Automated Unit Testing with AgitarOne

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Abstract

Unit testing is the first line of defense in the battle to produce high quality and highly maintainable software. When developers create unit tests along with their code, they both ensure that code is written correctly and provide executable documentation that protects code against regressions. A thorough set of unit tests allow engineering teams to add capabilities to their applications and change existing behavior confidently.

AgitarOne is Agitar Software’s automated unit test solution. AgitarOne allows development teams to more thoroughly unit test java code through automation. AgitarOne combines a revolutionary exploratory testing technique called Software Agitation with a powerful regression testing approach built on JUnit. During this presentation we’ll discuss the value of unit testing and the additional value that can be added by an automated solution like AgitarOne.

1. Introduction

Software development teams want to create applications with high quality and high flexibility, and they’re looking to create those applications quickly. Unit testing is a simple approach that can help teams make improvements in each of these areas. The key to unit testing is that the person who writes a piece of code and is therefore most familiar with it, the developer, is also responsible for creating the unit test. By creating a unit test, the developer is verifying that the code was created properly and that it will continue to work properly into the future.

The main reason that unit testing has not been universally adopted is that it’s difficult to do. Unit tests take time to write, they are dependent on the developer’s expectations of the code and they become large and difficult to maintain. Automation can provide huge improvements by creating many tests with limited effort, testing scenarios and with data developers may have overlooked and automatically executing and reporting unit test results.

AgitarOne is an automated unit test solution that provides thorough exploratory testing as code is written, durable regression tests that protect legacy code, static code analysis and comprehensive reporting that allows development teams to understand the quality and risks of their java applications.

AgitarOne’s Software Agitation is an award-winning technology that thoroughly exercises java code at the class and method level. After running code with huge ranges of values and through many different states, Software Agitation reports on the actual behavior of the code as written. This allows developers to make real-time decisions to improve software.

AgitarOne’s JUnit generation, based on Software Agitation, creates thorough JUnit regression tests for legacy code. As legacy code is refactored and/or repurposed, these “Characterization Tests” detect changes immediately. Developers can then determine if changes are defects or desired behavior changes. This level of feedback is typically missing when organizations attempt to update existing systems.

AgitarOne’s Management Dashboard shows objective facts on the unit-level quality and status of any java project. The dashboard allows project teams to set unit test goals and track velocity against those goals. Key metrics such as number of failures, overall code and test coverage, and application risk are all tracked in the dashboard reports.

Companies who have adopted AgitarOne have shortened delivery times by 25% or more, cut defects handed over to systems integration by 90%, and reduced the cost of fixing bugs after release by up to 90%. This presentation will cover the overall value of unit testing and how an automated solution like AgitarOne can help teams realize benefits more quickly and predictably.