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WHITEPAPER

Banking On DevOps to Speed Market Innovation

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INTRODUCTION

Software in the Banking Sector – Big Challenges, Big Opportunities

The banking industry faces a three-headed monster: ever-increasing regulation, the continuous threat of cyber-attacks and disruptive innovation from outside of the sector. Add to this the upheaval in demographics and generational changes in wealth distribution, and a picture emerges of an industry beset with immense challenges.

At the same time, the very nature of money has radically changed. It's become normal for consumers to never actually handle money. Direct deposits are made into employee accounts, purchases are made by credit and debit cards and B2B and B2C payments to suppliers are made online. Ordinary deposits are made via one's mobile phone, without even touching an ATM or walking into a bank. Investments and the accounts they are held in exist in the ether. International capital flows occur across data networks.

Strategies for dealing with regulations, cyber threats and technology innovation are defensive in nature. They're table stakes. With the exception of innovation driven by non-traditional challengers, these shifts in the industry are not growth strategies. The changes taking place require tremendous resources, but really don't add to the bottom line.

In reality, we are moving to an era where all companies in every industry are becoming software companies. This transition means there needs to be an accelerated focus on creating new applications quickly and efficiently. Enterprises in all industries now have the ability to innovate in record time. The old saying, "He who hesitates is lost," has never been more apt. Applications have to be developed, put into production and delivered to market in record time.

This tectonic shift offers tremendous market advantages for banks with agility in their software delivery processes; that is, those that can respond to rapid changes in the financial services market. Customer loyalty in the banking industry has transformed from being built solely by personal interactions, to being built by offering the most innovative, secure and high-quality digital interactions. Acceleration of new functionality and delivery of new applications is the key to maintaining competitive advantage.

The Customer Experience Revolution

Enhancing the customer experience is the sure path to growth. The digitization of money has blown the roof off of the brick and mortar branch model for banking. Building more and more branches has been replaced by a dynamic, multi-channel delivery model that is available 24x7. In 1994, Bill Gates commented that "banking is necessary but banks are not." It was an insightful comment that is becoming conventional wisdom today.

Therefore, customer loyalty is no longer a function of a good banking relationship, with a free toaster thrown in. Instead, an easy to use, always available multi-channel offering enhances the customer experience, leading to loyalty. And in banking, loyalty is a significant part of profitable growth.

Another important part of growth is allocation of more resources to streamline and enhance the customer experience. Banks do this by better servicing customers and continually creating new products and services. To meet the increasing expectations of customers, banks must accelerate the digitizing and ongoing enhancements of processes, services and products. The speed and quality of application development has become a competitive advantage. Engaging applications will enable banks to more effectively apply customer analytics, leading to even deeper customer knowledge and even more targeted products and services, which means more loyalty and more growth. The cycle thus continues.

More Applications, Faster, with Less Cost and Risk – the Role of DevOps

Innovative banks that delight customers and achieve robust growth require the continual delivery of new and improved applications. In the race to offer new and enhanced services, bank executives demand speed and innovation without sacrificing quality. Application development and operations teams are under great pressure to meet the demands of the business. Development and operations organizations are being tasked to build, test and release both new applications and incremental updates to existing applications in shorter cycles. Adopting DevOps practices has been a key enabler for companies that want to deliver a continual stream of new and improved applications.

DevOps practices promote a culture of collaboration that reduces application delivery time and improves quality through improved productivity and efficiency. DevOps practices emphasize methods for more effective communication and collaboration between development, operations, testing and quality assurance teams. However, integrating DevOps into an IT organization requires an organizational culture shift. Ironically, an increase in regulatory compliance mandates is supporting the acceleration of internal collaboration.

It has been common in banks for lines-of-business to have their own IT teams, resulting in a series of IT silos across the enterprise. The most recent US Federal Reserve Basel rules focused on capital requirement ratios that necessitate IT centralization. What do these new regulations have to do with accelerating application development? A lot. With a federal mandate for IT consolidation, the cultural barriers oftentimes difficult to overcome become easier to navigate in the shift to DevOps.

DevOps and Continuous Delivery

While DevOps centers around the collaborative effort required for rapid and frequent application development, testing and delivery, there is no single DevOps tool. In fact, DevOps is not about tooling, it is about culture. There are however a variety of tools commonly used across the entire development and delivery process by successful DevOps teams, including both proprietary and open source tools. DevOps teams are increasingly using continuous delivery as a process that enables development teams to continually deliver secure and tested code in a production-ready state at all times.

Automation can significantly accelerate software delivery and the transformation to a DevOps environment. In fact, as pressure from the business increases to deliver new and improved applications, a more pragmatic tools-based approach is required, in order to avoid:

- Higher costs of support and training inherent in the deployment of a variety of tools across IT teams
- Risks related to the overwhelming task of managing updates and patches to a myriad set of tools
- Barriers to collaboration resulting from use of disparate toolsets

Let's review: DevOps is an organizational set of practices that accelerates application delivery while ensuring more reliable releases. DevOps is achieved through a culture of collaboration and teamwork. Continuous delivery is the end-to-end process enabled by DevOps organizational practices. Finally, to achieve both continuous delivery and ultimately a DevOps culture, the right tools will expedite the transformation. We have lots of tools to support these goals, and that's part of the problem in transforming to a DevOps culture. If these toolsets are not rationalized, banking institutions face more cost, risk and barriers to achieving a DevOps culture.

Jenkins – The Open Source, Reliable Tool for Continuous Delivery

Jenkins is an open source automation server used by millions of IT personnel around the world to support continuous delivery processes. Jenkins enables development teams to continuously deliver secure and tested code in a production-ready state at all times. To accomplish continuous delivery, application delivery teams incorporate automation to deliver software more rapidly and with fewer errors.

Jenkins is already the de facto continuous delivery tool of choice. According to a ZeroTurnaround survey 70% of developers use Jenkins. Why? Jenkins is open source software, and is supported by a robust and active community. In addition, Jenkins has an extensible architecture, giving it the ability to work with virtually any tool and technology. Jenkins is ubiquitous around the globe and is being used by software delivery teams within numerous enterprises – including many global banks and financial institutions.

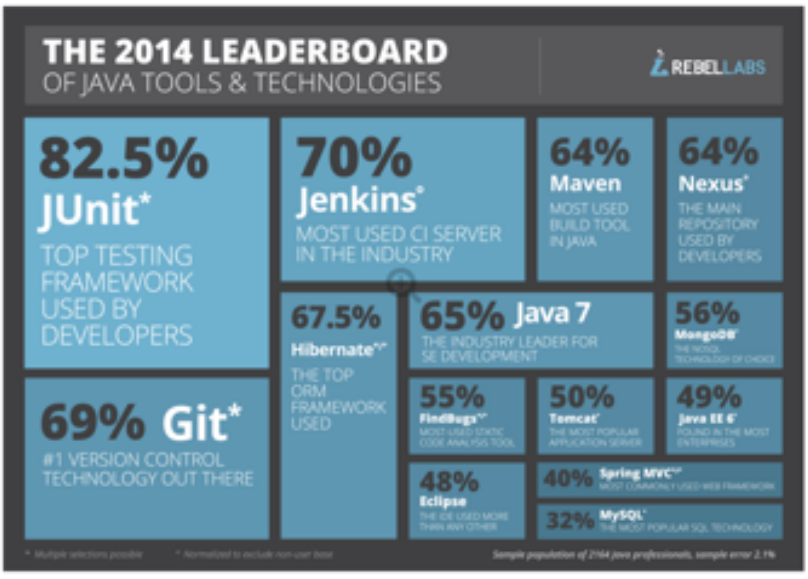

Figure 1: The Leaderboard of Java Tools and Technologies - from a survey conducted by ZeroTurnaround

Open Source and the Enterprise

The need to create a more agile application delivery process has led DevOps organizations to adopt open source software tools. Many of these open source tools have extensive and collaborative communities populated by highly skilled and creative developers. This constant stream of innovation has led to developers adopting open source tools in huge numbers. In addition to Jenkins, other important open source DevOps tools include tools such as Chef, Docker, GitHub and Puppet.

While open source software projects may have frequent updates and active communities, they often require developers to "go it alone." For example, if there is a security update, a developer needs to make sure the software is properly patched and tested. We are in an era of hyper-vigilance around data and application security and reliability, where a breakdown in a customer-facing application can lead to disaster, including the possibility of audit. If there is a critical error, it is difficult for IT leaders to explain to executives why a core tool used in the DevOps process is an open source tool.

Open source tools like Jenkins, used in highly regulated industries like financial services, need more functionality, predictability and support than can be achieved through an open source community. CloudBees provides an enterprise version of Jenkins. CloudBees Core delivers Jenkins for the enterprise with advanced enterprise features, guaranteed levels of availability, professional support and tested and verified updates.

Continuous Delivery and Banking

In the world of large enterprises, banks are unique. Their products are essentially exchanges of data; and much of this data is sensitive, regulated and highly proprietary. The stakes for banking executives are high, meaning that the stakes for application developers are just as high. Success in leveraging the benefits of continuous delivery depends upon several best practices.

These best practices include:

- **Ensure a strong, ongoing commitment to DevOps practices.** As banking IT organizational practices swing from centralized to decentralized and now back to centralization, executives and IT teams need to ensure that DevOps practices are built into the application lifecycle.

- **Extend meaningful collaboration to include line-of-business executives.** Banks should model themselves on the software industry. The mission-critical nature of banking applications, along with ongoing enhancements to them, requires developers to understand the business. By collaborating with banking executives, developers will gain a better understanding of requirements and executives will gain a better understanding of the software delivery process.

- **Use tools that are designed for enterprise use.** This means development and deployment tools need to have the scalability, predictability, manageability, high availability and support that businesses require.

Banking Trends

Just as developers should extend their sphere of collaboration to the line-of-business executives, they should also be aware of emerging banking trends – which will likely become application development priorities. As DevOps teams rise to the demands of delivering applications faster and faster, they should also be aware of what lies ahead. With awareness comes preparedness, and the possibility of providing input at the ideation stage – early in the software delivery process.

Top trends include:

Banking as a Platform

Think of this as Wall Street meets Silicon Valley. The integration and delivery of financial services is changing as new channels, products and partnerships are considered. Banking as a platform is really nothing more than partnerships between banks and FinTech firms. FinTech companies are bringing disruptive innovation to the financial services industry by offering technology-first services to customers. For example, Square provides a credit card processing platform to support small business; BillGuard provides a consumer platform to identify hidden fees; and Flint offers a mobile payment application that uses a phone camera to process payments. These companies are a real threat to traditional banks, in the way that Amazon was a threat to both publishers and bookstores. Some banks are starting to apply the lessons learned by bookstores – that is, combine the best in products and services with cutting-edge distribution. Banks that do not begin to quickly innovate and offer new services delivered via the web and mobile devices risk being left behind.

Improving the Customer Journey

Banks who don't have a strategy to retain digitally savvy customers – which will be almost everyone soon enough – risk losing customer relationships. One financial services company that we have worked with is a pioneer in applying UX (user experience) to their product development. The company has a massive UX lab and is constantly testing new deployments. The lesson for banks: when creating new products, think "digital first." That's where customers live. For example, Allianz Insurance, one of the largest general insurers in the UK, has established a "digital by default strategy" so that it can offer the same experience to its customers across all channels -- web, mobile and in-person. To unify the customer experience, the company's DevOps team has implemented a continuous integration and continuous delivery software strategy to ensure success.

Making Use of Big Data

Banks know a lot about their customers, but what do they do with this all data? While banks have been using advanced analytics for years, there is still a huge opportunity to leverage Big Data. Many organizations are unleashing their data and allowing business users and developers to do their own data analysis. In addition, the maturation of self-service analytics platforms and data visualization tools will allow banks to create deeper customer relationships and offer innovative products, perhaps even customized to the behavior of the specific bank customer.

Expansion of Multi-Channel Delivery

Customers expect financial services to be always available and seamlessly delivered as easily as transactions on Amazon or iTunes. Achieving the seamless delivery of services requires more than simply creating mobile applications. Banks will have to deliver solutions using the best channel, based upon customer preference, including innovations like embedded banking service delivery. For example, in the accounting space, specialty SaaS players like Xero and Quickbooks already integrate with a large number of banks, allowing businesses to perform most banking operations without leaving these environments.

The Way Forward

The phrase "May you live in interesting times" is incorrectly purported to be a translation of a Chinese curse. Most sources actually trace this to an error in translation by Joseph Chamberlain, a 19th century British statesman. However, the phrase and its mistaken provenence enjoys wide currency because it resonates.

These are truly interesting times the banking industry is living in. The threats and opportunities are real and immediate. These are also interesting times for those who develop and deliver applications for banks. Much rides on the ability to provide new applications and updates at an accelerated pace never experienced before; at the same time, new practices, methodologies and tools can be applied to meet the challenge.

As stated previously in this paper, *DevOps* is a movement which promotes a collaborative culture and practices for rapid and frequent application development; *continuous delivery* is a process which enables accelerated delivery of code and updates. With solutions such as CloudBees Core and Jenkins, we have tools that enable the DevOps culture and practice, as well as the continuous delivery process.

If we're going to live - and thrive - in interesting times, it's essential to have a reliable partner.

CloudBees Drives Enterprise DevOps and Continuous Delivery

CloudBees is the hub of DevOps, providing companies of all sizes with smarter automation solutions and actionable insights for accelerating software delivery. Our continuous delivery solutions offer DevOps teams the industry's broadest suite of DevOps products, from on-premise to cloud native, from self-managed to self-service, from guided best practices to flexible choice. By making the software delivery process more productive, manageable and hassle-free, CloudBees puts companies on the fastest path to transforming great ideas into great software and returning value to the business more quickly.

Learn More

Read the Allianz case study:
www.cloudbees.com/customers/case-study/allianz-insurance

Download the Forrester whitepaper:
Open Source is Essential for Modern Application Delivery
www.cloudbees.com/resource/whitepaper/open-source-essential-modern-application-delivery

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