

By continuously testing, organizations receive early validation that contact center software updates are functioning as designed *before* they are deployed to production systems.

Maintaining Continuous Innovation in Customer Experience: Contact Center DevOps

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Questions posed by: Cyara

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Q. How does digital transformation (DX) enable a great customer experience (CX) for contact centers?

A. With a lingering pandemic causing more consumers to favor contactless interactions, it is vital to have an accessible contact center in place to remain competitive. In many cases, contact centers are no longer just another means for your customers to interact with your business; they are now the preferred or only option for customer interaction. The reality is that today, contact centers are the most customer-facing part of the business, and the customer experience they provide directly impacts customer retention and adoption. Contact center consumers are increasingly impatient and expect a painless experience that shields them from all the underlying technology required to make it all happen.

Most organizations will now attest that providing robust, intuitive, delightful customer experiences for their contact centers delivers a critical competitive advantage and is a primary driver for continuing to make DX investments. According to IDC's *Future Enterprise Resiliency and Spending Survey* (Wave 9, fielded in October 2021, n = 789), when survey respondents were asked to list their top 3 business priorities, 45.7% identified "customer satisfaction" as their top business priority. Further, customer satisfaction placed higher than such standard metrics as profits (33.3%) and revenue (30.6%).

At the outset of the pandemic, organizations relying on older technology and dated development processes quickly realized that they were at a considerable disadvantage and needed to transform their operations abruptly. For many organizations, this meant accelerating a three-year DX road map down to implementing disruptive technology changes within three months.

Many "lean forward" organizations have begun to realize that there is simply too much complexity to deliver delightful contact center experiences without leveraging modern Agile and DevOps methodologies. Modern contact center solutions frequently span multiple layers of technologies (i.e., network, application) and traverse channels to deliver a full omni-channel experience. DevOps provides the agility to swiftly react to an ever-changing digital climate and capricious world events.

Q. How do organizations get started with adopting DevOps methodologies?

A. DevOps is a set of practices that automates the processes between software development teams and IT operations teams so they can build, test, and release software more quickly and reliably.

Although many organizations expect the most significant challenges with DevOps adoption will be new technologies and tools, overcoming the cultural challenges is often the biggest hurdle. Organizations with entrenched risk-averse cultures are often resistant to changing the way they do things. The road to DevOps adoption can be bumpy, and when something goes wrong or seems difficult, it can be easy for people to fall back into old habits. DevOps teams need to be cognizant of this and pay attention to subtle behaviors that suggest a return to old practices. Further, leadership needs to be on board and set the example by encouraging their teams to focus on the larger end goals. This is important for empowering teams to not be afraid to fail fast and use these experiences to better refine ideas and nurture innovation.

It is important to start with a sound foundation by laying the groundwork with Agile practices. Like DevOps, Agile practices encompass both cultural transformation and enabling software tools. For teams that have strong Agile practices, the seeds of DevOps have already been planted, and DevOps is the next logical step in the evolution of improving the speed at which they can deliver value to their customers.

Do not attempt a "big bang" approach toward adopting DevOps by overcommitting what you can deliver early on. Carefully select a well-suited project that is important enough to show business value but has a limited blast radius in the event of an early stage failure. The team should become accustomed to breaking down contact center updates into smaller payloads that are easier to deploy, with rollback as an option should a production problem arise.

Once the candidate project has been identified, a value stream mapping (VSM) exercise can provide insights into how work moves through the DevOps pipeline. The VSM should follow the flow of work from the initial internal customer request (i.e., the line of business) until it is made available within the customer-facing contact center and will highlight areas where friction can be removed to improve DevOps momentum.

Amass an end-to-end perspective of the existing customer journeys and experiences to understand the current state of the solution. This will provide insight into what your CX is today and how it needs to improve to make the customer journey more seamless for the contact center consumer. With a clearer understanding of customer journeys, you are better positioned to document the test cases needed to effectively test the contact center solution.

Most teams find that automating the testing process provides significant improvements in their ability to deliver contact center updates with greater speed and efficiency. Test automation enables faster, less error-prone validation of changes. It is especially useful because it helps you detect problems or bugs early on during the development phase when it is easier to isolate and fix them. This increases the overall efficiency, saves organizations time and money, and lays the groundwork for continuous testing.

Further, teams should be deploying real-time monitoring of the contact center solution in production to troubleshoot problems and deliver the best possible customer experience. This may include things such as synthetic monitoring of customer journeys with an alerting framework to make it easier to recognize and isolate issues before they impact the contact center CX.

Q. What types of value does continuous end-to-end testing provide for contact centers?

A. The contact center environment is unique in its direct contact with the customer. Unlike the sales function where a salesperson has an ongoing relationship with a customer, a contact center agent has a transient relationship with a customer, and a customer may be connected to a different agent at any moment in time. To effectively serve customers, agents require access to a wide variety of information that is provided by a multitude of different internal systems. As the customer journey extends farther and farther across the enterprise — think website, digital channels, connected to the customer data platform (CDP), billing, sales, and so on — any hiccup will be experienced by those key customers.

Continuous end-to-end testing entails integrating the automated tests you create into the delivery pipeline to ensure quality and acquire feedback on the business risks associated with new contact center software updates as rapidly as possible. This replaces error-prone and lengthy manual testing, enabling the team to deliver new contact center innovations faster and with greater agility. Finding defects late in the process or in production is costly to the business because it makes it challenging to identify the root cause. Moreover, any corrective code or configuration changes may inadvertently introduce new defects, making it difficult to ensure software quality.

By continuously testing contact center software updates, you get timely validation that these updates are functioning as designed before they are deployed to your production systems. This may include continuously testing contact center chatbots because the expectations of a chatbot CX are constantly expanding, and automating the testing of your chatbot technology is the only efficient way to continually learn and adapt while ensuring a consistent omni-channel CX. With more organizations shifting contact center workloads to the cloud, having automated end-to-end continuous testing provides a valuable tool for enabling a successful migration.

Q. Can DevOps assist with shifting my contact center into the cloud?

A. DevOps and the cloud enjoy a synergistic relationship with each helping make the other easier to use and adopt. DevOps is what organizations need to realize the full benefits of the cloud, and the cloud provides DevOps teams with improved automation and infrastructure agility via software-defined resources and ephemeral computing environments. These ephemeral cloud images enable flexible scaling of resources to meet fluctuating contact center demand. A humorous tweet from Corey Quinn, founder of Last Week in AWS, does a good job of illustrating some of the inherent benefits of the cloud: *Something that gets lost a lot in cloud discussions: if you build an app and let it sit in a cloud provider for a decade, it gets better. Reliability improves, hardware gets faster. Do that on-prem and the raccoons take your site down by year 3.*

Unfortunately, many customer care and contact center environments are lagging in cloud adoption, and they have not been able to exploit the benefits of using DevOps in a cloud environment. However, we have seen financial services firms, insurance companies, and others that were previously devoted to keeping contact centers on premises beginning to shift their contact center workloads to the cloud.

The fact that moving to the cloud, either public or private, is "ground zero" for most organizations cannot be overemphasized. Dedicated private hosting and public cloud will be the new deployment models of the future for contact centers. Cloud often carries with it an impression of lower complexity, ease of implementation, and accessibility. To a degree, these attributes are true when compared with the systems they tend to be replacing, but it doesn't mean that cloud applications don't require integration, maintenance, and upgrades as well as add the complexity of mimicking key business processes. The shift to the cloud will impose not only the re-architecting of existing environments but also the additional extra lift required to exploit the benefits of cloud such as work-from-anywhere agents, more personalized experiences, intelligent IVR, chatbots, AI-powered self-service, and a lower overall TCO.

Contact centers that have yet to move to the cloud can be better prepared for a migration to the cloud by adopting DevOps and end-to-end continuous testing. This enables organizations to confirm that the contact center functionality migrated over to the cloud successfully, mitigating migration risks. DevOps will also lay the needed groundwork for understanding contact center customer journeys. The more accelerated DevOps processes can take advantage of software-defined cloud resources and more frequent and seamless software updates.

Q. What types of capabilities should organizations look for when building a contact center DevOps pipeline?

A. Selecting the right capabilities for building out your contact center DevOps pipeline is critical for success. The solutions used can directly impact the DevOps team's ability to quickly develop new contact center solutions for your customers.

Given the complexity of modern contact center solutions, having the ability to understand customer journeys is essential. Organizations should look for solutions that can provide some combination of discovery and mapping of contact center journeys. Further, being able to use the discovered customer journeys as a baseline for designing new capabilities is a definite plus.

Testing is such a critical part of contact center DevOps, and having robust test management capabilities is vital. Key testing capabilities to look for include the following:

- » The ability to help you generate test scripts with some level of automation
- » The capacity to generate synthetic traffic for testing (i.e., synthetic customers and synthetic agents)
- » The ability to test using multiple communication methods (i.e., phone, web, SMS) considering not only the communications channels you use today but also those that you might use in the future
- » Good reporting on the success and/or failure of tests that can be easily consumed and aligned with underlying user stories
- » The ability to capture audit logs of test activity that can be consumed by developers for debugging
- » Strong capabilities for building different types of automated test suites for end-to-end functional, regression, and load or performance testing

Any DevOps solution should be able to integrate with your other development and DevOps tools as well as your target contact center software technologies. This would likely include integrations with common DevOps tools such as Jira for planning and tracking, Jenkins for CI/CD orchestration, PagerDuty or ServiceNow for incident management, and others. Any DevOps solution must also be accessible via APIs to be driven programmatically and to facilitate other integration requirements as they arise.

DevOps tools used in production operations must provide real-time capabilities to monitor the status of the various channels being used in the contact center solution (i.e., phone, web, chat, SMS). A capable alerting framework is important for diagnosing and isolating issues before they impact the contact center CX. This is also important for monitoring critical SLAs and should provide a valuable feedback loop for planning and development of future software iterations.

About the Analysts



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Jim Mercer is a Research Director within IDC's DevOps Solutions research practice. In this role, he is responsible for researching, writing, and advising clients on the fast-evolving DevOps market. Mr. Mercer's core research includes topics such as rapid enterprise application development, modern microservice-based packaging, application security, and automated deployment and life-cycle/management strategies as applied to a DevOps practice.



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