White
PAPER

The Need to Shift Right in DevOps Testing

TEST TRIANGLE
Trusted Partner in IT Consulting

> DevOps is not just a simple operation framework for building and releasing better software products but a cultural transformation for agile application delivery. However, end-to-end software testing cannot be achieved with only shift left approach. In the shift left approach, the focus is entirely on quality and getting things done the first time. However, shifting right paradigm is important to understand how the actual users interact with the application, to track application performance and availability for the end user.

Introduction

Today, DevOps has become the need of the hour. Most of the business organizations are adopting DevOps to speed up their time to market and eliminate the possibility of post-production bugs. It brings the software development and operation teams nearer, that generates a high business value. In DevOps, the production teams focus on constant development and delivery.

DevOps is also impacting the role of software testers. It is creating a radical change in the testing process as it is started to be conducted at a high frequency in a more automated fashion. It means that the testers have to take responsibility for the complete process of quality assurance throughout the software development lifecycle. In this essence, the present white paper sheds light on the evolution of shift-right approach in DevOPs testing.

The Right Shift in DevOps Testing

Testing has become more of a quality control method wherein the focus is on preventing bugs to enter in the system. The nature of DevOps has made continuous testing and automation a preferable choice. Automation is really important in the fast-paced DevOps environment. The shift left approach optimizes the test strategy by promoting maximum test automation and testing in small iterative cycles. However, automation cannot identify all the software quality issues. Therefore, rather than focusing on achieving the maximum amount of automation, the testers should emphasize on getting the maximum benefits from test automation.

In DevOps, shifting left is important to automate testing, but it does not guarantee complete coverage. Therefore, shifting right is necessary so that testing efforts move to the production. It is important to conduct testing at the production level, as frequent software releases might result bugs to disperse in the post-production phases of software development.

By shifting right, testers perform multivariate testing and platform validation in the production phase of software development cycle. Different aspects of software development regarding functionality, performance, failure tolerance, and user experience can be validated in production environment. Testing in production rather than in a dedicated test environment becomes necessary to analyze how the product will function with real users. In the traditional testing approach, the QA professionals' runs different types of tests prior to production to check that the application is ready to market. In DevOps, testing is a crucial aspect; however, it is not as visible as other aspects of software development. In DevOps testing, emphasis is on segregating the code before testing. Small changes are deployed/ released continuously, and monitored closely to check application failure. Shifting right is necessary because if complete testing including security and UAT will be shifted towards left, there will be significant performance and security bottlenecks in the post-production environment.

The shift right approach is conceived to prevent issues arising from shift-left approach. Shifting right denotes taking those processes, which happens just before application delivery to post-production so that software quality issues can be detected before they are slipped to the end users. Shift-right approach gives more insight to the post-release issues.

Although shift-right is not as commonly used as shift-left, but nowadays shift-right is increasingly becoming more popular in the industrial landscape. Today, most of the industry experts are encouraging the move towards shift-left and then to shift-right. While it is important to recognize the value of performing a process earlier or later than its typical time, in reality, both the approaches together denote continuous testing. Processes like testing and security must be made continuous so that they start earlier and end later. But testing is not a monolithic or singular process, there are several different types of testing and it makes sense to shift some of them such as unit test or integration to left (for early bug detection), while more complex testing such as UAT to the shifted right.

Shift-Right Best Practices

The shift-left and shift-right approaches are redefining software testing, debugging and defect correction in real world. These new technologies and paradigm are offering new flexibility and direction to testing. The shift-left testing is conducted to achieve better speed with continuous integration. In shift right testing, the horizon is stretched towards the end-user feedback for features like real-time performance evaluation, failure tolerance and analysis of real-user experience. Shift-right gives an insight to the usage scenarios, which often goes unnoticed; however, there is a certain degree of risk in testing the features in the post-production environment. Shift left and shift right are valuable concepts, but they should not be embraced in isolation. Here, Test Triangle offers its insight on best practices in the adoption of shift-right approach:

1. **Pre-planning the testing lifecycle**

   The shift right approach has its own advantages, requirements and challenges. Therefore, it is important to plan the testing beforehand. Proper integration strategy and preparation is advisable for successful adoption of shift-right approach.

2. **Using project management approaches in testing**

   Project management approaches are important to let QA add any value to the software development lifecycle. It emphasizes proper management of QA resources, timely execution and project control methods.

3. **Using test-driven development methodology**

   Test-driven development is has several advantages such as improved design, reduced bottlenecks, bug identification, and high efficiency. Test-driven development will lead to better integration with the shift-right practices.

4. **Creating a continuous feedback mechanism**

   A continuous feedback mechanism across the application lifecycle can reduce the unexpected downtime or failure. It can also control server issues. In sift-right testing, this kind of mechanism will help testers to have a better perspective of the entire process.

About Test Triangle

Originally founded in 2012, Test Triangle has become a leader in IT consultancy services providing services in application testing, DevOps, RPA, Custom software development, mobile app development, Atlassian consultancy, niche IT staff augmentation and training in advanced technologies. Test Triangle is headquartered in Ireland; but it also has branch offices in London, United Kingdom, and Hyderabad, India. We have exponentially grown to become a team of 200+ members providing services in different verticals such as Banking & Finance, Utilities, Pharma, Retail, IT & Education etc.

Test Triangle's R&D department has created a propriety platform, Test Outsourcing Dashboard [TOD] which can be used to manage software testing lifecycle using collaboration tools like email, live chat, video conferencing. We have also launched a self- service testing platform (the premium version will be released as SaaS solution), which can provide a project overview and real-time updates of the software development lifecycle.

Over the years, we have established the reputation of being a 'trusted partner in IT consulting'. Test triangle is an agile software company, which constantly strives to exceed the expectations of its clients. We adopt the software testing and software application lifecycle to meet the customer's demand in an efficient and reliable manner. With a global workforce, we have proved ourselves in delivering tight-deadline projects.

We are proud to declare ourselves a client of Enterprise Ireland and European commission.

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