



INTRODUCTION TO CONTINUOUS TESTING

INDEX

INTRODUCTION	03
ABSTRACT	04
UNDERSTANDING CONTINUOUS TESTING	05
1) CONCEPT OF CONTINUOUS TESTING	05
2) COMPONENTS OF CONTINUOUS TESTING	06
3) ESSENTIALS OF AN EFFECTIVE CONTINUOUS TESTING SYSTEM	08
4) BENEFITS OF CONTINUOUS TESTING	10
CONCLUSION	11



INTRODUCTION

The 21st century is driven by increasingly fast paced digital innovation. Harnessed rightly, it can be a boon to any business. The pandemic has also had a catalytic effect that has further spurred a paradigm shift to the digital world. Online banking, investment, insurance, shopping, education etc. have become a way of life! In this rapidly changing and competitive business environment, every organization must necessarily embrace digital technology - to stay relevant.

According to a recent study, 50% of digital media time comes from mobile apps. Your smartphone app is your gateway into customers' minds, because on an average, smart phone users spend more than 15% of their waking hours on their mobiles apps! But remember, your app has to compete for attention with 2.87 million apps on Google Play Store and 1.96 million apps on the Apple App Store! Hence you need to take utmost care to see that your app has the required speed, safety and security; is free from errors and glitches; gets to the market ahead of competition, and provides your customers with superior digital experiences!

In this competitive, digital environment - software development and testing become extremely vital and yet the time available for these crucial activities gets extremely squeezed. Traditional post development testing, with its manual interventions and time consuming processes are no longer an option. Continuous testing is the way forward to help you achieve your twin objectives of digital proficiency and customer loyalty through superior digital experiences!

The role of continuous testing thus gains immense importance and relevance and must be leveraged to stay ahead of competition.

ABSTRACT

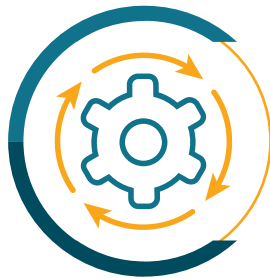
Gone are the days when software was tested only after codes were written and sent to Quality Assurance for their independent assessment. Needless to say, in this traditional system, bugs would be detected too late and then the code would go back to developers to rework and fix.

In the current, fast paced, competitive business world, there is an urgent need to eliminate the ills of post development testing, because it is arisky, expensive, laborious and time-consuming process. Thankfully Continuous Testing has come as a savior to software developers and testers, to liberate them from the nightmarish experiences of the recent past.

However, continuous testing does not just benefit software engineers, but also benefits the business enterprise. The race to get one's app to the market is increasing every day and with it comes the need to ensure that your app is developed quickly and is simultaneously fast, safe, secure, convenient and easy to use.

Continuous Testing is based on the principles of test automation, early testing, frequent testing and testing at every stage of the software development cycle. It also provides the platform for software developers and testers to simultaneously employ their expertise. This ensures swift release of a bug free app, which is also a delight for end users to download and use.

The pages that follow will introduce you to Continuous Testing and help you explore:



**THE CONCEPT OF
CONTINUOUS TESTING**



**THE COMPONENTS OF
CONTINUOUS TESTING**



**THE ESSENTIALS OF
AN EFFECTIVE CONTINUOUS
TESTING SYSTEM**



**THE BENEFITS OF
CONTINUOUS TESTING**

UNDERSTANDING CONTINUOUS TESTING



THE CONCEPT OF CONTINUOUS TESTING

Continuous Testing is the process of automated testing of software codes at every stage of the software development life cycle (SDLC), in order to provide for early rectification. It permits the commitment of new code modules as they get generated - enabling early detection and elimination of errors. This in turn provides continuity and speed to your software development process.

Continuous Testing also provides the platform for teams to work together throughout the development phase. This enables developers to test features and functionalities as they develop. Their updates go through test automation and continuous integration to ensure that their new codes do not negatively impact existing approved functions.

Thus continuous testing helps organizations save time, energy and resources, by avoiding costly rectifications and rework that plague post-development testing. It speeds up the software development life cycle which is extremely vital in today's fast changing digital world.

COMPONENTS OF CONTINUOUS TESTING

Let us now understand the essential components of continuous testing which are as stated below:

01

TEST AUTOMATION

As mentioned earlier, the goal of continuous testing is to increase the speed of software development and here is where test automation plays an important role. Test automation is a method of testing software using specific tools to execute the test scripts without human intervention. It helps to quickly identify and fix bugs during the testing process.

Test Automation enables you to conduct tests on apps using various automation tools to check how the apps react or respond to varying actions. Manual testing is time consuming and prone to human error. It is amply clear then, that without test automation we cannot have continuous testing.

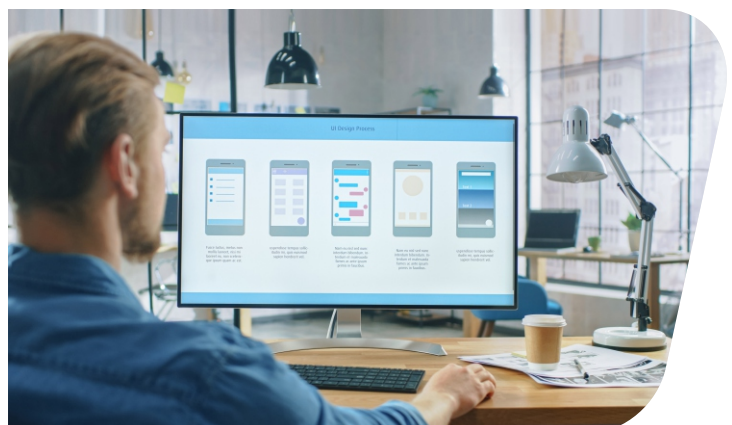
02

CONTINUOUS INTEGRATION

Continuous integration is the process of collecting codes of various developers working on a project, and placing them in a common code repository. Integrating codes of different developers can result in bugs and hence continuous integration is of paramount importance in the continuous testing process.

Continuous integration helps mitigate the challenges of code integration by automating test execution each time a code is integrated. Automation tools in the server check that these codes are correctly built and tested, and are compatible with other approved codes.

Continuous integration gives developers quick feedback on the acceptance or rejection of their codes. In order to weed out bugs and mismatches early, it is important for developers to integrate their codes regularly. The early detection and fixing of bugs help to reduce coding efforts which in turn serves the goal of saving time and resources.



03

CONTINUOUS DELIVERY

Continuous Delivery is the process by which any code version is kept ready to deploy to production. In this process, the server gets the new code from the repository, builds it and tests it to check if it can be merged with the rest of the codes. Thus it is the process of keeping the latest build fully updated and ready for deployment.

Continuous Delivery is an important step in the continuous testing process because deployment without meticulous testing is hazardous to production. Continuous delivery cuts the defect fixing time by half by keeping software frequently and reliably ready before it is deployed.

04

CONTINUOUS DEPLOYMENT

Continuous Deployment is the process by which the updated builds which have been tested and kept fully ready are then deployed to production. Continuous deployment runs on the principal of sending small, frequent, thoroughly tested changes in the software to the production server. The functioning of an app needs to be scrutinized after every deployment. Automated testing & deployment is important because it helps organizations to better respond to market changes.

05

PRODUCTION TESTING

Production Testing is the process by which software is tested in the production environment before it is released to the end user, and continues into live testing in the actual production environment. It is necessary to follow this before any new feature is released. For this component of testing to be effective, it is vital that thorough testing is done at each of the earlier stages in the software development cycle.

Feature Flags can be used to control who can see the new features before they are released to the end user. Software developers and testers, get to view how the new feature responds in the production environment, but end users will be given access only after all bugs that might show up are fixed.

To summarize: Test Automation, Continuous Integration, Continuous Delivery, Continuous Deployment and Production Testing, together help to bridge the gaps between development and operation activities and also between teams - by enforcing automation in building, testing and deployment of apps.

ESSENTIALS OF AN EFFECTIVE CONTINUOUS TESTING SYSTEM

Having seen how important Continuous Testing is in the development of apps, let us now understand the fundamentals of putting in place an effective Continuous Testing System.

The Essentials for Successful Continuous Testing are as follows:

01

THE RIGHT CONTINUOUS TESTING AND INTEGRATION TOOLS

The right automated testing tools are very important, because prior to codes being sent to the central repository, developers work independently to develop new features. These codes need to be tested for individual errors as well as errors that come at integration of the codes of various developers.

It is absolutely necessary to have the relevant continuous testing and integration tools, to ensure error free coding and integration. The right tools will guarantee that the integrated codes are compatible with each other and with the already approved builds.

02

THE RIGHT AUTOMATED TESTING ENVIRONMENT

Continuous testing will be effective only if the right environment is provided to developers, because testing in an environment which is not representative of the market place will defeat the purpose of continuous testing.

It is also important that the processes within the right environment are automated so that developers do not have to create the environment each time they need to test new features. Hence the right automated environment is essential to ensure speed in the continuous testing process.

03

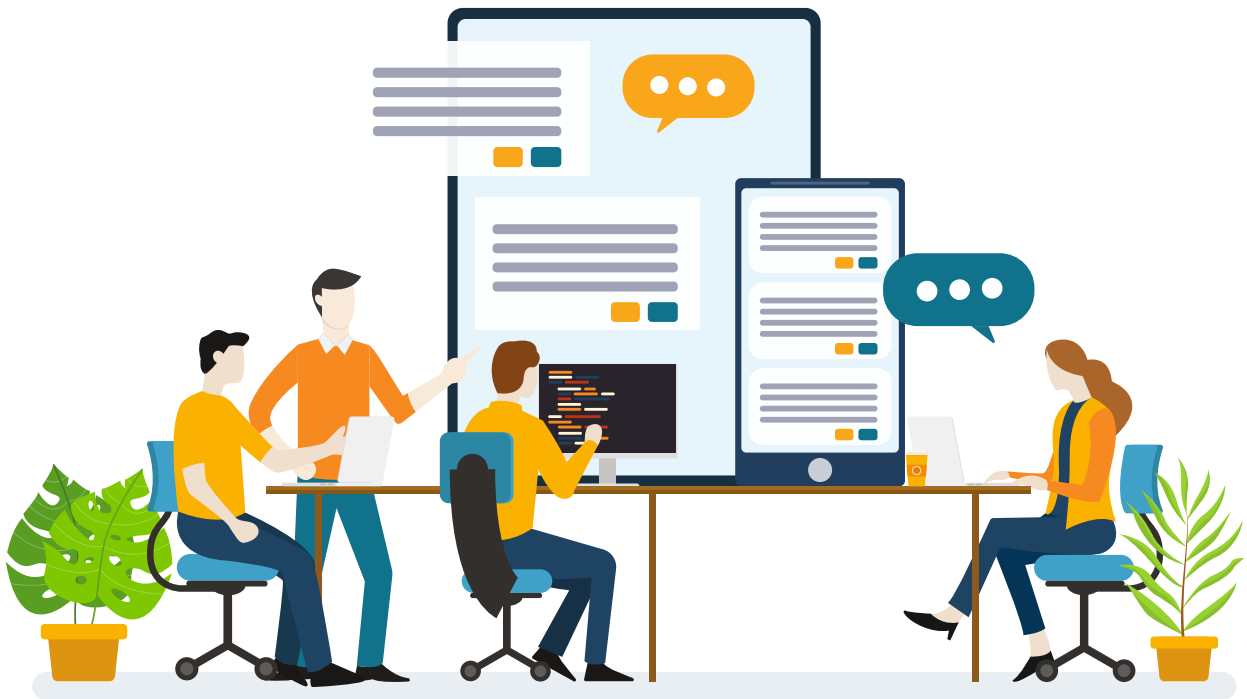
END-TO-END TESTING

It is amply clear that testing is necessary at every stage and end-to-end testing therefore becomes very vital for the continuous testing process to be efficient and effective. End-to-end testing integrates test scenarios, test scripts and test automation tools into a single platform and generates detailed automated test reports. This helps early detection and rectification and immensely improves the quality of software. It also generates more confidence as the testing and results are automated and thus eliminate the chances of human error.

04

A WELL CO-ORDINATED TEAM

Continuous testing provides the platform for teams to work together and therefore a well co-ordinated team is essential for a successful continuous testing system. It is important that developers, testers and quality control personnel work together as collaborators rather than competitors. A well co-ordinated team will bring synergy and speed to the testing process. Since each person's expertise is simultaneously used, it ensures better planning and strategizing which in turn helps the app go to the market early.



BENEFITS OF CONTINUOUS TESTING

01

ELIMINATION OF HUMAN ERRORS

Manual testing comes with the risk of human errors, but continuous testing employs automated testing and integration tools, which detect errors without human intervention. This is extremely beneficial as it eliminates the risk of human error.

02

INCREASES SPEED OF SOFTWARE DEVELOPMENT

Test automation, frequent testing and testing at every stage helps errors to be identified and rectified early, thus increasing the speed of software development.

03

ELIMINATION OF BOTTLENECKS AND DELAYS

Since continuous testing provides the platform for developers, testers and quality teams to simultaneously work together, it ensures that feedback is faster and thus avoids bottlenecks that the traditional testing process results in.

04

AVOIDS COSTLY REWORK

Continuous testing provides for bugs to be identified and fixed early and also involves lesser effort in detection of errors, as automated test reports are always available to help trace errors. The post development testing system is prone to costly reworks because error of even one code identified in the final app, requires rewriting and re-testing of many more codes.

05

HELPS APP GO TO THE MARKET EARLY

The ultimate benefit of continuous testing is that with test automation, increased speed, faster rectification and better teamwork, the app gets released to production and then to the end user early and with a high level of confidence. This makes the vital difference between whether you or your competitor gets to the market first!



CONCLUSION

Your app is your lifeline to stay relevant in business today. You therefore need to ensure that it can get your target audience's attention despite the millions of other apps clamoring for attention. However, the superior digital experiences that can get your app where you want it to be need quick and superior testing methods. A switch to continuous testing is therefore the need of the hour.

Continuous testing has made a sea change to the way mobile app development and testing is done. Manual testing and post development testing systems will soon be redundant and hence it is important to adapt and move with the times. Software engineers and business enterprises that do not adapt to new age innovations will lose their edge over competitors. Hence in order to stay relevant in today's fast changing digital world, software developers and testers need to move over to the confidence building process of continuous testing.

Any change is daunting and the initial natural resistance will have to be overcome. If you do not know where to start and need help making this transition visit botmtesting.com

GET IN TOUCH

 022 4050 8200

 sales@botmtesting.com |  www.botmtesting.com

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