

Continuous Testing

How End-to-End Assurance Reduces the Risks and Costs of Cloud Migration and Technology Upgrades



Customer Smiles. Delivered at Scale.

Executive Summary

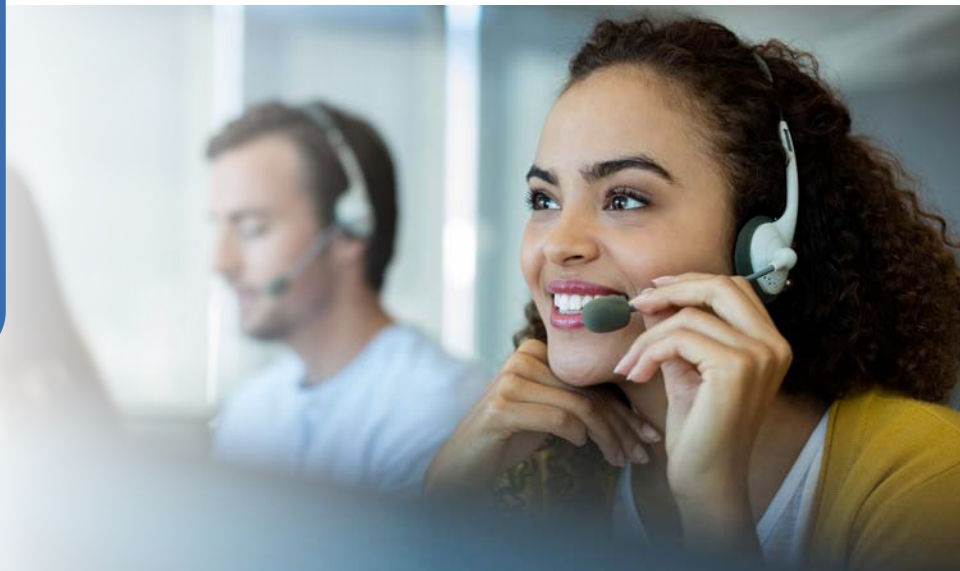
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Organizations in every industry are feeling the pull of digital transformation. This is certainly true for contact centers, many of which have already accelerated migration to the cloud since the onset of the COVID-19 pandemic.

These technology transitions bring new complexity to the software development cycle, and contact centers must adopt new practices to keep pace with the changes. First and foremost among these practices is continuous testing. Unlike outdated, develop-then-test models, continuous testing integrates testing throughout the software development life cycle.

In this white paper, we'll explore how continuous testing can help contact centers reduce the pain of technology transitions and maximize the benefits they aimed to achieve in the first place. Next, we'll outline how this will lead to major cost savings, and finally, we'll explore how you can assess your call center's readiness for these practices and ensure you have the right partner and solution in place to set you up for success.



Continuous Testing: The Process and Its Benefits

Continuous testing (CT) is exactly what its name implies: a testing process that's executed throughout every stage of software development and deployment. It's also known as end-to-end testing. In contrast to traditional testing methods, which reserve the testing stage for the end of development just before deployment, CT treats testing as integral to the entire development process.

CT is part and parcel of DevOps methodologies. Fundamentally, the continuous integration/continuous delivery (CI/CD) pipeline that's central to DevOps depends on CT for its success. Because CI/CD is a nimble process structured around ongoing, iterative changes, it relies on a steady feedback loop to verify whether changes are working properly. CT is what provides that feedback loop.

A contact center may migrate its systems to the cloud for many reasons, but delivering an improved customer experience (CX) is often at or near the top of the list. Yet, without continuous testing, it's virtually impossible to achieve that goal. The complexity of a cloud migration project is too great for outdated testing approaches to keep up.

Because CT takes its cues from DevOps and Agile mindsets, it's designed to break down the silos that traditionally separate software development and testing teams. When integrated in this way, teams can work together to deliver faster, better results. As we'll see for a process like cloud migration, this can mean the difference between failure and success.

Whether it's cloud migration or another significant software overhaul, CT delivers powerful results.

That's because it offers four distinct advantages.

CT touches every stage of development

Unlike in traditional testing methods, CT has no formal handoff from development to quality assurance (QA). Instead, QA touches the entire process.

CT identify issues earlier in the development process

Because of this reliance on ongoing QA, CT helps teams catch problems far sooner than they would otherwise. Instead of letting coding issues weave themselves into a web that must later be untangled, developers can ensure a tightly woven tapestry of code from the start.

CT enhances testing efficiency and effectiveness

Continuous testing means better testing. Catching problems earlier in development leads to less time spent correcting issues, and more time refining the testing process to fix even more granular issues.

CT improves the quality of software releases

All of this results in a significantly improved end product. For a contact center, that means benefits, like fewer dropped calls, more reliable call routing and data passing, and ultimately happier, more satisfied customers.

Understanding how continuous testing delivers these benefits requires a better grasp of the challenges contact centers face when navigating a major project, like a cloud migration – and a deeper appreciation of CT's role in alleviating those challenges. Only then can contact center leadership truly perceive its value and assess their readiness for adopting this game-changing practice.

THANKS TO CONTINUOUS TESTING, CYARA CUSTOMERS REPORT:



Fewer
dropped calls



Increased
positive customer
interactions



\$442k saved in
recaptured abandoned
callers¹

Technology Transitions: The CT Tipping Point

Although contact centers will benefit from implementing continuous testing at any point, it's often a major technology transition or significant system overhaul that reveals a glaring need for it. A major upgrade is usually designed to simplify business processes and enhance results, but managers often find that they're trading one set of complex issues for a new laundry list of them.

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Again, consider the cloud migration process. Contact centers, in particular, are embracing cloud vs. on-premise operations and moving toward Contact Center as a Service (CCaaS) models. Gartner predicted that half of call centers would be in the cloud by 2022 — and that number would only continue to grow.²

This adoption is likely to accelerate in a post-pandemic world that features shifting consumer and worker expectations. Remote, anytime access to, and delivery of, goods and services has become the top priority for both groups, and the cloud makes this possible for contact centers. It also opens the doors for a more seamless, reliable service experience that serves both employees and customers.



Contact centers aren't alone in seeing the value of cloud migration, either. McKinsey and Company estimates that cloud migration offers a potential \$1 trillion in business value for Fortune 500 companies.³ Already realizing this, many businesses are shifting the majority of their IT spending in this direction, especially since the onset of the COVID-19 pandemic. By 2024, the average company aims to allocate 80% of its IT-hosting budget toward cloud spending.⁴

Understanding the value of cloud migration isn't the same as realizing it, though. When many businesses attempt to make the shift, they encounter several acute difficulties they were unprepared to face. These often come down to four key migration pain points:

Complications from transitioning or integrating legacy systems:

In a cloud migration project, a contact center may seek to integrate various disparate systems — oftentimes those that serve different customers across the globe. This is an immense, complex task that will require many rounds of coding and testing.

Data security and compliance:

Moving customer and company data from one system to another is always fraught with security concerns. Transmitting that data to the cloud opens up new possibilities of exposure, and this requires new layers of security and compliance processes.

Ineffective prioritization:

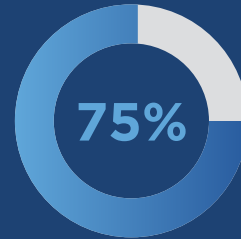
Overwhelmed by the amount of data to migrate and the complexity of system integration, many organizations fail to prioritize properly, trying to do it all at once instead. Consequently, McKinsey reports, 38% fall behind by more than a quarter, and many end up cutting back the scope of their migration project.⁴

Poor planning and failure to account for obstacles:

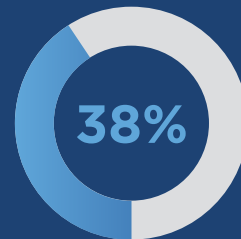
These problems stem from ineffective planning, which leads to significant overspending. McKinsey reported that three-quarters of organizations were over budget on their cloud migration project. On average, these organizations overspent by 14%.⁴

Over the next three years, these challenges will likely result in roughly \$100 billion in wasted spending and cause many to abandon or limit the scope of their contact center migration.⁴

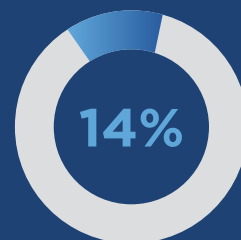
But this need not be the case. What's often missing from the equation is a plan for continuous testing, which solves all these problems (and more).



75% of organizations run over budget on cloud migration projects.



38% fall more than a quarter behind their original timeline.



On average, organizations eclipse their cloud migration project budget by 14%.⁴

Continuous Testing in the DevOps Cycle

Continuous (also known as end-to-end) testing is designed to support iterative DevOps methods. Essentially, by shifting testing “left,” or earlier in the development cycle, organizations can create a more nimble development process. This takes the pressure off a major overhaul like a cloud migration, since everything doesn’t have to be sorted before the entire project is complete. It supports a more gradual undertaking, bolstered by a wide variety of performance tests at various stages along the way.

The following types of performance tests are common at different points in the development cycle.

Volume testing

This tests system performance by increasing the volume of data to identify load issues and bottlenecks, and plan for scalability.

Stress testing

Also called endurance testing, this assesses whether a software application crashes under heavy load conditions, how it manages errors, and how quickly it can recover.

Integration testing

This more exhaustive form of testing combines singular software into groups to test for potential defects and assess the relationship between the various components.

Soak testing

This non-functional form of testing examines software performance during long periods of time or with increased user volume. It pushes the limits of software applications to ensure they meet compliance requirements, so it’s typically done before the public release of the product.

Load testing

Another non-functional type of testing, this probes how products and applications behave when faced with external failures or throttled demand to prove they are robust enough to behave properly in adverse situations.

Scalability testing

This third form of non-functional testing measures network performance to determine how well it can scale up or down with surges or drops in user requests.

When all these tests occur in a continuous cycle of testing and development, an integrated DevOps team can discover and address software problems much more quickly than it would in a traditional end-of-cycle testing setup.

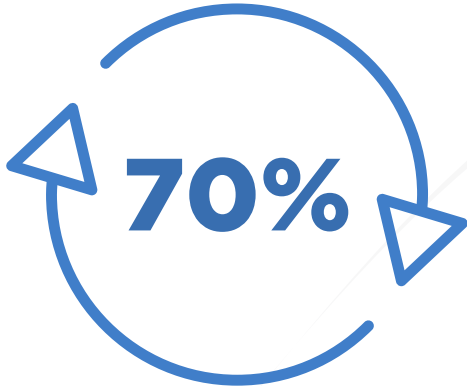
Returning to the cloud migration project for a moment, consider how an end-to-end implementation of the above tests would improve the results. Without it, issues pile on top of each other throughout the project, leading to the migration problems, delays and budget overages mentioned earlier.

With CT in place, development and operations can work together on a gradual migration, ensuring data is transferred safely and CX is delivered smoothly.

Companies that utilize Cyara's continuous testing and other tools:



Migrate to the cloud up to 2x faster than those that don't.



Shorten development cycles by 40-70%.

Automated Testing vs. Continuous Testing

At this point, a critical distinction is in order. In order to adopt CT, organizations must embrace automated testing. Simply put, manual testing processes are insufficient to meet the speed and frequency that continuous testing requires. To execute all those different tests manually would be overwhelmingly resource-intensive, consuming far too many labor hours and resources.

However, even when a business automates these tests, that doesn't mean it has implemented continuous testing. Automation is vital and foundational to the CT process, but it's not the only key to CT success.

Automated testing is simply the use of software to execute testing processes without manual, human involvement. And it's possible to implement testing automation without taking the next step into continuous testing. Doing CT effectively, on the other hand, requires a DevOps mindset of continuous integration and continuous development. To truly capture the benefits of CT, a business must commit to automation and set up its automated testing processes to deliver feedback quickly — and to the right people.



After Migration: The Ongoing Role of Continuous Testing

Executing a cloud migration with the help of continuous testing is only the beginning. Once a business begins incorporating CT, it must keep that engine running to fully realize its benefits.

When a contact center moves to the cloud, it often aims to scale up its business and improve its CX. However, once in the cloud, the pace of the development cycle will accelerate, making the need for continuous testing even more urgent.

Consider a financial institution that has completed its cloud migration. Unencumbered by its old legacy systems, it can now focus on enhancing its CX and delivering more services to clients via IVR, mobile banking, chatbots, and more. However, now it also must ensure the financial data of millions of customers remains secure in the cloud. Achieving these goals will require an ongoing cycle of development and testing, as well as live monitoring in the production environment.

Or consider a large insurance provider with offices throughout the United States. Its challenges don't stop once cloud migration is complete. Throughout the year, it will continue to manage claims and make enrollment changes for customers. During open enrollment periods, its new system is equipped to handle a greater volume of calls than ever before. But, to ensure that process goes smoothly, the company relies on an ongoing development cycle with frequent testing.

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This process of continuous development and continuous testing will only continue to speed up. As a contact center shifts testing earlier in the development cycle, it catches problems sooner, saving time on the back end and making room for more improvements. That leads to more testing, and the cycle continues. With automation in place, all this happens without requiring manual testing labor, enabling businesses to capture a greater ROI in a shorter amount of time.

That scale of change and level of ROI is only possible with robust continuous, end-to-end testing. This is not something to outsource to a cloud service provider, either. Contact center managers need to know that their cloud provider is delivering on its capacity commitments and providing a reliable infrastructure for the new systems they're implementing. Employing their own continuous testing in the contact center is critical for ensuring everything is up to specifications.

The Ultimate CT Benefit: Cost Savings

From this vantage point, on the other end of the CT journey, it's easier to see the final benefit that an automated CT program brings to the contact center: substantial cost savings.

Consider the kind of comprehensive testing program we've described here — one that not only touches on every stage of the development cycle but also continuously monitors the live environment under ongoing changes. Testing is no longer “one and done,” but a steady presence to keep a pulse on how each update affects the customer experience. Once a contact center has established this framework, what cost savings might it realize?

Significant downtime reduction

Downtime is one of the most troublesome costs that contact centers incur when they test manually and intermittently. When defects make it into production, they inevitably lead to outages. And when outages occur in production, a lot of time is wasted trying to sort out the problem. Meanwhile, dissatisfied customers consider taking their business elsewhere. With automated CT and live monitoring, many of these costs can be eliminated.

Faster development cycles

With the CI/CD approach of DevOps, development cycles take on an entirely different character. Because testing occurs throughout the process, developers can quickly unravel defects before they take shape.

There are fewer stops and starts throughout the development phase, and less wasted effort from rework. CT accelerates the process and reduces the costs that would otherwise add up under prolonged periods of testing and correcting.

A seamless flow between development and production

CT also creates stronger connections between the development and production teams. Instead of simply passing problems back and forth without effective resolution, CT introduces a steady dialog that reinforces ownership and accountability. Improved testing in the development cycle leads to faster, more frequent releases into production. And monitoring in production leads to faster detection so that developers can quickly receive alerts and correct issues. This seamless flow creates a more cost-effective operation all around.

Better staff retention

Automating the testing process allows developers to put their energy into more satisfying work. Instead of running repetitive, rote manual tests, they can focus on building a better products. They also spend less time putting out the fires that inevitably ignite under manual testing. This ultimately leads to happier developers, lower turnover, and a net cost savings for the company.

These are just a few of the ways continuous testing can improve a contact center's bottom line. When mapped out over an extended duration, the potential ROI far outweighs the initial costs of establishing a CT program.

Checklist for Continuous Testing Readiness

So what does it take to start realizing these benefits and cost savings? Continuous testing isn't a switch you can flip and start performing tomorrow. Any company that has implemented Agile or DevOps processes will have a head start, but, regardless of where your business develops and delivers CX, there is some essential ground to cover first.

Here's a checklist you can use to determine your readiness for rolling out a continuous testing approach:

Capability	In Place Today	Owner/Implementation Path
<input type="checkbox"/> We have fully implemented a DevOps approach, or we have processes in place that enable the development and operations areas of our organization to work collaboratively with business leaders throughout development cycles.		
<input type="checkbox"/> We have a team in place to oversee the ongoing development and execution of tests.		
<input type="checkbox"/> We can generate test scripts with a fair amount of automation.		
<input type="checkbox"/> We have the capacity to generate synthetic traffic for testing.		
<input type="checkbox"/> We are able to test multiple channels (phone, web, SMS, etc.), and have a scalable test plan that will allow us to test new channels as they are added in the future.		
<input type="checkbox"/> Our success/fail test reporting is clear and thorough, allowing us to align results with user stories so we can make appropriate changes to UI/UX.		
<input type="checkbox"/> We are able to capture full test audit logs that help developers with debugging and feedback.		
<input type="checkbox"/> We are ready to build multiple automated test suites to cover the full spectrum of end-to-end functional, regression, load and performance testing.		
<input type="checkbox"/> We are equipped to test and monitor the live production environment.		
<input type="checkbox"/> We can use APIs to facilitate automation and tight integration in our contact center software delivery pipeline.		
<input type="checkbox"/> We have reviewed the full scope of our customer experience (CX) delivery and prioritized where it makes sense to begin implementing continuous testing first, to have the greatest impact.		

Preparing for continuous testing is multi-faceted and complex. To ensure you can check off each of the above items with confidence, it's best to work with a trusted, experienced partner.



Your Partner in Continuous Testing

Continuous testing helps you handle the increasing complexity and changing demands of your business as you adapt to a digital-first marketplace. When it's implemented at the right time and in the right way, CT can meet those demands – but it will also add new complexity of its own to your business.

Cyara has a wealth of experience and proven expertise in helping companies adopt continuous testing practices and use them to make significant technology transitions. Our award-winning Automated CX Assurance platform has helped leading brands in every industry, including the financial, insurance, and technology sectors, move their call center solutions to the cloud and deliver superior CX at a greater scale than ever before, all while saving money on resources and inefficiencies, and facing fewer headaches and slowdowns in the development cycle.

With automated, omnichannel CX testing and monitoring solutions, organizations can shorten their test time by two-thirds while increasing test coverage eightfold. Cyara customers have reduced call center downtime by 90% in year two of implementation, saving \$2.2 million over three years.¹



Cyara delivers an ROI of 283% and payback in under 3 months.

These results are built on the backbone of continuous testing, and they're available to your business today. We can help you assess your CT readiness and start implementing it in no time. If you're getting tangled in technology transitions, reach out to us now.



VELOCITY
Functional & Regression Testing



BOTIUM
Chatbot Testing & Assurance



CRUNCHER
Performance Testing



PULSE
Customer Experience Monitoring



LIVEVQ
Voice Quality Assurance

Customer Smiles. Delivered at Scale.

As the world's leading Automated CX Assurance platform provider, Cyara helps you deliver better CX with less effort, cost, and risk. Cyara supports the entire CX software development lifecycle, ensuring enterprises can build flawless customer journeys across digital and voice channels while reducing the risk of customer-facing defects. Every day, the most recognizable brands trust Cyara to help them build better customer experiences faster.

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¹ Forrester. "The Total Economic Impact of Cyara." Jan. 2020.

² Gartner. "Gartner Magic Quadrant for Contact Center as a Service." Nov. 9, 2020. (Cited here).

³ McKinsey and Company. "Cloud's Trillion-Dollar Prize Is up for Grabs." Feb. 26, 2021.

⁴ McKinsey and Company. "Cloud-Migration Opportunity: Business Value Grows, but Missteps Abound." Oct. 12, 2021.

