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DEVOPS TESTING PRACTICES: THE ULTIMATE GUIDE 2023



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DevOps Testing Practices: The Ultimate Guide 2023

According to forecasts by the research company [Markets And Markets](#), the mobile testing market in 2026 will be more than two times higher than in 2021 and reach \$49.9 billion. Experts believe that this growth is due to the introduction of innovative technologies. At ZappleTech, we are always following developments in the mobile app testing industry, so we have a lot to share with you.

In this article, we'll tell you what technologies IT founders and QA professionals should look out for in 2023.



How DevOps App Testing Will Change Next Year

Automation continues

Now automation is gaining momentum and is actively used in combination with manual tests. Even though it may take a lot of time to implement automation tools into work, more and more companies are resorting to such a solution. This is directly due to the advantages of this method.

Advantages of automated testing

- **Saving resources.** Automated tests reduce the financial cost, labor, and time of producing a quality product. These factors will reduce the cost of individual development but will enable you to take on more projects.
- **Simultaneous launch.** The use of automated technologies facilitates running multiple tests at one point in time, which speeds up comparative reporting of test results.
- **Quick feedback.** Manual testers can spend a lot of time sending feedback to the DevOps department. On the other hand, automation allows you to quickly test an app as it develops and quickly share the results with other team members.
- **Accelerated release.** Continuous testing during product creation speeds up the product's time to market. Automated testing, on the other hand, makes it possible to release development even faster without sacrificing quality.
- **High accuracy.** Automation minimizes the risk of errors caused by the human factor. Yes, verification scripts are still written by humans, so you can't altogether avoid mistakes, but when you use autotests again, these errors will disappear.

As you can see, test automation helps optimize many processes. Fast, high-quality testing leads to faster time-to-market for new products, so businesses and developers alike are interested in it. Consequently, automation will be widespread not only in 2023 but also in future years.

Expected NoOps development

The point of NoOps (an acronym for "No" and "OPerationS") is to create an automated programming environment with no manual processes. Unlike DevOps, which implies close cooperation between developers and testers, NoOps excludes human presence in operational processes at all.



"In the case of NoOps, developers and operations staff never come into contact with each other as they perform their tasks, says:

Dean Karen Panetta

Tufts University

By contrast, the DevOps concept involves them interacting throughout the lifecycle. Ideally, NoOps involves automating development, deployment, and support, completely eliminating humans from the process. But that's more of a crook in the sky. You can really do some tasks this way, and some you can't."



The concept of NoOps began to be discussed back in 2012. Back then, it was more of a pipe dream, but with the development of automation, some experts started talking about NoOps as the future of mobile testing. At this stage, the idea can only be implemented for a small number of operations.

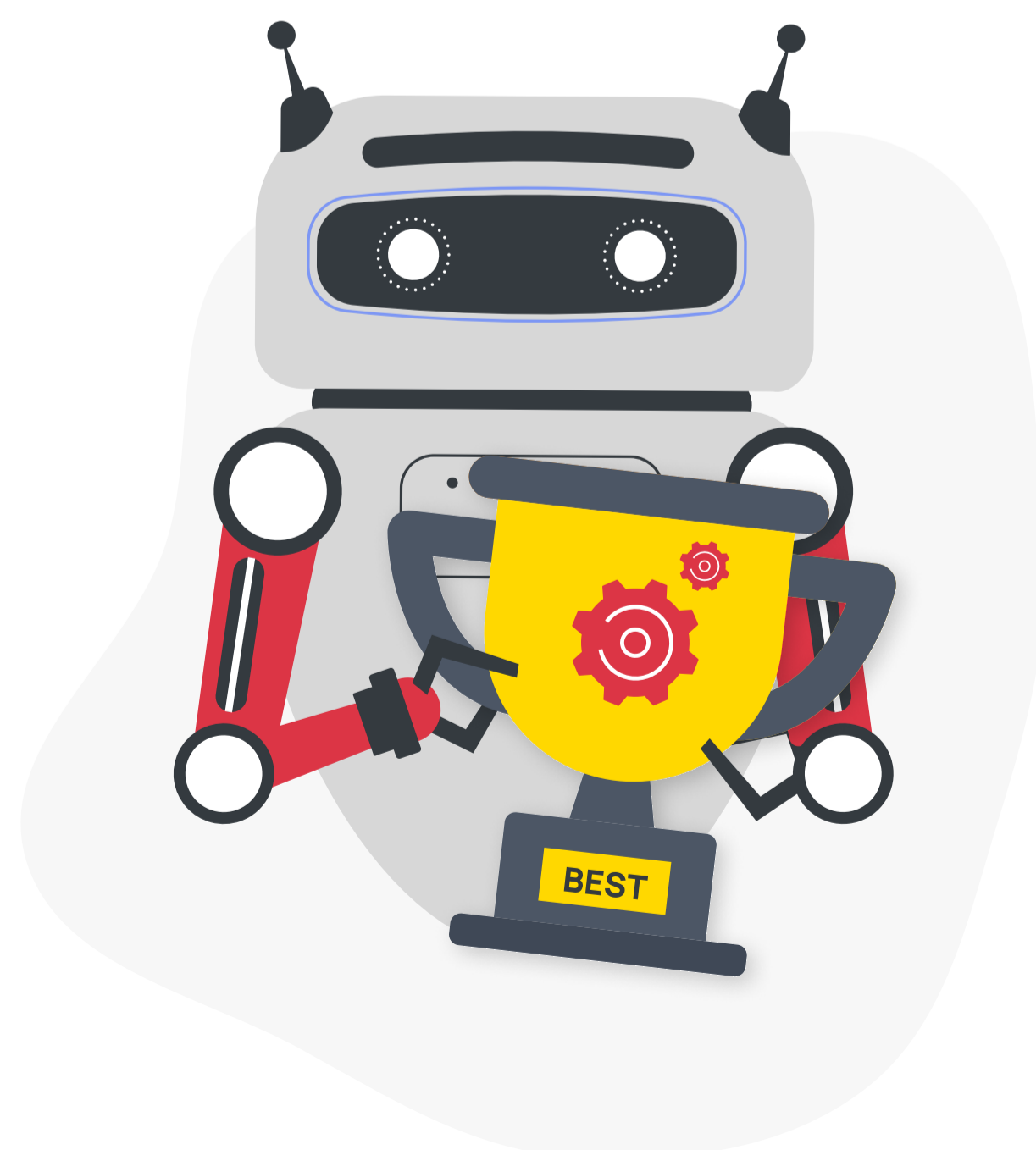
Ken Corless, head of Deloitte Consulting and CTO of the company's cloud division, acknowledges the concept's limitations but is in no hurry to discard it as such. Therefore, the prospect of implementing NoOps will be considered in 2023, albeit on a smaller scale.

DevOps will continue to be in demand

Despite the development of new conceptual approaches to development and testing, the time-tested DevOps methodology will not only remain relevant but will continue to expand. [Verified Market Research](#) predicts that the DevOps market will reach the \$20 billion mark by 2026. This shows that the methodology is constantly evolving, so it is out of the question that it will fall by the wayside.

DevOps trends for 2023

- DevSecOps
- Serverless computing
- Microservices architecture
- AI and ML
- Low-Code/No-Code tools
- Kubernetes with GitOps





Let's look at the main directions of DevOps development in the near future:

- A shift to DevSecOps, which allows developers to identify and fix security bugs, is expected. This trend is due to the increased interest of companies in ensuring data security in the early stages of development.
- The use of serverless architecture will increase as it saves the cost of building server infrastructure. Such computing improves the efficiency of common processes in DevOps, including testing, deployment, and other lifecycles.
- Microservices architecture is being popularized as a worthy alternative to standard IT architecture. It will enable tracking of development and testing processes, control cycles, and performance metrics.
- AI and ML will continue to be implemented in testing and development processes in general. AI and its ML subset will allow collecting more detailed analytics and statistics during app creation.
- Low-Code/No-Code tools and platforms for writing apps are expected. This will lower the threshold of entry into testing for non-technical people, such as employees on the customer side or end users of the app.
- The use of Kubernetes, a container orchestration platform, will expand. It is also expected to use the GitOps infrastructure trend to manage clusters and deliver secure development without configuration errors. Taken together, this will automate the release of additional updates and accelerate app creation, testing, and deployment.

Using AI and ML at a new level

In the mobile app testing industry, artificial intelligence (AI) and machine learning (ML) will continue to be used. They have enormous potential, so they will definitely expand their scope. In automated testing, AI now helps find bugs in developments and ensures that they are functioning correctly before release. This trend will continue into 2023, as AI in test automation allows for more accurate test results.

More AI-powered tools are appearing on the market. The most popular ones are:

- DevSecOps
- TestCraft
- Testim
- Functionize
- Applitools



Machine learning has also found its place in the field of testing as an "assistant" for writing automated tests. In addition, ML includes the analysis of all previous tests in one or more systems with the same data. Thus, AI and ML will become an integral part of the entire testing process in the future.

Blockchain technology changes familiar processes

Blockchain technology changes familiar processes

Blockchain is an established technology that is used in various industries. It is now actively used for secure data storage, data authentication, and 24/7 access to data. In addition, blockchain technology has found its place in automated testing.

Types of mobile testing on blockchain:

- **Functionality testing.** Analyzes business needs, processes, and app performance along with other components such as blockchain and block sizes, etc.
- **Integration testing.** Testing cross-system links and connections for mobile blockchain products to work correctly across multiple environments.
- **API testing.** Testing interconnectivity between apps that reside in the same blockchain ecosystem.
- **Performance testing.** Performance testing. Detecting software and hardware bottlenecks, calculating the estimated costs of implementing a mobile blockchain application across environments and in the cloud.



Blockchain technology is becoming increasingly entrenched in our lives; as you can see, mobile testing is no exception. Technology is becoming more and more popular in the healthcare, entertainment, and financial sectors. When it comes to test automation, blockchain's potential is very high because it can automate tasks that are still done manually. Therefore, in 2023, it is worth paying attention to its application in the work of testers.

Using cloud testing

The mobile app market is developing very quickly, which leads to an increase in the number of users and poses new challenges for businesses and developers. More and more company owners prefer to have their own unique and high-quality apps, so IT engineers and QA specialists need more effective solutions for implementing their tasks. And this is where cloud-based testing environments come to the rescue.

Cloud-based mobile testing as a service (mobile TaaS) is already in active use. Compared to conventional mobile testing, cloud testing is primarily focused on tenant-based and scalability testing. A development company can send its project to a third party for testing. This solves the problem of lack of resources or skills for in-house testing. It also helps save release time but preserves the quality of the product.

The most common use of product outsourcing is for testing:

- Functionality
- Performance
- Security



Because of the simplicity of initial setup and connectivity, cloud-based test environments provide an easier way to get started. But in the long run, they are more costly than the same virtual environments (emulators/simulators). For example, testing functionality in the cloud reduces the time it takes to set up the environment. Later, when scalability is needed, it contributes to deploying real or virtual environments and reducing costs. Therefore, IT professionals will use cloud testing for short-term work in the near future.

The Shift-Left strategy holds its position

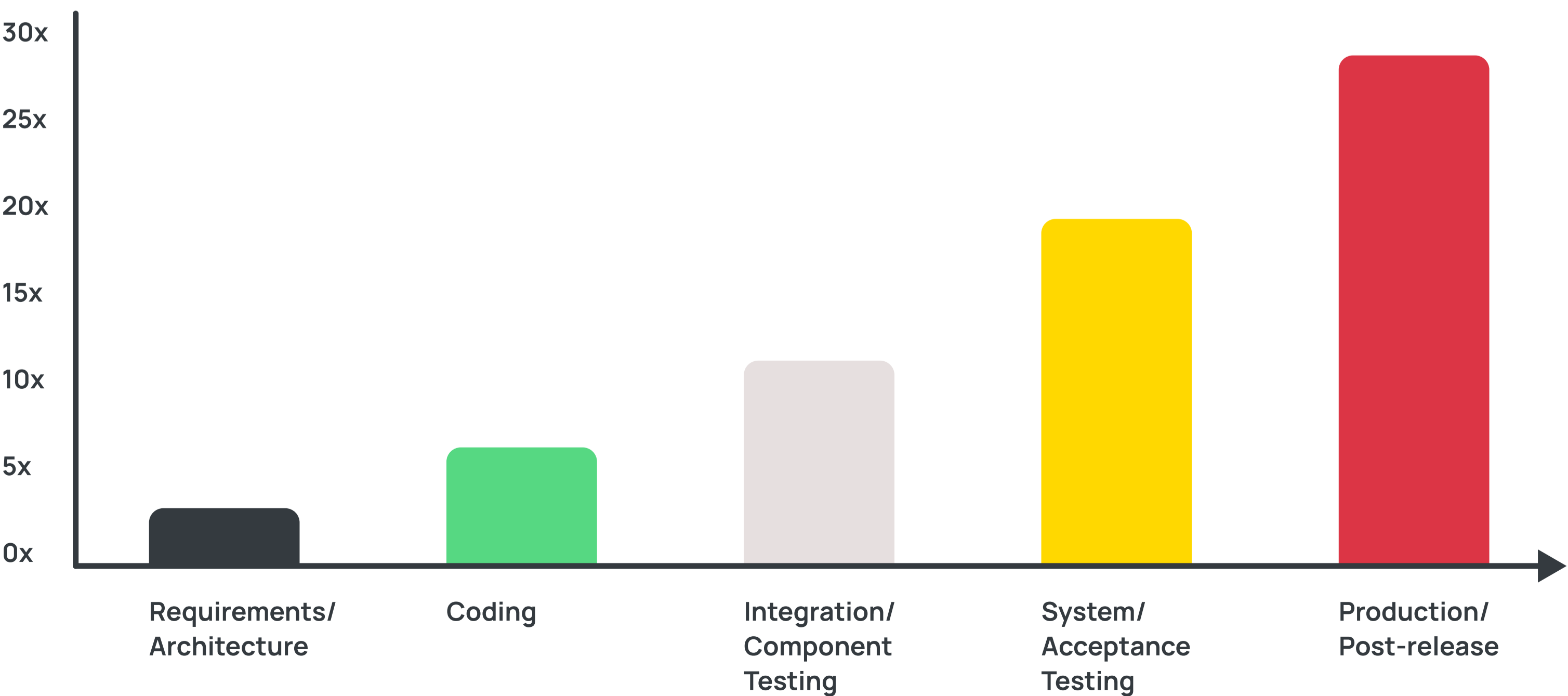
The main idea of Shift-Left is to detect bugs and defects in the project as early as possible. Guided by this principle, testers are brought in to work on the app at the early stages.

The Shift-Left strategy is based on three basic approaches:

- Finding defects early, which reduces the cost of development.
- Continuous testing to reduce defects at the end of the job.
- Automation of everything, allowing the app to go to market faster.

Data from [NIST](#) show that the earlier a defect is identified, the cheaper it is to fix. For example, it is 30 times more expensive to correct an error at the production stage than at an early stage.

Relative cost to fix bugs, based on time of detection





The Shift-Left trend was once able to transform the world of mobile testing. It has significantly improved the quality of the products while reducing development time. For many companies, applying the strategy was the step that ensured the transition to automation and increased their competitiveness in the market.

The Shift-Left concept is also conducive to applying DevOps practices and other agile methodologies. By hiring more skilled professionals with "agile" experience, development companies outpace their competitors and take the lead. Thus, the Shift-Left strategy is and will be relevant in the coming years.

Security Testing remains a priority

Mass digitalization leads to the fact that personal customer data is placed in functional apps or mobile games more often. Therefore, development companies are starting to pay more attention to Security Testing. This type of testing aims to detect vulnerabilities and weaknesses in the system through which a hacker attack could pass. In addition, after checking, developers can quickly eliminate all the shortcomings and release a fully secure product.

Specialists need to understand how an app they created will function in the future in order to conduct a comprehensive check of all elements.

Comprehensive Security Testing includes 7 basic types of checks

- Vulnerability Scanning
- Security Auditing
- Security Scanning
- Posture Assessment
- Penetration testing
- Ethical hacking
- Risk Assessment



Many tools and frameworks are now available to testers to identify vulnerabilities. Among the leading platforms are Acunetix and the automated testing tool Intruder. Undoubtedly they will be in use in 2023 and beyond, but we cannot dismiss the possibility that new tools may emerge.

What Do Testing Professionals Need to Prepare For?

We should expect a rearrangement of the roles of man and machine, as in the case of technologies based on artificial intelligence. Test automation is one of the priorities in organizing the work of QA engineers. Therefore, testers should be prepared to reduce "manual" activity in individual tests.

To summarize, we are saying that the field of mobile testing will continue to develop actively in 2023. We expect automation, AI and blockchain adoption, and other innovative technologies to continue. DevSecOps will strengthen in the area of testing-related methodologies, and DevOps will continue its development.



Thanks for reading!

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