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Five Priorities for Quality Engineering When Taking Banking to the Cloud

As banks move to cloud-based banking platforms for lower costs and greater agility, they must seamlessly integrate technologies and workflows while ensuring security, performance and an enhanced user experience. Here are five ways cloud-focused quality assurance helps banks maximize the benefits.

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Executive Summary

To compete with fintech startups, banks must provide more capable mobile applications that integrate traditional banking with other services such as financial planning, loans, insurance payment services and investment management. Matching or surpassing the services of fintech providers requires using cloud platforms like nCino, Temenos and Oracle Cloud Banking to cost-effectively serve large numbers of customers, as well as nimbly share customer and other data with business partners.

Banking and financial services companies are increasingly adopting such platforms, with the global finance cloud market expected to grow from $22 billion in 2019 to $80 billion by 2025, according to Mordor Intelligence.[1]

To ensure a swift, seamless move to cloud platforms, banks must bring the proper domain expertise to reengineer processes and workflows, integrate cloud and legacy systems, and adhere to regulatory compliance with performance testing and security. In this white paper, we describe the importance of each area and how to address them when migrating to a cloud-banking platform.

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Taking banking to the cloud

Whether for retail, wealth management or commercial clients, many banks are turning to cloud platforms.

For example, we helped a U.S. bank provide a simpler, smarter and more personalized experience for its online and mobile banking customers while speeding time-to-market and reducing maintenance costs. Leveraging our experience in automation, DevOps and service virtualization, we implemented the cloud-based Oracle Banking Platform and automated most testing processes. This new platform provides a single 360-degree view of online and mobile customers, serves 2.2 million customers and was implemented with an 80% reduction in functional testing.[2]

For a UK financial services firm, we developed a Salesforce-based solution transforming the firm's relationship with 500 independent brokers to provide a rich, seamless and intuitive broker experience with a 360-degree view of broker details to relationship managers.[3]

To gain the maximum benefit from such cloud platforms, banks must bring the proper skills to the following five areas.

Reengineering processes and workflows

Faulty or incomplete business process reengineering can reduce customer satisfaction and increase the likelihood of security breaches by failing to properly modify business systems and security practices to support new workflows. For example, when streamlining the loan disbursement process, experts for regulation, security and application management must be involved from the beginning to manage access for different users. This ensures protection such as data encryption in new cloud systems, predicts transaction loads, configures features such as auto-scaling and enables availability and performance.

As they examine reengineered processes and systems quality, engineers must look beyond formal requirements and use their business knowledge to identify every effect of the new processes on the IT infrastructure and on customer service channels such as mobile, web and contact centers. For example, when reengineering small business loan processing, they should question which other systems (such as underwriting, credit checking and regulatory compliance) and processes (such as loan approval) will change and how. They also need to understand the loan products and services offered by competitors so they can differentiate their offerings while ensuring high quality.

Integrating cloud and legacy systems

When moving legacy in-house applications to the cloud, banks must monitor and adapt the business logic within applications to ensure that the associated business processes integrate seamlessly and interact with third-party application programming interfaces (APIs) and meet changing regulatory requirements. When validating business processes executed using the new platform, they should evaluate the quality of the entire end-to-end user journey, taking into account not only transaction flows within the cloud platform but also dependencies among internal applications.

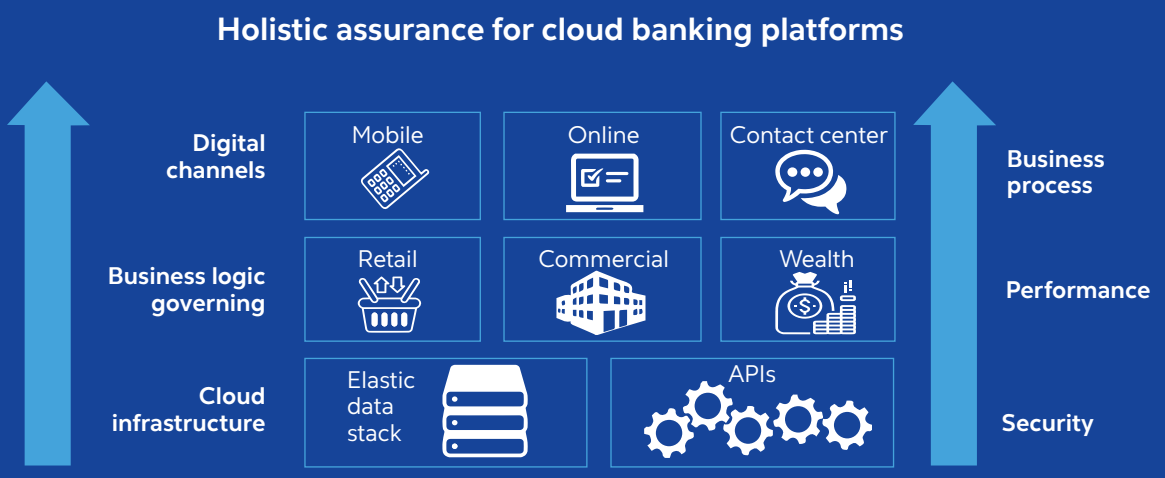
We helped a leading Singapore-based bank identify such dependencies, business process flows associated with their core systems, and the capabilities of their new cloud platform. To enable close coordination between the bank's business and technology teams, we trained these teams on the cloud platform and helped them quickly identify process and engineering gaps within the core banking modules. This helped speed project delivery by eight weeks.

Regulatory compliance

Adhering to regulatory requirements when moving from in-house data centers to cloud platforms or hybrid on-premise/cloud environments requires attention to new issues. These include the need to host data or employees in their home countries, to demonstrate the compliance of cloud and third-party service providers, and to ensure that such partners meet regulatory requirements such as notifying customers in case of a data breach.

Banks must also consider compliance when offering new products and services, such as third-party credit cards, loans or payment services tailored to each customer's needs. As banks share customer data with third parties, they must be careful to not damage customer trust or violate security or regulatory requirements by misusing, or appearing to misuse, that data or violating customer privacy. MasterCard, for example, came under fire in 2018 after it secretly provided Google with information about its customers' credit card transactions to help the search giant track which online ads led to brick-and-mortar purchases.[4]

An end-to-end approach to quality assurance for cloud platforms



Quality assurance for cloud platforms must provide continuous testing across all infrastructure components and products as well as address security, performance and business processes.

Figure 1

Performance and resiliency engineering

Many banks rely only on the cloud platform provider for performance and resiliency testing. Failing to perform continuous in-house testing on the entire application infrastructure can result in significant production issues and downtime because of issues with legacy systems or their interfaces with the cloud platform.

Automated and continuous testing of the end-to-end legacy and cloud platforms can speed data validation and other processes without slowing deployment cycles.[5] Automated and reusable test assets can more quickly and cost-effectively validate business process changes and ensure the performance and security of core applications as they are integrated with a cloud platform. Intelligent test assets that can self-heal and auto-remediate defects help ensure quality and reduce time-to-market. Banks must also automate the creation of large amounts of virtual data so that they can cost-effectively test such applications to support the automation ecosystem.

Quality engineers should work with operations teams to monitor live environments to identify defects not envisioned in the requirement/development stages. Using artificial intelligence (AI) bots, quality-engineering teams can assess how the bank and its customers interact via the cloud platform and flag issues automatically before the user experience is affected. For example, for a leading U.S. bank, we used custom AI bots to monitor the cloud-banking platform, identifying and continually learning how to automatically remediate performance issues such as load balance across servers during high-traffic periods rather than waiting for users to report the issue to a call center. This saves about 200 person-hours of effort annually in production-failure analysis.

QA experts should leverage their business knowledge to design end-to-end tests of actual business processes on the integrated legacy and cloud environment. They should also help plan and validate the QA approach and keep stakeholders in the business and development communities aware of their progress.

Security

Failure to ensure security in mixed cloud/legacy banking environments not only risks regulatory fines and adverse publicity but also a loss of customers, revenue and brand value. Among the new challenges when using cloud platforms are ensuring that data is protected by encryption (with the bank rather than the cloud provider holding the encryption keys), performing vulnerability scans in the hybrid environment, and integrating on-premise solutions for data management, identity and access management policies, and other security systems.

Another new risk is from APIs and other integration technologies used to link bank systems with business partners through cloud platforms. According to a 2020 report from Akamai Technologies, up to 75% of all credential-abuse attacks against the financial services industry targeted APIs.[6] Safeguarding the interfaces with, for example, strong authentication to limit access to APIs for authorized users and by using simplified API protocols such as representational state transfer (REST) makes it easier to secure them than more complex protocols such as simple object access protocol (SOAP).

DevSecOps processes, in which security is integrated with development and operations, help ensure that security is addressed even within rapid deployment schedules. With DevSecOps, highly automated quality checks are executed within development sprints, enabling continuous delivery and security from conception to production.

Getting the cloud right

Creating a digital bank-of-the-future experience requires rapid innovation, easier sharing of data and services with non-banking entities, and a rigorous approach to quality assurance across whatever infrastructure provides banking services to customers.[7]

Cloud-based banking platforms help meet those needs. However, if banks aim to quickly deliver compelling products that meet strict security and regulatory requirements, they must bring the proper skills and experience to engineering processes and workflows, integrating cloud and legacy systems, regulatory compliance, performance testing and security.

Quick Take

Bank grows customer base by boosting customer satisfaction

We helped a regional U.S. bank migrate to a commercial cloud platform to modernize its front- to back-office operations, including mission-critical applications such as treasury management and commercial and business banking. The new system provides business process continuity while enabling significant improvements in workflows and collaboration among business units.

We deployed an automated, DevOps-ready, quality-engineering framework to accelerate cloud-deployment validations and keep critical defects from going into production by providing faster feedback loops on code quality. We also created virtual services that allow testing of third-party services without the cost and effort of coordinating such testing with the third-party vendors.

Our banking quality engineers reengineered business processes by creating a custom-built test suite to validate compliance to banking regulations, enabling audit readiness with accurate reporting and documentation. We helped keep data secure by testing for vulnerabilities and security on the platform and reduced performance-related downtime by 90%. After the migration, we used validation and "self-healing" bots to reduce the time needed to resolve production issues.

The cloud platform helped the client to:

- Deliver new application releases monthly, compared to every nine months previously
- Increase its net promoter scores by 15% due to improved efficiency
- Grow its digital client base across channels by 17% year-over-year

Looking forward

As the global economy recovers from the effects of the pandemic, banks have realized the necessity for digital transformation. It is imperative for banks to implement a modern digital strategy, with quality at its core. As banks and financial institutions embark on this transformation journey, there will be an increased adoption of cloud-based banking platforms.

Banks will migrate their core process and applications to the cloud, thus enabling a digital core with reduced technical debt, agility and scalability. Additionally, cloud offers an added layer of protection against cyber threats, making it easier for banks to adhere to regulatory compliances and address security concerns. Cloud-based banking systems offer an advantage by effectively re-engineering business processes and workflows, reducing costs and boosting productivity. The move to a cloud-based platform will ensure enhanced customer experience, ease of use and transparency, and will necessitate a cloud assurance strategy propelled by innovation to keep pace with these rapid technology disruptions amid changing business models. This quality-focused strategy will enable a differentiated digital experience, carrying the brand forward into the next decade of financial services and beyond.

Endnotes

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Rajiv Joshi leads the Banking and Financial Digital Assurance for North America within Cognizant's Quality Engineering & Assurance practice. Rajiv has 20 years of experience in business and technology consulting, helping clients strategize and implement digital transformation. As an advisor, he has deep expertise in business management strengthened by intellectual curiosity and grounded in real-world technical experience, providing the foundation for next-generation ideas, development and implementation. He is a graduate from Government College of Technology, Coimbatore, and has a design thinking certification from MIT Sloan.

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Shantanu Chandra leads the regional banking portfolio for banking and financial services within Cognizant's Quality Engineering practice. Shantanu has over 15 years of experience in delivering business and digital technology solutions in the financial services sector. He is passionate about helping companies evolve their platforms and infrastructure by simplifying, modernizing and securing their digital enterprise. He has rich experience in defining the digital narrative encompassing in-depth knowledge in business, operations and technologies like AI/ML, IoT and the cloud. Shantanu holds a bachelor's degree in electrical engineering from Arizona State University and an MBA from Kenan-Flagler Business School, University of North Carolina at Chapel Hill.

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About Cognizant Banking and Financial Services

ognizant's Banking and Financial Services business unit which includes consumer lending, commercial finance, leasing insurance, cards, payments, banking, investment banking, wealth management and transaction processing, is the company's largest industry segment, serving leading financial institutions in North America, Europe, and Asia-Pacific. These include six out of the top 10 North American financial institutions and nine out of the top 10 European banks. The practice leverages its deep domain and consulting expertise to provide solutions across the entire financial services spectrum, and enables our clients to manage business transformation challenges, drive revenue and cost optimization, create new capabilities, mitigate risks, comply with regulations, capitalize on new business opportunities, and drive efficiency, effectiveness, innovation and virtualization. For more, please visit http://www.cognizant.com/banking-financial-services.

About Cognizant

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