replicating the bug
- Video of actual bug instance

- Priority suggested for the defect
- Test cases mapped to the defect
- Additional notes

Our unique process presents a walkthrough video of an "actual instance of bug" happening so that it is easier for the development and testing teams to understand what exactly transpired during testing. It guides them in reproducing a defect.

The triaging reports are shared across the board with all the stakeholders giving them a detailed insight into what can be improved in terms of quality strategies.

Webomates' comprehensive defect triage mechanism ensures that the QA teams get the correct information to resolve issues with optimal usage of resources and time.

Unified Planning Application

Business Challenge

> *The market size of Media and Telecom testing is projected to reach USD **965.3 million** by 2028, with a forecasted CAGR of **5.20%** from 2021 to 2028.*

The surge in the use of OTT platforms and the growing demand for bandwidth are the prime factors responsible for driving the market's growth over the forecast period of 2021 to 2028.

Advertisers recognize the vast potential of OTT platforms in reaching highly targeted audiences. Comcast, with its extensive network and massive number of subscribers, is an ideal choice for them to deliver personalized and impactful advertisements to their potential consumers.

Comcast's Unified planning application is a high-impact, sizable, income-producing platform that drives advertising sales by leveraging data and technology to create targeted and effective advertising campaigns for advertisers.

Due to its high visibility and impact within the organization, the Unified planning application continues to evolve to align with business needs. Continuous changes led to several challenges for the technical team.

- Integration testing issues due to multiple teams working on the same product across various locations.
- High Volume of work for a team of 20-25 developers
- Dynamic requirements
- Technical Debt kept increasing due to False positives
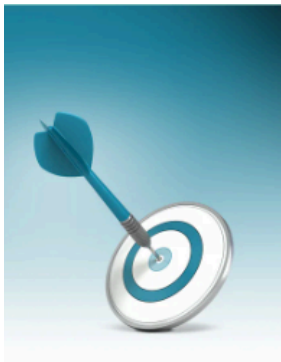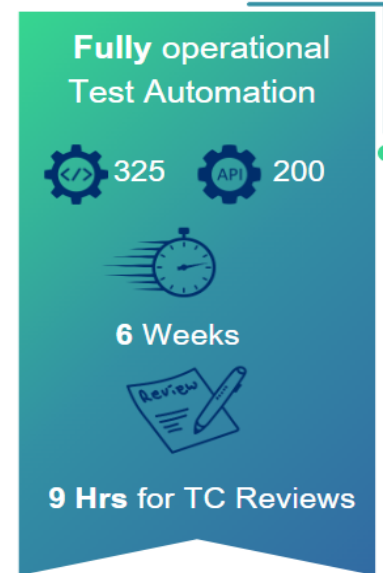
Goals set for Webomates

- Up to date Automation with Sprint completion
- Test coverage along with Sprint completion
- Reduced Test Maintenance Effort
- Reduce Defect Leakage
- Shift left Defect Discovery
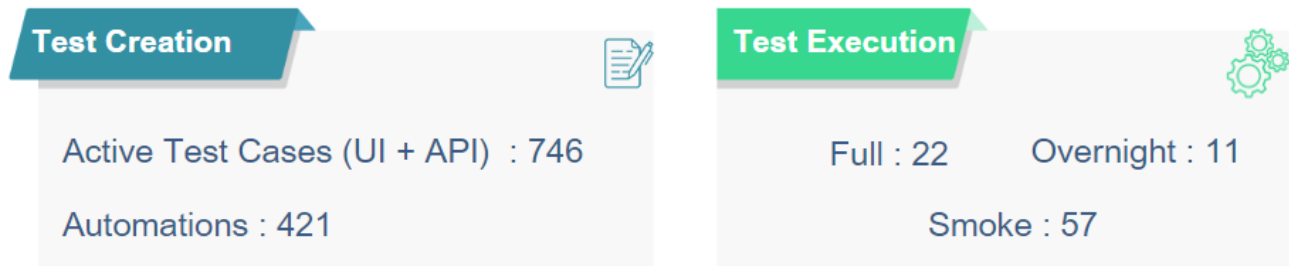
What we did for Unified Planning

Webomates started working with the Unified Planning Team in December 2022. We were able to set up a *fully operational test automation framework* for the Unified Planning team in only **6 weeks** with **325** Test cases with Automation in the initial setup and **200** Test cases with Automation for API thereafter.

The Unified Planning team had to spend **only 9 hours** of their time in reviewing and approving ALL the test cases. They had the flexibility to approve a test case or suggest changes. The Webomates team reviewed the suggestions and incorporated them into the test cases, which the Unified Planning Team then reviewed again.

With the passage of time the test case with automation went up to 746.

Fully operational Test Automation

</> 325   API 200

6 Weeks

9 Hrs for TC Reviews

The Test Case statistics for Unified Planning Team, as of April 2024, is as follows:

Test Creation

Active Test Cases (UI + API) : 746

Automations : 421

Test Execution

Full : 22   Overnight : 11

Smoke : 57

As a result of testing, the team was able to identify a range of defects which were divided into different categories by the Unified Planning Team.

Webomates CQ identified **238** defects out of which **175** were marked valid and **36** were considered invalid. However, **27** were due to either feature changes or not reproducible. Out of 175 valid defects, Priority 1 were 32, Priority 2 were 94 and lower priority were 49.

The test cases which failed due to feature changes are deemed "false failures". Our patented AiHealing[®] handled such test cases and the test scripts were fixed within hours.

As of April 2024, Webomates AiHealed **1289** Test cases for the Unified Planning team.

Webomates' AI based test automation helped the Unified Planning team in saving **3 FTE per month** in developing applications for Comcast's Effectv.

MyEffectv

Business Challenge

Effectv offers custom ad solutions for advertisers, helping them amplify their brand with the right customers through multiscreen TV campaigns.

MyEffectv, a comprehensive self-service platform within Effectv, puts the power in the hands of advertisers. It empowers them to manage and optimize their campaigns, providing access to vast Comcast data. By leveraging the data from the Comcast group, advertisers can tap into over 11,000 TV programs from 170 networks across all platforms and devices, enabling them to create highly targeted and engaging campaigns. The platform allows advertisers to monitor the performance of their campaigns, including impressions and other key metrics, giving them full control and confidence in their advertising efforts.

The application needs to be tested thoroughly, as there are several checkpoints for evaluating the campaigns' performance.

1. **Precise Audience Targeting:** MyEffectv relies on data-driven insights to ensure precise Audience targeting based on advertisers' desired demographics. This precision gives advertisers the confidence that their campaigns are reaching the right audience, enhancing their brand's impact.
2. **Comprehensive Reporting:** Accurate metrics are essential for evaluating campaign success. MyEffectv provides comprehensive reporting where the users can build, schedule, and save detailed reports on campaign performance, facilitating informed decision-making.
3. **Campaign Optimization:** Translating data into actionable insights and optimizing campaigns across various screens can be challenging.
4. **Multiscreen Excellence:** Testing multi screen campaigns can be complex to ensure consistent performance across screens.
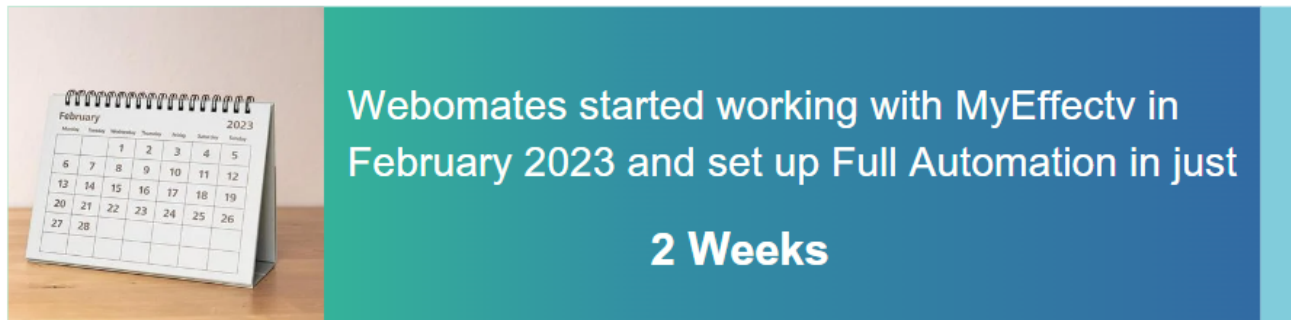

Goals set for Webomates

Complete Functional testing of Reporting features
- Reduced Test Maintenance Effort
- Reduce Defect Leakage
- Shift left Defect Discovery

What we did for MyEffectv

With the power of our patented AI technology, Webomates successfully implemented full test automation for MyEffectv within an impressive **2-week** timeframe.

Our key achievements for MyEffectv were-
1. **Creation of High-Value Test Cases**: We created 386 complex test cases covering critical scenarios.
2. **Approval Process**: MyEffect team approved 307 test cases after a rigorous review. This approval ensured that only the most relevant and high-priority test cases were automated, optimizing the testing process for efficiency and effectiveness.
3. **Comprehensive Testing**: The tests were prepared for Effectv streaming and Multiscreen streaming.
4. **Parallel Automation**: To expedite testing, parallel automation executions were set up for two different versions of Effectv streaming reports.
5. **Dynamic Test Data Management:** We leveraged the power of Generative AI to create test data for testing multiple complex scenarios.

The Test Case statistics for MyEffectv Team, as of April 2024, is as follows:

Test Creation

Active Test Cases (UI + API) : 386

Automations : 221

Test Execution

Full : 20   Overnight : 4

Smoke : 50

As a result of testing, the team was able to identify a range of defects which were divided into different categories.

Webomates CQ identified **98** defects out of which **95** were marked valid and **2** were considered invalid and they were not able to reproduce **1.** Out of 95 valid defects, Priority 1 were 13, Priority 2 were 44 and lower priority were 38.

False failures are the bane of test automation and Webomates' trademarked "AiHealing[®]" addresses false failures by identifying and fixing false positives in the test automation.

AiHealing[®]" defines the power of AI in a quantitative way to measure the efficacy of AI Automation systems in fixing automation scripts broken due to locators, timeouts, feature change etc in a **fixed** amount of time, in our case, just a **few hours.**

As of April 2024, Webomates AiHealed **383** Test cases for the MyEffectv team.

Webomates' AI based test automation helped them in saving **103 Person Weeks/ 10 Months of Estimated Effort.**

Comcast + Salesforce

Business Challenge

Comcast's Effectv-Salesforce platform is an advanced, feature-rich system with a highly customizable user interface tailored to specific roles. This platform integrates seamlessly with other Comcast products like Unified Planning and MyEffectv and a broad array of APIs. These interconnected elements significantly increase the number of test scenarios required for comprehensive coverage, considering potential issues arising from interactions between these components.

The sheer volume of features and UI variations makes creating test cases manually daunting. Maintaining these tests as the platform evolves can be even more effort and time-consuming.
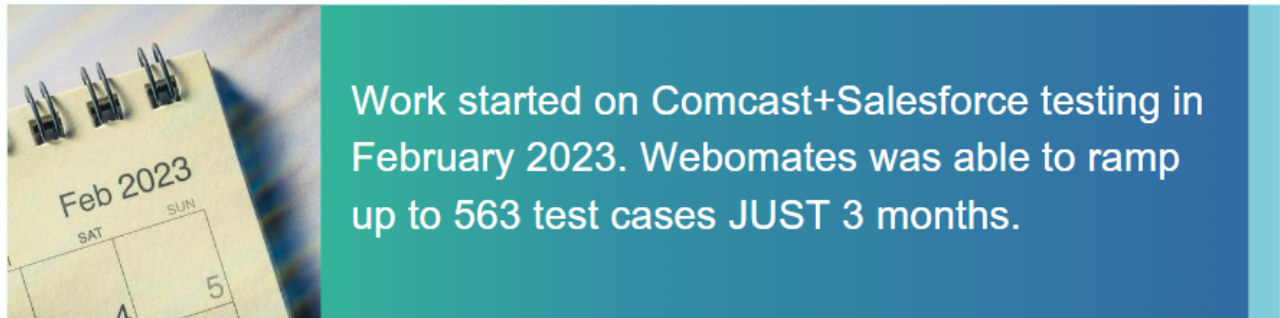
Goals set for Webomates

- Creating a Role based Test Suite
- Integration between CRM and Custom application - API & queues
- End to end business workflow verification

Continuous Testing:

- **API & Queue testing:** For end to end workflow and other integrations
- **Test Coverage:** Aligning testing to the sprints and increasing the test coverage with every sprint.
- **Regression Testing:** Overnight test suites to be run after every sprint
- **Build Verification:** Smoke test suite to be run on every build to detect major defects and validate the build.

What we did for Comcast+Salesforce Team

Work started on Comcast+Salesforce testing in February 2023. Webomates was able to ramp up to 563 test cases JUST 3 months.
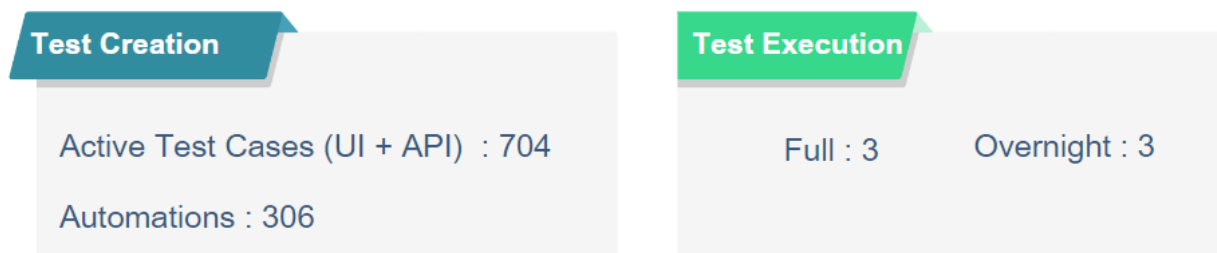
Webomates achieved significant milestones for the Comcast Salesforce integration platform within a short period.

- **Rapid Integration Testing:** The rapid setup enabled seamless integration testing among various applications
- **High Test Case Coverage:** In just 3 months, a substantial 563 test cases were created, ensuring comprehensive testing for robust functionality and interoperability across the platform.
- **Effective Defect Identification:** The testing uncovered 41 potential defects within the integration.
- **High Defect Validity:** An impressive 81% of the proposed defects were confirmed as valid, underscoring the effectiveness of Webomates' AIAI-powered testing.

This data illustrates our ability to deliver high-quality testing solutions with speed and accuracy.

The Test Case statistics for Comcast Salesforce application, as of April 2024, is as follows:

Test Creation

Active Test Cases (UI + API) : 704

Automations : 306

Test Execution

Full : 3   Overnight : 3

As a result of testing, the team was able to identify a range of defects which were divided into different categories.

Webomates CQ identified **58** valid defects**.** Out of these valid defects, **Priority 1 were 10**, Priority 2 were 35 and lower priority were 13.

The test cases which failed due to feature changes are deemed "false failures". Our patented AiHealing[®] handled such test cases and the test scripts were fixed within hours.

As of April 2024, Webomates AiHealed **581** Test cases for the Comcast Salesforce application.

Webomates' AI based test automation helped the Comcast team in saving **134 Person Weeks/ 5+ Months.**

What Comcast Teams achieved with Webomates CQ

The Comcast teams and Webomates team interacted on a regular basis to go over the test results.

Webomates' smoke testing was instrumental in identifying and resolving defects in the staging environment, enabling quick changes, retesting, and deployment to production. This reduction in production defects allowed Comcast teams to focus more on innovation and other high-priority tasks, minimizing extensive QA efforts.

*With Webomates' assistance, they overcame the automation challenges, achieving a superior-quality release while **saving thousands of hours and enhancing productivity**.*

The comprehensive reporting and analysis enabled the teams to prioritize critical story points, resulting in an unprecedented boost in development velocity.

Here are some highlights of what we achieved together.

- **Efficient Resource Management**
  Webomates' AI-powered testing multiplied Comcast's QA team's efficiency, allowing them to shift resources to more innovative work while CQ managed the testing.

- **Enhanced productivity:** Leveraging Webomates' AI test automation, Comcast reduced testing efforts by **67%,** significantly boosting productivity and enhancing the end-user experience for their partners and customers.

- **Cost Efficiency**- Comcast achieved a remarkable *67% reduction in QA costs*. Webomates' cost-effective solution aided them in optimizing their software development budget and enabling them to reallocate funds towards critical business initiatives.

- **Improved Production Quality** - Comcast teams experienced an impressive *80% reduction in production defects.* This not only boosted their operational efficiency but also demonstrated their unwavering commitment to providing a quality experience to their end users.

- **Shift Left Testing:** Defects identified much earlier in the development cycle leading to a stable product.

- **Always updated Test Automation**: AiHealing® kept the test automation updated to match the pace with the aggressive development timelines.

67% reduction in Testing Efforts

67% reduction in QA costs

80% reduction in production defects
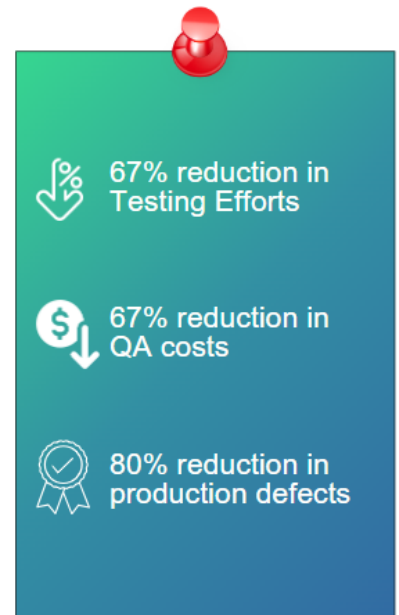
Customer Testimonials

> Webomates saved us about **1.5 full-time employees per Sprint**….
>
> We're looking at three FTEs every two weeks of modification for existing stories. This process essentially allowed us to refocus our QA resources on higher value work and leave automation to Webomates

Todd Matyi - Director Of Software Development and Engineering at Comcast

Sri Jaya Kruthiventi -
Supervisor Software Development & Engineering

> Including weekly meetings, it took *only about 9 hours of the team's time to review and approve all the test cases.*
>
> We met two times a week and the team was very helpful in reviewing the test cases and we were able to approve them pretty quickly.

> Webomates working with different platforms internally and being able to take those tests and be able to utilize them to create like bigger scenarios that we can go through. I think that would be a huge win. Test cases across systems and being able to utilize them with these different development teams.

Steve Barnes - Senior Manager, Software Development & Engineering

Conclusion

Comcast's collaboration with Webomates represents a significant milestone in their mission to revolutionize the media and telecommunications industry.

Through this partnership, Comcast has effectively tackled complex testing challenges while achieving **substantial cost savings, enhanced product quality, and accelerated time to market.**

By leveraging Webomates' expertise and advanced AI testing solutions, Comcast has developed a stable, reliable, and feature-rich platform for Unified Planning and MyEffectv. This ensures a seamless and satisfying experience for customers and solidifies their leadership in the industry.

More about Us

Fast Track Your QA with
Webomates

Unleash the Power of a cutting-edge
AI-Powered Testing Service

Webomates provides cloud-based Testing as a service (TaaS) to leading software companies. Our unique one-stop software testing service is augmented with Artificial Intelligence offering a wide range of features, including AI-based automated test case generation, test suite execution, and test maintenance with AiHealing®, smart centralized dashboard and much more.

The smart reporting includes detailed testing results and comprehensive analysis along with actionable triaged defects.

info@webomates.com   www.webomates.com   1177 High Ridge Road, #212, Stamford, CT 06905