

DevOps: A Catalyst for Digital Transformation of the Banking Industry

Abstract

To sustain profitably in a rapidly changing environment characterized by evolving customer demands, agile competitors, and stringent regulations, banks need to develop products fast, launch them faster. However, a complete overhaul of core systems to instill agility is impractical due to cost implications and impact on business-as-usual. What is required is an approach that can substantially reduce the development cycle time, which is traditionally quite long, some 12-18 months easily. This paper discusses how financial services firms can employ DevOps practices to cut the development-deployment cycle time for new offerings and feature upgrades. It also outlines the associated challenges and ways to avoid the pitfalls in the transition to a DevOps model.

Agility: The Key to Digitalization

In the digital era, quickly rolling out products and services and releasing innovative upgrades have become crucial to success. The success of disruptive digital companies such as Netflix, Uber, and Flickr can be attributed to their phenomenally low lead times and the ability to swiftly incorporate user feedback to improve the product. Given this, it is only obvious that organizations taking weeks and months to launch products and services are at a huge disadvantage.

As part of their efforts to move to a digital model, banks and financial services firms are opting for API-fication of services to speed up the development and launch of differentiated, customer-centric digital offerings. But traditional banks lack the agility needed to match the pace of FinTech players in quickly delivering digital offerings to market. This can be largely attributed to the inadequacy of backend IT systems, particularly the conventional software development processes, where development and operations are isolated activities with their own timelines, and minimal collaboration and automation. This hinders quick product releases, and here's where DevOps comes in.

DevOps practices combined with the right technologies, strategies, and tools help infuse agility into software development, which in turn drives rapid delivery of digital offerings. By speeding up software delivery through a faster software development life cycle (SDLC), DevOps thus acts as a catalyst for digitalization for financial services firms.

The Rocky Road to DevOps

The business case for adopting DevOps practices is clear. However, moving to a DevOps style of working comes with its own set of challenges, and organizations will need to effectively address them to realize the benefits.

Development teams and operations teams often have conflicting objectives – the former is focused on quick releases while the latter is tasked with maintaining a stable and responsive system at all times. This mismatch often results in conflicts about how the ultimate goal of end user satisfaction must be achieved. Also, the two teams may be using different tools and methodologies which might require unification. Moreover, organizations may face employee resistance – a reluctance to switch from familiar, legacy tools; adopt activities

aimed at infusing a culture of collaboration; learn new skills; and accept the role changes that DevOps will entail.

Another key challenge revolves around legacy infrastructure – traditional banks typically operate with legacy systems that hamper effective automation of processes. By ignoring production realities and increasing time and effort spends, manual processes are in complete variance with DevOps' objective of faster SDLC.

Getting DevOps Right

Buy-in from top management is crucial to effective DevOps; without the support of the C-suite, DevOps projects often fail halfway. CIOs must assume the responsibility for inculcating the DevOps culture and institutionalizing the right methodologies. In addition, some key aspects that must be kept in mind while transitioning to a DevOps model are:

Culture

Organizations must overcome the perception that 'dev' and 'ops' teams function on either side of an insurmountable wall. Breaking down the 'invisible wall' will require a cultural shift wherein both these teams should be willing to embrace behavioral change and empathize with each other.

Involving development teams in deployment and maintenance will instill a deeper understanding of the bottlenecks that the operations team has to overcome. Similarly, when operations teams share the responsibility for business goals, they understand the operational features needed to achieve those goals. Empathy between the teams enables the operations teams to appreciate the challenges in releasing code quickly and frequently while allowing the development teams to acknowledge the issues created by insecure or fat or slow code. Empathy promotes a culture of collaboration resulting in the delivery of the best combination of functionality and operability.

Maturity assessment

Organizations must assess their existing delivery capability, identify the gaps, and determine the capabilities required to support quicker deployment. An evaluation of the IT ecosystem against DevOps principles is key to establishing the maturity levels, defining a strategy to reach the target state, and drawing up an implementation roadmap with precise milestones for each maturity level. Maturity assessment should be a continuous process with accreditation in line with other well-established process maturity models.

Methodology

Organizations must adopt a clearly defined execution methodology that includes rapid feedback cycles, effective monitoring, and reporting mechanisms. Individual organizations must define their own execution methodology based on current maturity levels and the desired state. A blended DevOps approach necessitates a review of established Agile processes such as backlog management and the way user stories are written.

Automation

The DevOps approach advocates end-to-end automation right from planning, development, integration, quality assurance, environment and configuration management, infrastructure provisioning, deployment, monitoring, and feedback. Organizations must conduct due diligence to determine if the tools' functionalities match organizations' specific technology stack and environment. Investing in popular or highly ranked tools that do not meet organization-specific requirements or include functionalities that are not immediately needed would be a waste of money, time, and resources.

Measurement and monitoring

Sustaining a DevOps environment will entail continuous measurement and monitoring across the delivery pipeline followed by improvement initiatives. Even with the best tools and execution methodology in place, achieving time-to-market and quality can pose challenges. Continuous measurement across the SDLC against established metrics, and obtaining and incorporating feedback, is essential to ensure smooth delivery.

Use Cases from the Financial Services Industry

Some banks have moved to DevOps environments and significantly improved business outcomes - typically in the form of agility in delivery. Here are a couple of examples:

A large global bank tied up with an airline to issue white label cards; such implementations typically took 12 to 15 months to roll out. By implementing an API strategy built with DevOps practices, the time-to-market was reduced to just six months. Moreover, the bank has cut down the total SDLC time by 47%. New APIs and capabilities are launched in mere 12 days against six to nine months earlier while the mobile versions are released every nine days.

Single-minded focus on development, which is a hallmark of Agile methodology, results in a product that works well in the development environment but fails in the production environment. To address this, a large North American bank has created product-aligned, cross functional teams, and redefined the role of the product owner and the Scrum master to include and manage operational aspects. Non-functional requirements such as scalability, monitoring, and deployment now form a part of product backlogs and sprint planning. With this, the bank hopes to reduce time-to-market for new offerings and introduce faster feature upgrades to existing products.

Conclusion

Digital transformation is a must to successfully compete with agile, digital-first players. With IT as a strategic driver of digitalization, revamping software development and delivery is vital. The DevOps approach offers a way to transform the SDLC. A carefully thought out DevOps strategy can help financial institutions to quickly launch digital offerings, and provide the much needed push for digital transformation.

About The Authors

Guruvayurappan Ramabhadran

Guruvayurappan Ramabhadran is a Solutions Architect with TCS' Banking and Financial Services (BFS) business unit. He has over 11 years of experience in the digital banking space, and has worked on technology transformation programs, productization of banking functions, and integration of systems for leading banks across North America and the Asia Pacific. Guru has been instrumental in architecting solutions for multiple lines of businesses across banking. He has a Bachelor's degree in Mechanical Engineering from Anna University, Chennai, India.

Saravanan Lakshmanan

Saravanan Lakshmanan is a Solutions Architect with TCS' Banking and Financial Services (BFS) business unit. He has over 17 years of experience in managing key strategic programs for leading banks, and in the architecture, design and development of IT solutions for various transformation programs. Lakshmanan has been involved in implementing mobile banking platforms for different lines of business for a leading bank in North America. He has a Bachelor's degree in Electrical and Electronics Engineering from Manonmaniam Sundaranar University, Tirunelveli, India.

Contact

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