GƏVS

Accelerating Time to Market with Agile Testing

By Balaji Uppili

To discover how GAVS can help you innovate and bring greater value to your business, write to inquiry@gavstech.com or visit www.gavstech.com.

Contents

Abstract

Testing is often the weakest link in effective application or software development and delivery. Ineffective testing strategies and inadequate planning lead to cost overruns, delays, and inaccurate resource allocation, ultimately resulting in poor quality and less than satisfactory project outcomes. Businesses are increasingly recognizing the critical role testing plays in delivering high quality at top speed. They are focused on accelerating the time to market of the end product and spotting defects early on in the development lifecycle.

Agile testing, which helps achieve these goals, has therefore gained increased momentum in recent times. With increasing adoption of agile principles, businesses are opting for risk based, automated, functional regression and reactive testing to generate better return on investment.

This paper emphasizes the advantages of agile principles and shorter test sprints, and elaborates efficient ways to drive greater ROI from agile testing.

Realizing Better Results with Shorter Sprints

Agile testing is done incrementally and iteratively, and its effectiveness depends on continuous co-ordination and communication between developers and testers. The crux of agile testing is performing coding and testing in sprints to ensure high stability and quality of each feature. In this methodology, the test case is created based on the development team's comprehensive design documents.

A sprint is a defined span of time to complete specific work and ensure that it is ready for review. Typically, a sprint runs for 30 days. The success of a sprint hinges on systematic planning. The product owner along with the development and testing teams determines the activities that need to be completed during a specific sprint. Realistic timelines are set right at the beginning and the quality criteria are also approved.

One of the key aspects of agile testing is the sprint 1-n phase[1]. This is an iterative process that includes the sprints that have been identified during the sprint 0 release along with the functional and nonfunctional user stories identified for that release. For each user story, the testing team will need to define specific requirements and design as well as perform System Integration Testing (SIT) and Customer Acceptance Testing (CAT).

Testing teams are increasingly opting for shorter sprints. As the duration of the sprint gets shorter, the testing process needs to become more automated. Rigorous, repeatable and automated testing processes enable testing teams to eliminate the risk of bugs and ensure quality products. As the iterative process continues, more functionalities and test cases are added to the existing ones. A full set of tests are run each time a bug is spotted (even if it is a minor one).

In the absence of strong codes, rapid delivery cycles will fail to deliver expected results. In order to manage shorter sprints, it is essential to build accurate and stable codes. Failure to do so will hinder the effective testing of a product.

Testing teams need to define the testing process for an agile project right at the beginning of the project and consistently perform each sprint. Often, testing teams move from unit testing to a full integration test to end-to-end checking of the entire solution. For some projects, regression testing of the full solution follows the unit testing.

Leveraging Automation for Agile Testing

Agile testing hinges on efficient automation. Agile practices and automated testing help reduce cost, compress long regression cycles and accelerate time to market. As part of test automation, manual test cases are converted into automated scripts and executed autonomously. Typically, roughly 60 percent of the entire development budget is allotted for testing, of which about 50 percent is utilized for regression testing. In agile testing, the code constantly changes. Therefore, automated test cases need to be constantly refactored to derive relevant feedback on quality.

One of the biggest challenges faced by testing teams is the substantially high cost of maintaining the automated test code, leading to reduced ROI from the automation initiative.

1 http://blogs.versionone.com/agile_management/2014/04/11/is-your-sprint-pipeline-running-well/

4

The solution lies in adopting an n-tiered test automation architecture. This segments the automation project into distinct tiers such as business, data, and services, enabling effective automated testing in spite of the constant changes in the system.

Automation is also used to enhance regression testing. It is used primarily to test the stability of modules developed in each sprint. In this process, defects and bugs are reported and remediated on the basis of their priority. Developers, product owners and testers collectively determine the parts of the software that will be tested using automation and decide the main flows that will be automated. Automation yields better results for unit, functional and integration testing, and continuous integration.

Automated tests encompass unit tests that help verify the most minute software segments. The advantage of automation in agile testing is the ability to perform tests many times per day, per hour or even more frequently - as required.

Automation of Test Suites

By automating test suites, testing teams can efficiently increase the range and depth of their testing processes. It is possible to leverage automation test suites to specify a test and assign results such as pass or fail. Testing teams can thus perform automatic testing of code at a module level, and identify regression errors automatically. This enables them to develop and enlarge the test suites, thereby testing for larger sets of conditions. Testing teams can thus ensure greater reliability in comparison with traditional methodologies. With agile methodologies, it is also possible to automate functional testing,

thereby performing effective load testing and stress testing earlier on in the cycle.

Key Features of a Robust Test Automation Strategy

Businesses can effectively automate testing and reduce maintenance costs by adopting a systematic approach. Key factors that deliver better results:

- Using high quality test automation code
- Reusing code across teams
- Increasing test automation coverage beyond functional testing to include performance and stability testing or localization testing

Role of Performance Testing in the Agile Testing Process

By including performance testing as a part of agile processes, businesses can accelerate the creation of high quality software and also contain costs. Two factors are key to successful agile testing. These include testing performance early on in the development cycle, and testing functionality and performance in the same sprint. When performance tests are conducted at the end of the sprint, incorporating changes becomes more expensive, ultimately increasing the time to market.

However, incorporating performance testing early on in the sprint is challenging. Here are a few ways to do this efficiently:

- Ensure that performance testing of code, features and overall integrated system is conducted in parallel, and cover them in the same sprint
- Start performance testing at the coding level in parallel with coding

5

- When a new feature is subjected to functional testing, conduct performance testing to gather insights into the time taken to perform the functionality as well
- After integrating new functions with the entire product, conduct performance testing to eliminate the risk of performance issues in the product
- Conduct performance testing in the regression stage to spot issues pertaining to configuration, hardware or infrastructure

Building Architectural Stability in Agile Testing

The following steps enable testing teams to ensure architectural speed and stability:

- Add architectural information to the feature description document before release prioritization
- Perform focus prototyping on quality attributes including performance or security
- Include external dependency analysis in the roadmap planning process
- Ensure that test-driven practices including automated test-driven development and continuous integration are driven by factors such as performance, scalability, and security

Advantages of Agile Performance Testing

An agile performance testing approach delivers the following key advantages:

- **Deliver robust code and functionality:** By conducting performance testing early on in the development life cycle, testing teams can deliver effective code and functionality before releasing the product
- **Realize cost savings:** Early performance testing enables testing teams to avoid expensive and time consuming code or software changes
- **Accelerate time to market:** Reduce time to market by conducting performance testing along with development and within the same sprint

Conclusion: Ensuring Collaboration to Drive Superior Testing Results

IT organizations are under increased pressure to deliver high quality software products that drive increased revenues and business growth. With growing focus on speed, businesses are embracing agile software development and testing practices. The success of agile projects hinge on realizing greater synergies between business and development and QA teams, effective project governance, robust testing methodology, and availability of relevant skills and capabilities.

Above all, a collaborative approach is essential to deliver desired results. Businesses can drive increased efficiencies by embracing new ways of automating and streamlining processes. This means, agile will gradually become the norm in development and testing projects. By partnering with an experienced service provider such as GAVS, businesses can efficiently embrace agile principles, enhance quality of products, reduce errors, and realize greater value with increased flexibility. GAVS brings extensive experience spanning a variety of models such as agile Kanban, iterative and interactive models, enabling businesses to increase the ROI on their agile initiatives.

Author Profile

Mr. Balaji has over 23 years of experience in the IT industry across application Value Management, Infrastructure Management, BPO and Strategic Operations handling, P&L, Delivery, Operations and Customer Relations across Multiple Verticals which include, Information Services, Retail & Hospitality, Manufacturing & Logistics, and Consumer goods.

Balaji has played various roles across Geographies viz., USA, US, Continental Europe, and Asia Pacific, through his previous stints at Patni Computers, L&T Infotech, Cognizant Technology Solutions, and Virtusa Software Solution Limited. His enthusiasm, energy and client focus is a rare gift, and he will be playing a key role in engendering the push for new clients by GAVS.

Balaji heads the delivery and helps GAVS in steering the business.

About GAVS

GAVS Technologies (GAVS) is a global IT services & solutions provider for customers across multiple industry verticals. GAVS offers services and solutions aligned with strategic technology trends to enable enterprises take advantage of futuristic technologies like Cloud, IoT, Managed Infrastructure Services, and Security services.

GAVS has been recognized as an emerging player in the Healthcare Provider IT outsourcing sector by Everest Group, and as a prominent India-based Remote Infrastructure Management player by Gartner.

USA

GAVS Technologies N.A., Inc
10901 W 120th Avenue,
Suite 110,
Broomfield CO 80021, USA.
Tel: +1 303 782 0402
Fax: +1 303 782 0403

GAVS Technologies N.A., Inc
116 Village Blvd, Suite 200,
Princeton. New Jersey 08540, USA.
Tel: +1 609 951 2256/7
Fax: +1 609 520 1702

UK

GAVS Technologies (Europe) Ltd.
3000 Hillswood Drive,
Hillswood Business Park,
Chertsey KT16 ORS,
United Kingdom
Tel: + 44 (0) 1932 796564

INDIA

GAVS Technologies Pvt. Ltd.
No.11, Old Mahabalipuram Road,
Sholinganallur, Chennai,
India - 600 119
Tel: +91 44 6669 4287

Middle East

GAVS Technologies LLC
Knowledge Oasis, Muscat,
Rusayl, Sultanate of Oman
Tel: + +968 24449301

GAVS Technologies
P.O.Box : 124195, Office no 202,
Thuraiya Tower 1
Dubai Internet City
Dubai, UAE
Tel: +971-4-4541234

inquiry@gavstech.com
www.gavstech.com

GƏVS

www.gavstech.com