Our Point of View on DevOps with Amazon Connect

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Agenda

Why DevOps – Motivation and Customer Needs

Digital Contact Centers often rely on ***complex software systems*** and ***platforms*** to manage customer interactions ***across multiple channels*** such as phone, email, chat and social media and more.

These systems ***require continuous maintenance***, ***upgrades*** and ***customization*** to ***keep up with the evolving needs*** of customers and businesses.

In the digital contact center context, DevOps can help ***streamline the process*** of deploying and managing software, ***reduce downtime*** and ***errors*** and improve the ***overall quality*** of customer service.

What is DevOps?

DevOps is a development methodology that combines software development and IT operations. Its goal is to shorten the systems development lifecycle while delivering features, fixes, and updates frequently and automatically—in close alignment with business objectives.

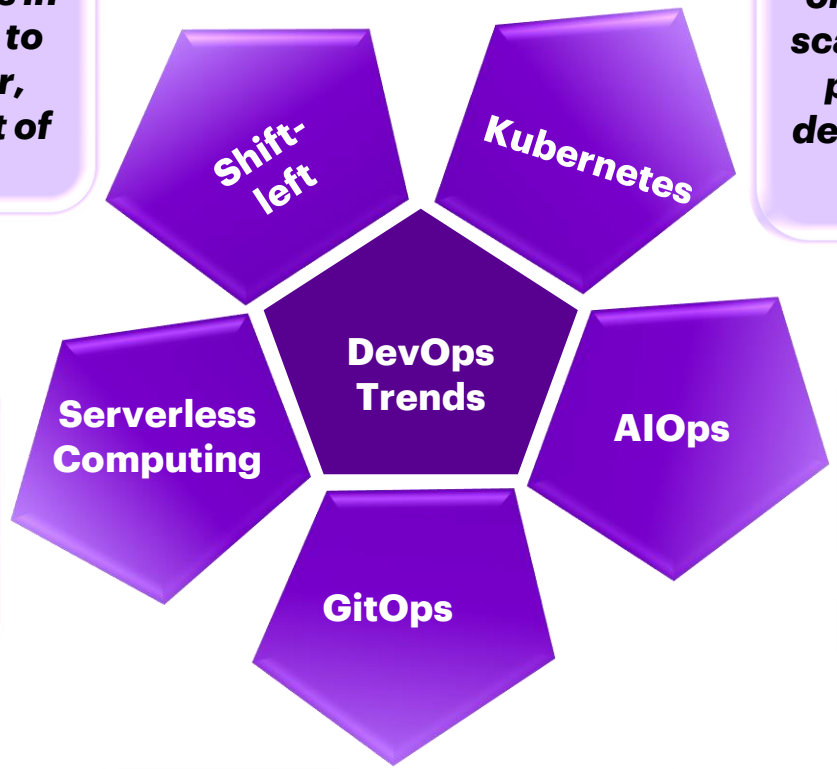
DevOps involves several key components, such as continuous integration and continuous delivery(CI/CD), Infrastructure-as-code(IaC), monitoring and logging, and agile and lean methodologies.

DevOps can help organizations become more agile, innovative and customer focused, leading to better business outcomes.

According to Gartner,
"Through 2024, infrastructure and operations (I&O) leaders using open-source organizational change management techniques to implement and develop DevOps initiatives will improve their ability to meet desired business outcomes by 50%."

Some recent trends in DevOps

The Shift-Left approach of earlier testing and security processes in the development cycle helps to identify and fix issues earlier, thus reducing the overall cost of development.



Kubernetes is an open-source container orchestration system for managing and scaling containerized applications which provides a framework for automating deployment, scaling and management of containerized applications.

Serverless Computing allows Developers to write and run applications without having to manage servers and infrastructure

The application of Artificial Intelligence and Machine Learning to automate IT tasks including monitoring, troubleshooting and remediation, helps improve the efficiency and accuracy of IT operations, reducing the time required to diagnose and fix issues.

GitOps approach uses Git as a single source of truth for infrastructure and application deployment. It allows developers to manage infrastructure and deployment with version control.

DevOps significance in Digital Contact Center World

DevOps is essential for Digital Contact Centers to help streamline the software development and deployment process, improve collaboration between teams and deliver better customer experiences.

Faster time to market

- Software development and deployment can be automated.
- New features and updates can be delivered to customers more quickly.

Continuous Improvement

- Enables teams to continuously monitor and analyze system performance, customer feedback and other metrics.
- Quickly identify and address issues and make ongoing improvements

Greater Collaboration

- Improved collaboration between developers, operations and other teams.
- Improved communication and teamwork leading to better outcomes for customers and business

Improved reliability and stability

DevOps practices such as automated testing and continuous integration and deployment help ensure software is more reliable and stable, reducing risk of downtime and other issues that negatively impact customer experience.

Our PoV on DevOps with Amazon Connect (1/2)

Amazon Connect combined with DevOps Practices, can help streamline contact center operations and provide an enhanced customer experience.

Amazon Connect provides a cloud-based contact center solution that is easy to set up, flexible and scalable.

With DevOps practices such as Infrastructure-as-Code and automation, Amazon Connect can be deployed and configured quickly, reducing the time it takes to set up and launch a new contact center.

Amazon Connect offers many features and integrations that can improve contact center operations, such as automated call distribution, omnichannel support and real time analytics.

By leveraging DevOps practices such as continuous integration and delivery these features can be delivered to customers quickly and efficiently, allowing contact centers to respond to changing customer needs and preferences in real-time.

Our PoV on DevOps with Amazon Connect (2/2)

Amazon Connect combined with DevOps Practices, can help streamline contact center operations and provide an enhanced customer experience.

DevOps practices like continuous monitoring and continuous testing can help contact centers to identify and address issues before they impact customers.

With Amazon Connect's real-time monitoring and analytical capabilities, combined with automated testing and deployment, contact centers can proactively identify and fix issues before they become customer–facing problems.

Improved Customer Satisfaction

By regularly reviewing and analyzing customer feedback and metrics, contact centers can use DevOps principles to implement changes and improvements quickly, resulting in a better customer experience and increased customer satisfaction.

Use case - DevOps with Amazon Connect (1/2)

Consider a business that uses Salesforce as its CRM system and wants to integrate Amazon Connect with Salesforce to provide better customer service.

In this scenario, DevOps practices can be used to deploy and manage the integration software in the cloud.

This way the business can ensure that the integration is delivered quickly, reliably and at scale.

Additionally, the business can benefit from the scalability and flexibility of the AWS cloud and Amazon Connect to provide a seamless customer service experience.

Use Case – DevOps with Amazon Connect (2/2)

Implementation Steps

- Infrastructure as Code tools such as **AWS CloudFormation** and **Salesforce Metadata API** can be used to automate the provisioning and configuration of the environments thereby ensuring consistency and repeatability across different stages.

- A version control system such as **Git** can be used to manage the source code and configuration files related to Salesforce and Amazon Connect.
- Separate repositories are created for each system with a branching strategy that allows parallel development.

- A CI pipeline can be implemented using a CI/CD tool like **Jenkins** or **GitLab CI/CD**.
- Whenever developers push changes to the version control repository, a series of automated tests, including unit tests, integration tests and code quality checks are automatically triggered.
- This will ensure that any new code base does not introduce bugs or violate best practices.

- Tools like **Salesforce DX** and **AWS CloudFormation** can be used to automate the deployment process by defining deployment scripts and templates to provision the required infrastructure resources.
- The deployment can be orchestrated using a release management tool like **Jenkins** or **AWS CodePipeline.**

- Application Monitoring Tools like **New Relic** or **AWS X-Ray** can be used to track response times and identify bottlenecks in Salesforce and Amazon Connect workflows.
- The logs generated by both the systems can be centralized using **AWS CloudWatch** or **Splunk** for troubleshooting and analysis

Case Study

Contact Center Transformation for a national charity organization in UK

DevOps Strategy adopted

- AWS CDK is being used for Infrastructure-as-Code for AWS services natively supported by CloudFormation/CDK and being stored in Client's GitHub private repository.
- *Quality:* Static code analysis for IaC is being done using cfn-lint to validate the code, find possible errors, warn about deprecated syntax, and enforce best practices. New code is being frequently tested in lower environments before deploying to prod, thus reducing the number of bugs found in production.
- *Continuous Delivery:* Small non-prod changes were released daily/weekly while large prod changes were released monthly
- *Collaboration:* New code is being deployed into production with close collaboration between development and operations teams
- *Monitoring and Alerting:* Amazon CloudWatch, AWS CloudTrail, AWS Config, AWS X-Ray were used to meet the client's logging and monitoring requirements.
- *Time to market:* IaC for MVP was built and deployed to Prod within 3 months and then maintained by a single person for continuous development.

Key Benefits

Reduced costs

Enhanced quality and reliability

Increased scalability and resilience

Case Study

Contact Center Transformation for a leading health coverage provider in the US

DevOps Strategy adopted

- End-to-end CI/CD pipelines built by Accenture using AWS services like AWS CodePipeline, AWS CodeCommit, AWS CodeDeploy, AWS CloudFormation, Amazon CloudWatch, AWS Lambda, etc
- Branching models with a main trunk and feature/bugfix branches merged back to main via Pull Requests after approval from Client DevOps Lead.
- *Agile:* Frequent rollouts using Agile methodology. Small non-prod changes were released daily while large prod changes were released as per Change Board.
- *Collaboration:* New code is being deployed into production with close collaboration between development and operations teams across Client and Accenture.
- *Monitoring and Alerting:* Amazon CloudWatch and AWS CloudTrail were used to meet the client's logging and monitoring requirements.
- *Time to market:* First Release was completed in ~5 months.
- 70% automation achieved through DevOps implementation.

Key Benefits

Increased efficiency and productivity

Accelerated delivery of software

Lower Costs

Key Takeaways

DevOps practices can greatly benefit contact centers

DevOps practices can help digital contact centers increase efficiency, reduce costs, and improve overall product quality

Case studies demonstrate the effectiveness of DevOps Practices

Case studies of clients using DevOps practices have shown measurable improvements in deployment frequency, lead time and overall product quality.

Recommended next steps

Clients interested in implementing DevOps practices should start by defining clear goals and metrics, selecting appropriate tools and resources and building a cross-functional team to manage the process.

Key Contacts

Santhosh Natarajan
Accenture Leadership
Santhosh.Natarajan@accenture.com

Arjun Balaraman
Management Consulting Senior Manager
Arjun.Balaraman@accenture.com

Sudhakar Sharma
MC Delivery Manager
Sudhakar.Sharma@accenture.com

Sowjanya Kamindla
MC Delivery Manager
Sowjanya.Kamindla@accenture.com

Keerthi Kode
MC Delivery Associate Manager
Keerthi.Kode@accenture.com