

CASE STUDY

Coveros Automates Testing for Delta Dental Wisconsin

Test Process Improvement
Test Strategy
Test Management
Test Automation and Test Execution
Continuous Integration



Delta Dental of Wisconsin is the largest dental insurance provider in Wisconsin. Named North America's No. 1 call center, Delta Dental of Wisconsin, Inc. is a not-for-profit dental service corporation offering benefit services, claims processing, and plan administration to employers throughout Wisconsin since 1962. The company provides benefits and services to more than 1.4 million subscribers and their families in Wisconsin and is also a member of the Delta Dental Plans Association, whose member companies provide benefits to over 51 million people in 93,000 groups across the United States.



“Coveros did an excellent job reviewing and addressing our software test automation challenges. They identified and helped us implement a custom and innovative solution to set us on a path toward test automation.” - John Okeefe, Director of Infrastructure and DevOps

CHALLENGES

- Delta Dental legacy systems are supported on uncommon hardware, software languages, and configurations increasing difficulty of test management and automation tooling implementations
- Highly responsive and variable release process
- Test process, coverage, and test data improvements needed
- Testing mainly manually executed

Delta Dental needed a means to manage and automate testing for its legacy systems to support development of system enhancements and ongoing maintenance and support activities. Delta Dental's infrastructure had business and data logic on their three tiered architecture, necessitating testing to be done on the front-end, web services, and back-end application.

SOLUTION

Coveros started by performing a testing assessment, using Coveros' Enhanced Test Process Improvement model. After understanding Delta Dental's application configuration, and tester capabilities, Coveros outlined a roadmap forward including test management and automation strategy recommendations.

Next, Coveros implemented a Behavior Driven Development proof of concept for test automation capabilities supporting development and production release activities. Coveros custom built a testing framework for Delta Dental, which allowed the same test to verify functionality at the front-end, web services, and back-end level, effectively testing of all three tiers of their application. This framework was built on top of Cucumber-JVM, which allowed Delta Dental's subject matter experts (SMEs) to write tests using business logic, instead of through code. These business workflows were then implemented through the framework, executed at different levels simply looking at different results.



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Selenium was used to verify the correct user response from provided to the UI, while custom Java code was used to ensure web services calls were returning expected responses, and the database was properly updates. These pieces of business logic were mapped out using Cucumber glue code, and provided the ability to write one test, and have it executed in 3 different ways.

Coveros built up a suite of tests, and provided documentation and training to Delta Dental test and developer resources to expand on this suite of tests. Coveros also setup Jenkins integration through a SecureCI™ server, making constant test execution simple, to ensure tests did not go stale. Additionally, the ability to run tests over multiple environments was provided, to allow testing as code progressed from dev, to test, to production.

TECHNOLOGY SOLUTIONS & RESULTS

Test Management

- Zephyr Standalone and Jira Plugin

- Custom Java tooling

- Test data solution to keep data evergreen

Test Automation

- Cucumber
- Selenium Webdriver

Continuous Integration

- Customized SecureCI (Trac, Jenkins, SVN, GIT, Tomcat, Apache)

BUSINESS VALUE

Coveros was able to help Delta Dental achieve a number of business benefits including increased ability to implement system improvements while reducing risk, escaped defects, test cycle time and cost. With an updated Testing Strategy, Coveros was able to take a typical test case workflows, and expand them to allow branching coverage of between 10 and 300 times the previous reach. These tests were run in the same amount of time a single manual test would take, and found errors early in the cycle. Previously, no rigorous web services or back-end testing was performed, and Coveros' framework allowed for a simple extension of the front-end testing into these areas, thereby greatly increasing coverage, and confidence in the application.